Dr. NTR UNIVERSITY OF HEALTH SCIENCES
VIJAYAWADA, ANDHRA PRADESH
PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1. NAME OF THE CANDIDATE : Dr. Avina Arjampudi

2.ADDRESS : 1st year MDS student,
Conservative Dentistry and Endodontics,
KIMS Dental College and Hospital,
NH-216, Chaitanya Nagar,
Amalapuram,
Konaseema (District), Andhra Pradesh - 533201

3.NAME OF THE INSTITUTION : KIMS Dental College and Hospital
NH-216, Chaitanya Nagar,
Amalapuram,
Konaseema (District), Andhra Pradesh-533201.

4. COURSE OF STUDY AND SUBJECT: MDS in Conservative Dentistry and Endodontics

5.DATE OF ADMISSION INTO COURSE: 9/11/2021

6. TITLE OF THE DISSERTATION:

"Comparison Of Various Hemostatic Procedures On Sealing Ability Of MTA Plus, MTA Repair HP, Bio C Repair As Furcation Repair Materials: Scanning Electron Microscopic Study".

Being submitted by course in : Conservative Dentistry and Endodontics

Signature of the Candidate : Dr. Avina

Signature of Guide : Dr. K. Sreelekha

Signature of H.O. D :

Signature of Dean/Principal :

PRINCIPAL
KIMS DENTAL COLLEGE
& HOSPITAL
AMALAPURAM-E.G.Dt., A.P.

Dr NTR UNIVERSITY OF HEALTH SCIENCES
VIJAYAWADA, ANDHRA PRADESH.

KIMS DENTAL COLLEGE AND HOSPITAL
AMALAPURAM-533201 ANDHRA PRADESH

PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1.Name of the candidate & address	Dr. KANCHETI CHAMINI, 1ST YEAR POST GRADUATE, DEPARTMENT OF CONSERVATIVE DENTISTRY AND ENDODONTICS, KIMS DENTAL COLLEGE AND HOSPITAL, AMALAPURAM, EAST GODAVARI-533201, ANDHRA PRADESH.
2.Name of the institution & address	KIMS DENTAL COLLEGE AND HOSPITAL, AMALAPURAM, EAST GODAVARI-533201 ANDHRA PRADESH.
3.Course of study & subject	MASTER OF DENTAL SURGERY (MDS) IN CONSERVATIVE DENTISTRY AND ENDODONTICS
4.Date of admission to the college	18-07-2020
5.Title of the topic	Effect of different chemical and herbal disinfectant solutions on the surface topography and tensile strength of gutta-percha: An in vitro study

Dr. NTR UNIVERSITY OF HEALTH SCIENCES
VIJAYAWADA, ANDHRAPRADESH
PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1.NAME OF THE CANDIDATE	: Dr. Jahnavi Javvadi
2. ADDRESS	: PostGraduate student Conservative Dentistry and Endodontics, KIMS Dental College and Hospital, NH-216, Chaitanya Nagar, Amalapuram, East Godavari, Andhra Pradesh - 533201
3. NAME OF THE INSTITUTION	: KIMS Dental College and Hospital, NH-216, Chaitanya Nagar, Amalapuram, East Godavari, Andhra Pradesh-533201.

4. COURSE OF STUDY AND SUBJECT: MDS in Conservative Dentistry and Endodontics

5.DATE OF ADMISSION INTO COURSE: 18/07/2020

6. TITLE OF THE DISSERTATION :

"Time-dependent comparative evaluation of newer irrigating solutions as final wash on apical sealing ability and pushout bond strength of root canal obturation: An in-vitro study."

Being submitted by course in	: Conservative Dentistry and Endodontics
Signature of the Candidate	: Jahnavi. J
Signature of Guide	: K. Kishore Mohan
Signature of H.O. D	: Hari Kiran P. PROFESSOR & HOD DEPT. OF CONS & ENDODONTICS KIMS DENTAL COLLEGE AMALAPURAM-533 201
Signature of Dean/Principal	:

PRINCIPAL
KIMS DENTAL COLLEGE
& HOSPITAL
AMALAPURAM-E.G.Dt. A.P.

Dr. NTR UNIVERSITY OF HEALTH SCIENCES

VIJAYAWADA, ANDHRAPRADESH

PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1. NAME OF THE CANDIDATE	: Dr. Keerthi Sri.Thota
2.ADDRESS	: 1st year MDS student, Conservative Dentistry and Endodontics, KIMS Dental College and Hospital, NH-216, Chaitanya Nagar, Amalapuram, Konaseema (District), Andhra Pradesh - 533201
3.NAME OF THE INSTITUTION	: KIMS Dental College and Hospital NH-216, Chaitanya Nagar, Amalapuram, Konaseema (District), Andhra Pradesh-533201.

4. COURSE OF STUDY AND SUBJECT: MDS in Conservative Dentistry and Endodontics

5.DATE OF ADMISSION INTO COURSE: 9/11/2021

6. TITLE OF THE DISSERTATION :

"Comparative Evaluation of Different Sealer Penetration After Removal of Calcium Hydroxide Using Passive Ultrasonic Irrigation: -A Confocal Laser Scanning Microscopic Study."

Being submitted by course in	: Conservative Dentistry and Endodontics
Signature of the Candidate	: T-Keerthi
Signature of Guide	:
Signature of H.O. D	: PROFESSOR & HOD DEPT. OF CONS. & ENDODONTICS KIMS DENTAL COLLEGE AMALAPURAM-533 201
Signature of Dean/Principal	: PRINCIPAL KIMS DENTAL COLLEGE & HOSPITAL AMALAPURAM-E.G.Dt. A.P.

Dr. NTR UNIVERSITY OF HEALTH SCIENCES
VIJAYAWADA, ANDHRAPRADESH
PROFORMA FOR REGISTRATION OF SUBJECTFOR DISSERTATION

1.NAME OF THE CANDIDATE	: Dr. Macherla Kranthi Kumar
2.ADDRESS	: Post Graduate student Conservative Dentistry and Endodontics, KIMS Dental College and Hospital, NH-216, Chaitanya Nagar, Amalapuram, East Godavari, Andhra Pradesh - 533201
3.NAME OF THE INSTITUTION	: KIMSDental College and Hospital NH-216, Chaitanya Nagar, Amalapuram, East Godavari, Andhra Pradesh-533201.

4. COURSE OF STUDY AND SUBJECT: MDS in Conservative Dentistry and Endodontics

5.DATE OF ADMISSION INTO COURSE: 21/07/2020

6. TITLE OF THE DISSERTATION :

"Comparing the efficacy of two irrigation techniques on cleanliness of dentinal tubules during endodontic retreatment: An Invitro SEM study"

Being submitted by course in	: Conservative Dentistry and Endodontics
Signature of the Candidate	:
Signature of Guide	: Hari Kiran P.
Signature of H.O. D	: Hari Kiran P. PROFESSOR & HOD DEPT. OF CONS & ENDODONTICS KIMS DENTAL COLLEGE AMALAPURAM-533 201
Signature of Dean/Principal	: PRINCIPAL KIMS DENTAL COLLEGE & HOSPITAL AMALAPURAM-E.G.DL, A.P

Dr. NTR UNIVERSITY OF HEALTH SCIENCES
VIJAYAWADA, ANDHRA PRADESH
PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1. NAME OF THE CANDIDATE	: Dr.T. Prasanna Lakshmi Sudha
2.ADDRESS	: 1st year MDS student,
	Conservative Dentistry and Endodontics,
	KIMS Dental College and Hospital,
	NH-216, Chaitanya Nagar,
	Amalapuram,
	Konaseema (District), Andhra Pradesh - 533201
3.NAME OF THE INSTITUTION	: KIMS Dental College and Hospital
	NH-216, Chaitanya Nagar,
	Amalapuram,
	Konaseema (District), Andhra Pradesh-533201.

4. COURSE OF STUDY AND SUBJECT: MDS in Conservative Dentistry and Endodontics

5.DATE OF ADMISSION INTO COURSE: 29/10/2021

6. TITLE OF THE DISSERTATION:

"Comparative Evaluation of Shear Bond Strength and Fluoride Releasing Ability of Three Different Restorative Materials: An Invitro Study".

Being submitted by course in	: Conservative Dentistry and Endodontics
Signature of the Candidate	: T. Prasanna
Signature of Guide	:
Signature of H.O. D	:
Signature of Dean/Principal	:

PRINCIPAL
KIMS DENTAL COLLEGE
& HOSPITAL
AMALAPURAM-E.G.Dt., A.P

Dr. NTR UNIVERSITY OF HEALTH SCIENCES
VIJAYAWADA, ANDHRAPRADESH

PROFORMA FOR REGISTRATION OF SUBJECTFOR DISSERTATION

1. NAME OF THE CANDIDATE : Dr. Taliyakula Aditya sesha sai

2.ADDRESS : 1st Year MDS student
Orthodontics and Dentofacial orthopedics,
KIMS Dental College and Hospital,
NH-216, Chaitanya Nagar,
Amalapuram,
Konaseema (District), Andhra Pradesh - 533201

3.NAME OF THE INSTITUTION : KIMS Dental College and Hospital
NH-216, Chaitanya Nagar,
Amalapuram,
Konaseema(District) , Andhra Pradesh-533201.

4. COURSE OF STUDY AND SUBJECT: MDS in orthodontics and Dentofacial Orthopedics

5.DATE OF ADMISSION INTO COURSE: 9/11/2021

6. TITLE OF THE DISSERTATION :

"RELIABILITY OF NUMERIC MEASUREMENTS FOR SAGITTAL DISCREPANCIES AND ITS COMPARISON WITH NON- NUMERIC MEASUREMENTS"

Being submitted by course in : Orthodontics and Dentofacial Orthopedics

Signature of the Candidate : T. Adityasesha sai

Signature of Guide : Y. Sri Harsha Varma

Signature of H.O. D : Varma

Signature of Dean/Principal :

HEAD OF THE DEPARTMENT
ORTHODONTICS
KIMS DENTAL COLLEGE & HOSPITAL
AMALAPURAM - 533 201

Dr. NTR UNIVERSITY OF HEALTH SCIENCES

VIJAYAWADA, ANDHRAPRADESH

PROFORMA FOR REGISTRATION OF SUBJECTFOR DISSERTATION

1. NAME OF THE CANDIDATE : Dr. Taliyakula Aditya sesha sai

2.ADDRESS : 1st Year MDS student
Orthodontics and Dentofacial orthopedics,
KIMS Dental College and Hospital,
NH-216, Chaitanya Nagar,
Amalapuram,
Konaseema (District), Andhra Pradesh - 533201

3.NAME OF THE INSTITUTION : KIMS Dental College and Hospital
NH-216, Chaitanya Nagar,
Amalapuram,
Konaseema(District) , Andhra Pradesh-533201.

4. COURSE OF STUDY AND SUBJECT: MDS in orthodontics and Dentofacial Orthopedics

5.DATE OF ADMISSION INTO COURSE: 9/11/2021

6. TITLE OF THE DISSERTATION :

"RELIABILITY OF NUMERIC MEASUREMENTS FOR SAGITTAL DISCREPANCIES AND ITS COMPARISON WITH NON- NUMERIC MEASUREMENTS"

Being submitted by course in : Orthodontics and Dentofacial Orthopedics

Signature of the Candidate : T. Adityasaikrishna

Signature of Guide : V.Sri Harsha Varma

Signature of H.O. D :

Signature of Dean/Principal :

HEAD OF THE DEPARTMENT
ORTHODONTICS
KIMS DENTAL COLLEGE & HOSPITAL
AMALAPURAM - 533 201

Dr. NTR UNIVERSITY OF HEALTH SCIENCES

VIJAYAWADA, ANDHRAPRADESH

PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1. NAME OF THE CANDIDATE : Dr. Sali Dharmitha

2. ADDRESS : 1st year MDS student,
Orthodontics and Dentofacial Orthopedics,
KIMS Dental College and Hospital,
NH-216, Chaitanya Nagar,
Amalapuram,
Konaseema, Andhra Pradesh - 533201

3. NAME OF THE INSTITUTION : KIMSDental College and Hospital
NH-216, Chaitanya Nagar,
Amalapuram,
Konaseema, Andhra Pradesh -533201.

4. COURSE OF STUDY AND SUBJECT: MDS in Orthodontics and Dentofacial Orthopedics

5. DATE OF ADMISSION INTO COURSE: 29/10/2021

6. TITLE OF THE DISSERTATION:

"COMPARATIVE EVALUATION OF SHEAR BOND STRENGTHS OF 3 DIFFERENT UNIVERSAL BONDING ADHESIVES ON DIFFERENT SURFACES – AN IN VITRO STUDY"

Being submitted by course in : Orthodontics and Dentofacial Orthopedics

Signature of the Candidate : S.Dharmitha

Signature of Guide : Vasudev.

Signature of H.O. D : Vasudev.

HEAD OF THE DEPARTMENT
ORTHODONTICS
KIMS DENTAL COLLEGE & HOSPITAL
AMALAPURAM - 533 201

Signature of Dean/Principal :

Dr. NTR UNIVERSITY OF HEALTH SCIENCES

VIJAYAWADA, ANDHRAPRADESH

PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1. NAME OF THE CANDIDATE	: Dr. Sali Dharmitha
2. ADDRESS	: 1st year MDS student, Orthodontics and Dentofacial Orthopedics, KIMS Dental College and Hospital, NH-216, Chaitanya Nagar, Amalapuram, Konaseema, Andhra Pradesh - 533201
3. NAME OF THE INSTITUTION	: KIMSDental College and Hospital NH-216, Chaitanya Nagar, Amalapuram, Konaseema, Andhra Pradesh -533201.

4. COURSE OF STUDY AND SUBJECT: MDS in Orthodontics and Dentofacial Orthopedics

5. DATE OF ADMISSION INTO COURSE: 29/10/2021

6. TITLE OF THE DISSERTATION:

"COMPARATIVE EVALUATION OF SHEAR BOND STRENGTHS OF 3 DIFFERENT UNIVERSAL BONDING ADHESIVES ON DIFFERENT SURFACES – AN IN VITRO STUDY"

Being submitted by course in	: Orthodontics and Dentofacial Orthopedics
Signature of the Candidate	: S. Dharmitha
Signature of Guide	: Vasu
Signature of H.O. D	: Vasu HEAD OF THE DEPARTMENT ORTHODONTICS KIMS DENTAL COLLEGE & HOSPITAL AMALAPURAM - 533 201
Signature of Dean/Principal	:

Dr. NTR UNIVERSITY OF HEALTH SCIENCES
VIJAYAWADA, ANDHRAPRADESH
PROFORMA FOR REGISTRATION OF SUBJECTFOR DISSERTATION

1. NAME OF THE CANDIDATE	: Dr. Derangula Likhitha
2.ADDRESS	: 1st year MDS student Orthodontics & Dentofacial Orthopedics, KIMS Dental College and Hospital, NH-216, Chaitanya Nagar, Amalapuram, Konaseema, Andhra Pradesh - 533201
3.NAME OF THE INSTITUTION	: KIMS Dental College and Hospital NH-216, Chaitanya Nagar, Amalapuram, Konaseema, Andhra Pradesh-533201.

4. COURSE OF STUDY AND SUBJECT: MDS Orthodontics & Dentofacial Orthopedics

5.DATE OF ADMISSION INTO COURSE: 13/11/2021

6. TITLE OF THE DISSERTATION:

"ASSESSMENT OF PERIODONTAL BIOTYPE IN MAXILLARY AND MANDIBULAR ANTERIOR REGION OF INDIVIDUALS WITH DIFFERENT LEVELS OF CROWDING AND PROCLINATION - A GENDER BASED EVALUATION"

Being submitted by course in	: Orthodontics & Dentofacial Orthopedics
Signature of the Candidate	: Likhitha
Signature of Guide	: Vasudev.
Signature of H.O. D	: HEAD OF THE DEPARTMENT ORTHODONTICS KIMS DENTAL COLLEGE & HOSPITAL AMALAPURAM
Signature of Dean/Principal	:

Dr. NTR UNIVERSITY OF HEALTH SCIENCES
VIJAYAWADA, ANDHRAPRADESH
PROFORMA FOR REGISTRATION OF SUBJECTFOR DISSERTATION

1. NAME OF THE CANDIDATE	: Dr. Derangula Likhitha
2.ADDRESS	: 1st year MDS student Orthodontics & Dentofacial Orthopedics, KIMS Dental College and Hospital, NH-216, Chaitanya Nagar, Amalapuram, Konaseema, Andhra Pradesh - 533201
3.NAME OF THE INSTITUTION	: KIMS Dental College and Hospital NH-216, Chaitanya Nagar, Amalapuram, Konaseema, Andhra Pradesh-533201.

4. COURSE OF STUDY AND SUBJECT: MDS Orthodontics & Dentofacial Orthopedics

5.DATE OF ADMISSION INTO COURSE: 13/11/2021

6. TITLE OF THE DISSERTATION:

"ASSESSMENT OF PERIODONTAL BIOTYPE IN MAXILLARY AND MANDIBULAR ANTERIOR REGION OF INDIVIDUALS WITH DIFFERENT LEVELS OF CROWDING AND PROCLINATION - A GENDER BASED EVALUATION"

Being submitted by course in	: Orthodontics & Dentofacial Orthopedics
Signature of the Candidate	: Likhitha
Signature of Guide	: Vasudev.
Signature of H.O. D	: HEAD OF THE DEPARTMENT ORTHODONTICS KIMS DENTAL COLLEGE & HOSPITAL AMALAPURAM
Signature of Dean/Principal	:

Dr. NTR UNIVERSITY OF HEALTH SCIENCES

VIJAYAWADA, ANDHRAPRADESH

PROFOMA FOR REGISTRATION OF SUBJECTS FOR DISSERTATION

1. NAME OF THE CANDIDATE : Dr.Mudunuri Navya

2. ADDRESS : Post Graduate student in Orthodontics and Dentofacial Orthopaedics
KIMS Dental College
NH-216, Chaitanya Nagar,
Amalapuram,
East Godavari, Andhra Pradesh - 533201

3. NAME OF THE INSTITUTION : KIMS Dental College
NH-216, Chaitanya Nagar,
Amalapuram,
East Godavari, Andhra Pradesh-533201.

4. COURSE OF STUDY AND SUBJECT: MDS in Orthodontics And Dentofacial Orthopaedics

5. DATE OF ADMISSION INTO COURSE: 16/07/2020

6. TITLE OF THE DI SSERTATION :

"ESTIMATION OF THE PREVALENCE AND GENDER WISE DISTRIBUTION OF MALOCCLUSION AMONG 13-15 YEAR OLD ADOLESCENTS IN KONASEEMA REGION, ANDHRA PRADESH"

Signature of the Candidate : M. Navya

Signature of Guide : Vasudeva

Signature of H.O.D : Vasudeva

HEAD OF THE DEPARTMENT
ORTHODONTICS
KIMS DENTAL COLLEGE & HOSPITAL
AMALAPURAM - 533 201

Signature of Dean/Principal:

PRINCIPAL
KIMS DENTAL COLLEGE
& HOSPITAL
AMALAPURAM. E.G.Dt.(A.P.)

Dr. NTR UNIVERSITY OF HEALTH SCIENCES
VIJAYAWADA, ANDHRAPRADESH
PROFOMA FOR REGISTRATION OF SUBJECTS FOR DISSERTATION

1. NAME OF THE CANDIDATE : Dr.Mudunuri Navya

2. ADDRESS : Post Graduate student in Orthodontics and Dentofacial Orthopaedics
KIMS Dental College
NH-216, Chaitanya Nagar,
Amalapuram,
East Godavari, Andhra Pradesh - 533201

3. NAME OF THE INSTITUTION : KIMS Dental College
NH-216, Chaitanya Nagar,
Amalapuram,
East Godavari, Andhra Pradesh-533201.

4. COURSE OF STUDY AND SUBJECT: MDS in Orthodontics And Dentofacial Orthopaedics

5. DATE OF ADMISSION INTO COURSE: 16/07/2020

6. TITLE OF THE DI SSERTATION :

"ESTIMATION OF THE PREVALENCE AND GENDER WISE DISTRIBUTION OF MALOCCLUSION AMONG 13-15 YEAR OLD ADOLESCENTS IN KONASEEMA REGION, ANDHRA PRADESH"

Signature of the Candidate : M. Navya

Signature of Guide : Vasudeva

Signature of H.O.D : Vasudeva

HEAD OF THE DEPARTMENT
ORTHODONTICS
KIMS DENTAL COLLEGE & HOSPITAL
AMALAPURAM - 533 201

Signature of Dean/Principal:

PRINCIPAL
KIMS DENTAL COLLEGE
& HOSPITAL
AMALAPURAM, E.G.Dt.(A.P.)

Dr. NTR UNIVERSITY OF HEALTH SCIENCES
VIJAYAWADA, ANDHRAPRADESH
PROFOMA FOR REGISTRATION OF SUBJECTS FOR DISSERTATION

1. NAME OF THE CANDIDATE : Dr. Vallameti Pallavi

2. ADDRESS : Post Graduate Student In Orthodontics and Dentofacial Orthopaedics
KIMS Dental College
NH-216, Chaitanya Nagar,
Amalapuram,
East Godavari, Andhra Pradesh - 533201

3. NAME OF THE INSTITUTION : KIMS Dental College
Nh-216, Chaitanya Nagar,
Amalapuram,
East Godavari, Andhra Pradesh-533201.

4. COURSE OF STUDY AND SUBJECT: MDS in Orthodontics and Dentofacial Orthopaedics

5. DATE OF ADMISSION INTO COURSE: 30/07/2020

6. TITLE OF THE DISSERTATION :

"EVALUATION OF TOOTH SIZE DISCREPANCY USING BOLTON'S ANALYSIS IN KONASEEMA REGION OF ANDHRA PRADESH"

Signature of the Candidate : V. Pallavi

Signature of Guide :

Signature of H.O.D : HEAD OF THE DEPARTMENT ORTHODONTICS KIMS DENTAL COLLEGE & HOSPITAL AMALAPURAM - 533 201

Signature of Dean/Principal: PRINCIPAL KIMS DENTAL COLLEGE & HOSPITAL AMALAPURAM, E.G.Dt.(A.P.)

Dr. NTR UNIVERSITY OF HEALTH SCIENCES
VIJAYAWADA, ANDHRAPRADESH
PROFOMA FOR REGISTRATION OF SUBJECTS FOR DISSERTATION

1. NAME OF THE CANDIDATE	: Dr. Vallameti Pallavi
2. ADDRESS	: Post Graduate Student In Orthodontics and Dentofacial Orthopaedics KIMS Dental College NH-216, Chaitanya Nagar, Amalapuram, East Godavari, Andhra Pradesh - 533201
3. NAME OF THE INSTITUTION	: KIMS Dental College Nh-216, Chaitanya Nagar, Amalapuram, East Godavari, Andhra Pradesh-533201.
4. COURSE OF STUDY AND SUBJECT:	MDS in Orthodontics and Dentofacial Orthopaedics
5. DATE OF ADMISSION INTO COURSE:	30/07/2020
6. TITLE OF THE DISSERTATION	:

"EVALUATION OF TOOTH SIZE DISCREPANCY USING BOLTON'S ANALYSIS IN KONASEEMA REGION OF ANDHRA PRADESH"

Signature of the Candidate : V. Pallavi

Signature of Guide :

Signature of H.O.D : HEAD OF THE DEPARTMENT ORTHODONTICS KIMS DENTAL COLLEGE & HOSPITAL AMALAPURAM - 533 201

Signature of Dean/Principal: PRINCIPAL KIMS DENTAL COLLEGE & HOSPITAL AMALAPURAM, E.G.Dt.(A.P.)

Dr. NTR UNIVERSITY OF HEALTH SCIENCES
VIJAYAWADA, ANDHRAPRADESH
PROFOMA FOR REGISTRATION OF SUBJECTS
FOR DISSERTATION

1.NAME OF THE CANDIDATE	: Dr. Rudragoni Sai Kiran Gowd
2.ADDRESS	: Post Graduate Student in Department of Orthodontics and Dentofacial Orthopaedics, KIMS Dental College NH-216, Chaitanaya Nagar, Amalapuram, East Godavari, Andhra Pradesh-533201.
3.NAME OF THE INSTITUTION	: KIMS Dental College NH-216, Chaitanaya Nagar, Amalapuram, East Godavari, Andhra Pradesh-533201.
4. COURSE OF STUDY AND SUBJECT	: MDS in Orthodontics and Dentofacial Orthopaedics,
5.DATE OF ADMISSION INTO COURSE	: 09/07/2020
6. TITLE OF DISSERTATION	: **"Comparative evaluation of bio mechanical properties of different loop designs fabricated using titanium-based alloys – an FEM study"**
Being submitted by course	: Orthodontics and Dentofacial Orthopaedics
Signature of the Candidate	: R. Sai Kiran Gowd
Signature of Guide	: Vardan
Signature of H.O.D	: Vardan
Signature of Dean Principal	Vardan

PRINCIPAL
KIMS DENTAL COLLEGE
& HOSPITAL
AMALAPURAM, E.G.DIST.A.P.

Dr. NTR UNIVERSITY OF HEALTH SCIENCES

VIJAYAWADA, ANDHRAPRADESH

PROFORMA FOR REGISTRATION OF SUBJECTS FOR DISSERTATION

1. NAME OF THE CANDIDATE : Dr. Mohammed Sana

2. ADDRESS : Post Graduate Student In Prosthodontics, Crown & Bridge and Implantology
KIMS Dental College
NH-216, Chaitanya Nagar,
Amalapuram,
East Godavari, Andhra Pradesh - 533201

3. NAME OF THE INSTITUTION : KIMS Dental College
Nh-216, Chaitanya Nagar,
Amalapuram,
East Godavari, Andhra Pradesh-533201.

4. COURSE OF STUDY AND SUBJECT: MDS in Prosthodontics, Crown & Bridge and Implantology

5. DATE OF ADMISSION INTO COURSE: 16/07/2020

6. TITLE OF THE DESSERTATION :

"EFFECT OF AUTOGLAZING, REGLAZING AND CHAIR SIDE POLISHING ON COLOR, SURFACE ROUGHNESS AND STRENGTH OF COMMERCIALLY AVAILABLE FOUR DIFFERENT FELDSPATHIC PORCELAIN MATERIALS: AN INVITRO STUDY."

Signature of the Candidate: Md. Sana.

Signature of Guide :

PROFESSOR & H.O.D.
DEPARTMENT OF PROSTHODONTIA
KIMS DENTAL COLLEGE & HOSPITAL
AMALAPURAM - 533 201, E.G.Dt., A.P.

Signature of H.O.D :

Signature of Dean/Principal:

PRINCIPAL
KIMS DENTAL COLLEGE
& HOSPITAL
AMALAPURAM, E.G.Dt.(A.P.)

KIMS DENTAL COLLEGE, AMALAPURAM

From

Dr. Mohammed Sana,

Post Graduate Student in Department of Prosthodontics, Crown & Bridge and Implantology,

KIMS Dental College,

Amalapuram.

To

The Chairman,

Institutional Ethics Committee (IEC),

KIMS Dental College,

Amalapuram.

Sub: Review of the Clinical trial/ Material protocol no 011/KIMS/DENTAL/2020 Dated 30/12/2020

Project title: "**EFFECT OF AUTOGLAZING, REGLAZING AND CHAIR SIDE POLISHING ON COLOR, SURFACE ROUGHNESS AND STRENGTH OF COMMERCIALLY AVAILABLE FOUR DIFFERENT FELDSPATHIC PORCELAIN MATERIALS: AN INVITRO STUDY.**"

Place of study	: Department of Prosthodontics, Crown & Bridge and Implantology, KIMS Dental College, Amalapuram
Principal investigator's name	: Dr. Mohammed Sana
Affiliation	: Dr. NTRUHS-Vijayawada
E-mail	: Sanamohammed3333.sm @gmail.com
Duration of the study	: 2020-2023
Sponsors (if any)	: NIL

Approval from any other ethics regulatory committee (required) – NIL

Sir,

I hereby submit the above -mentioned study for the favor of review and approval. I shall follow the protocol guidelines and approved protocol in conducting my research

Md. Sana.

Signature of the

Principal investigator

PROFESSOR & H.O.D.
DEPARTMENT OF PROSTHODONTIA
KIMS DENTAL COLLEGE & HOSPITAL
AMALAPURAM-533 201. E.G.Dt.

Prof. and HOD

Enclosures:

1. Synopsis of project containing introduction with aim and objectives, review of literature, justification of the study. Methodology describing the potential risks and benefits, statistical analysis [and weather it is a national significance (if any) with rationale
2. Informed consent form
3. Case record form
4. Study flow chart
5. Sponsor details (if any)- Nil
6. Investigator's brochure -Nil
7. Investigator's undertaking
8. Regulatory permission letter

FOR IEC OFFICE USE

Proposal: Approved/Not Approved Date: 30/12/2020

Member	Member secretary	Chairman
MEMBER IEC KIMS Dental College & Hospital Amalapuram, (A.P.)	MEMBER SECRETARY IEC KIMS Dental College & Hospital Amalapuram, (A.P.)	CHAIRMAN IEC KIMS Dental College & Hospital Amalapuram, (A.P.)
IEC-KIMS Dental College and Hospital	IEC-KIMS Dental College and Hospital	IEC-KIMS Dental College and Hospital

Investigator's undertaking

I Certify that the information p r o v i d e d by me is complete and correct.

I understand that as principal investigator, I will take full responsibility for the protection of rights and welfare of all trial subjects including the conduct of study and ethical performance of the project.

I agree to comply will all rules and regulations of IEC and KIMS Dental College & Hospital, Amalapuram of the conduct of trail. I hereby declare.

- Qualified personnel according to IEC will conduct the study.
- No change will be made in the protocol or consent form until approved by the IEC.
- Legally effectiveI n f o r m e d consent will be taken from Human subjects if applicable.
- Adverse events will be reported to IEC as per ICH GCP/DCGI adverse event reporting policy.

I further certify that the proposed research is not currently being conducted and will not begin until IEC approval has been obtained.

Investigators	Signature	Date
Principal Investigator	Md. Squa	29/12/2020.
Co-Invigilator-1		29/12/2020
Co-Invigilator-2		

CERTIFICATE OF DECLARATION

I, Dr. MOHAMMED SANA, Postgraduate student in the Department of Prosthodontics, Crown & Bridge and Implantology, KIMS Dental College and Hospital, Amalapuram, East Godavari District, Andhra Pradesh have taken up "**EFFECT OF AUTOGLAZING, REGLAZING AND CHAIR SIDE POLISHING ON COLOR, SURFACE ROUGHNESS AND STRENGTH OF COMMERCIALLY AVAILABLE FOUR DIFFERENT FELDSPATHIC PORCELAIN MATERIALS: AN INVITRO STUDY"** for Dissertation and submitted the title for registration to Dr. N.T.R University of Health Sciences, Vijayawada.

Md. Sana.

Dr. MOHAMMED SANA

SIGNATURE OF CANDIDATE

The consent form should be a separate document from the patient information sheet and should be headed paper.

Centre Number :

Study Number :

Patient Identification Number for this trail:

CONSENT FORM FOR RESEARCH STUDY

Title of Project: "EFFECT OF AUTOGLAZING, REGLAZING AND CHAIR SIDE POLISHING ON COLOR, SURFACE ROUGHNESS AND STRENGTH OF COMMERCIALLY AVAILABLE FOUR DIFFERENT FELDSPATHIC PORCELAIN MATERIALS: AN INVITRO STUDY."

Name of Researcher: Dr. MOHAMMED SANA

	Please tick to confirm
I confirm that I have read and understand the information sheet dated..... (Version.....) for the above study.	☐
I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily	☐
I understand that my participation is voluntary and that I am free to withdrawn at any time, without giving any reason, without my medical / dental care or legal rights being affected.	☐
I understand that relevant sections of any of my medical / dental notes and data collected during the study, may be looked at by responsible individuals from (company name), from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.	☐
I agree to my GP being informed of my participation in the study.	☐
I agree to take part in the above research study.	☐

_____	_____	_____
Name of the Patient	Date	Signature
_____	_____	_____
Name of Person taking consent (If different from researcher)	Date	Signature
_____	_____	_____
Researcher	Date	Signature

When complete, 1 copy for patient, 1 copy for researcher s bite file:1(original) to be kept in medical/dental notes.

DISSERTATION SYNOPSIS

KIMS DENTAL COLLEGE & HOSPITAL, AMALAPURAM

ANDHRA PRADESH

Dr. MOHAMMED SANA

1ST YEAR POSTGRADUATE

DEPARTMENT OF PROSTHODONTICS, CROWN & BRIDGE AND IMPLANTOLOGY

GUIDE

Dr. SUMEET SHARMA

PROFESSOR AND HEAD

DEPARTMENT OF PROSTHODONTICS, CROWN & BRIDGE AND IMPLANTOLOGY

DR. NTR UNIVERSITY OF HEALTH SCIENCES, VIJAYAWADA

ANDHRA PRADESH

KIMS DENTAL COLLEGE, AMALAPURAM

PROFORMA FOR REGISTRATION OF SUBJECTS FOR DISSERTATION

1.	**NAME OF THE CANDIDATE (IN BLOCK LETTERS)**	Dr. MOHAMMED SANA
2.	**NAME OF THE INSTITUTION**	KIMS Dental College and Hospital, Amalapuram
3.	**COURSE OF THE STUDY AND THE SUBJECT**	MASTER OF DENTAL SURGERY (M.D.S.) Prosthodontics, Crown & Bridge and Implantology
4.	**DATE OF ADMISSION TO THE COURSE**	07-09-2020
5.	**TITLE OF TOPIC**	EFFECT OF AUTOGLAZING, REGLAZING AND CHAIR SIDE POLISHING ON COLOR, SURFACE ROUGHNESS AND STRENGTH OF COMMERCIALLY AVAILABLE FOUR DIFFERENT FELDSPATHIC PORCELAIN MATERIALS: AN INVITRO STUDY.

INTRODUCTION:

6. **BRIEF RESUME OF INTENDED WORK**

6.1 NEED FOR THE STUDY

Dental porcelain is used extensively in a variety of dental restorations because of its desirable esthetic properties.[1] In the laboratory, dental porcelain is fired, and a glazed restoration results, with a surface texture and appearance resembling that of a natural tooth surface. Clinically, the dental practitioner often needs to adjust by grinding the glazed surface of the ceramic restoration before cementation. This may be necessary for occlusal adjustment, correction of inadequate contours, or improvement of esthetics.[2] The adjustment of the ceramic restoration produces a roughened surface, which may cause an increased rate of plaque accumulation, thus producing gingival inflammation and adverse soft tissue reaction, or may cause excessive wear of the opposing dentition. [4]

Glazing or polishing after the adjustment procedures is necessary to improve the flexural strength and appearance of the restoration.[1] Colour of porcelain restorations may be effected by various optical phenomena like scattering, transmission, reflection, refraction and absorption of porcelain material and tooth .In addition, surface roughness may also alter Colour of porcelain material. Since porcelain crowns are most commonly used materials for making prosthesis, even a little imperfection in crowns would lead to lot of changes in prosthesis. So color of different brands of feldspathic porcelain materials tested with spectrophotometer and results compared.[4]

Since porcelains are commonly used materials for posterior crowns, glazing has a greater role in strength of prosthesis. So strength of different brands of feldspathic porcelain materials tested with three point bend test.[5]

Since surface irregularities on surface of porcelain can cause plaque accumulation, so surface roughness tested four different brands of feldspathic porcelains and results compared. [7]

6.2 REVIEW OF LITERATURE

Sumit Sethi, Dilip Kakade, Shantanu Jambhekar, Vinay Jain, 2013: Carried out a study to compare surface roughness of auto glazed, reglazed and chair side polished surfaces of Ivoclar and vita feldspathic porcelain. This study includes preparation of 20 samples from each ceramic with a mold of brass metal fabricated in the shape of shade guide tab. Specimens fabricated by mixing powder and water and these specimens are autoglazed and checked for surface roughness and SEM studies. Remaining 20 samples

subjected to reglazing and chair side polishing and evaluated for surface roughness and SEM studies. It was concluded that polished surfaces could be better than glazed surfaces.

Duygu Sarac, A Y.Sinasi Sarac, Emir Yuzbasioglu and Sedabal, 2006: The effects of porcelain polishing systems on the color and surface texture of feldspathic porcelain. The evaluation of the polishing techniques showed that the use of an adjustment kit alone or preceding polishing paste or polishing stick application created surfaces as smooth as glazed specimens. The use of polishing paste alone did not improve the smoothness of the porcelain surface.

Michael D.wright, Radi masri, Carl F.driscoll, Elaine, Geoffrey, Thompson, Runyan, 2004: carried out comparision of three systems for polishing of an ultra- low fusing dental porcelain. This study reported that mechanical polishing of ultra- low fusing porcelain can produce smoother surfaces than auto glazing. The axis polishing kit produced best surface finish when compared to jelenko and brasseler polishing kits.

D.C.Jagger, A.harrison, 1994: An in vitro investigation into wear effects of unglazed, glazed and polished porcelain on human enamel. This study carried out the differences in wear of human enamel caused by variation in surface finish of porcelain. Rate of enamel wear by glazed and unglazed porcelain was similar. Polished porcelain produced substantially less wear and suggests that porcelain should be polished instead of reglazed after chair side adjustment.

S. N. White, 1993: Mechanical fatigue of a feldspathic dental porcelain. The purpose of this study was to investigate the effect of cyclic mechanical loading on small crack growth in a feldspathic dental porcelain. Crack lengths increased with the number of applied cycles, and as no changes in indentation dimension were found, the changes in crack length can be attributed to a fatigue phenomenon. The cracks studied were artificially induced by indentation, rather than naturally occurring defects due to processing, adjustment by a technician or dentist, or occlusal trauma.

Schlissel, Newitter, Renner, Gwinnett, 1980: An evaluation of postadjustment polishing techniques for porcelain denture teeth. Eleven methods of adjusting and polishing porcelain denture teeth were evaluated. They were compared to surface of unaltered porcelain denture tooth. Three methods produced polished and finished surfaces under visual examination.

7. **AIMS AND OBJECTIVES OF THE STUDY :-**

AIM OF THE STUDY

An in vitro investigation to evaluate and compare Colour change, strength and surface roughness of auto-glazing, reglazing and chair side polishing of commercially available four different types of feldspathic porcelains.

OBJECTIVE OF THE STUDY

The purpose of this study was to compare the Colour change, surface roughness and strength of self-glazed surface, a chair side polished surface and a reglazed surface of four different brands of feldspathic porcelains using spectrophotometer, surface Profilometer and 3 point bend test respectively.

MATERIALS AND METHODS:

Materials used:
4 different types of feldspathic porcelains
Stainless steel die of rectangular shape
Porcelain furnace
Ceramic Polishing kits
Surface Profilometer
Spectrophotometer
3-Point bend test apparatus

7.1SOURCE:

All testing materials and testing machines will be collected from the open market through proper channel. Testing to be carried out at laboratory.

7.2 METHOD OF COLLECTION OF DATA:

1. A total of 240 samples are made with four different brands of feldspathic porcelains (60 samples each)
2. Sample size of 10mm×5mm×20mm made in a rectangular block made of stainless steel die of dimensions 11mm×6mm×21mm.
3. Each specimen is fabricated by weighing the porcelain powder and mixing with adequate amount of distilled water over the glass slab with metal blade instrument. It is then loaded into the die in increments.
4. Tray with samples is then placed in the porcelain furnace and fired according to the manufacturer's recommendations. The specimens were allowed to cool and then finished with a medium-grit diamond points all over to remove any irregularities. The specimens were then soaked in distilled water for 5 min. Then they were placed in the

furnace to obtain an auto-glazed surface.

5. Out of 60 samples from different types of feldspathic porcelains,20 samples each(total 80 samples) are autoglazed and tested at this stage for the Colour, surface roughness and strength to act as control group.
6. 20 samples each from different types of feldspathic porcelains are now reglazed (total 80samples)

   A medium-grit sintered diamond point of Shofu company attached to a straight hand piece of Micromotor, was used to remove the glaze. This grinding was done at a constant speed and with constant amount of strokes given by the same operator.
7. These samples are now subjected to reglazing with add on glaze following manufacturer's recommended procedure and temperature.
8. 20 samples each from different types of feldspathic porcelains are now polished chair-side (total 80 samples)
9. Out of 20 samples from different types of feldspathic porcelain,10 samples are subjected to polishing with Shofu polishing system and 10 samples polished with Chinese polishing kit.
10. All samples are checked with Colour, surface roughness and strength in a sequential manner.

7.3 Does the study require any investigation or intervention to be conducted on patients or other human or animal?

- NO -

7.4 Has the ethical clearance been obtained from your institution?

-

8. LIST OF REFERENCES:

1. Sumit Sethi,Dilip Kakade,Shantanu Jambhekar, Vinay Jain-An in vitro investigation to compare the surface roughness of autoglazed, reglazed and chair side polished surfaces of Ivoclar and Vita feldspathic porcelain-Journal of Indian prosthodontic society 2012.
2. Michael D. Wright-Comparison of three systems for the polishing of an ultra-low fusing dental porcelain-JPD-Volume 92, issue 5, page num 485-490.
3. S. N. White-Mechanical fatigue of a feldspathic dental porcelain-Dent Mater 9:260-264, July, 1993
4. Duygu, Y.Sinasi Sarac, Emir Yuzbasioglu and Sedabal-The effects of porcelain polishing systems on the color and surface texture of feldspathic porcelain-The

	journal of prosthetic dentistry-volume 96 number 2-page number:122-127 5. Jang Kim, Yong lee, Bum soon and Cheol Kim-Effect of surface topography on color of dental porcelain-Journal of materials science-Volume 14, 2003-Page num: 205-209. 6. Bruce, Edmond and Robert-Relative color stability of ceramic stains subjected to glazing temperatures-JPD-July 1991 volume-66 number-1, Page num: 20-23. 7. Haroon rashid-The effect of surface roughness on ceramics used in dentistry: A review of literature-European Journal of Dentistry, Volume 8 / Issue 4 / Oct-Dec 2014,page num:571-579. 8. Wright MD etal.Comparision of three systems for the polishing f an ultra-low fusing dental porcelain-journal of prosthetic dentistry-92:486-490. 9. Ahed Al-Wahadni, D.muir martin- Glazing and Finishing Dental Porcelain 10. Schlissel ER, Newitter DA, Renner RR, Gwinnett AJ-An evaluation of postadjustment polishing techniques for porcelain denture teeth-Journal of prosthetic dentistry-43:258-265

9.	**SIGNATURE OF THE CANDIDATE**	Md. Sana DR.MOHAMMED SANA
10.	**REMARKS OF THE GUIDE**	
11.	**NAME AND DESIGNATION OF :** **11.1 GUIDE** **11.2 SIGNATURE** **11.3 CO- GUIDE** **11.4 SIGNATURE**	DR.SUMEET SHARMA (PROFESSOR AND HEAD) PROFESSOR & H.O.D. DEPARTMENT OF PROSTHODONTIA KIMS DENTAL COLLEGE & HOSPITAL AMALAPURAM - 533 201, E.G.DIST.

	11.5 HEAD OF THE DEPARTMENT **11.6 SIGNATURE**	DR. SUMEET SHARMA (PROFESSOR & HEAD) PROFESSOR & H.O.D. DEPARTMENT OF PROSTHODONTIA KIMS DENTAL COLLEGE & HOSPITAL AMALAPURAM - 533 201, E.G.Dt., A.P.
12.	**12.1 REMARKS OF THE CHAIRMAN AND PRINCIPAL** **12.2 SIGNATURE**	PRINCIPAL KIMS DENTAL COLLEGE & HOSPITAL AMALAPURAM, E.G.Dt.(A.P.)

THE SAMPLE SIZE AND MATERIALS USED CAN BE EXTENDED AS PER THE DEMAND OF THE STUDY.

From

Dr. Mohammed Sana,

1st year PG Student,

Department of Prosthodontics, Crown& Bridge and Implantology

KIMS Dental College and Hospital,

Amalapuram.

To

Chairman

Institutional Ethics Committee

KIMS Dental College and Hospital

Sir,

I am here with submitting the thesis protocol and plan of the thesis for your kind review and approval. I shall follow the good clinical practice guidelines and approved protocol in conducting my research.

Name & Signature of the Guide: Dr.SUMEET SHARMA

PROFESSOR & H.O.D.
DEPARTMENT OF PROSTHODONTIA
KIMS DENTAL COLLEGE & HOSPITAL
AMALAPURAM - 533 201, E.G.Dt., A.P.

Project Title:

"EFFECT OF AUTOGLAZING, REGLAZING AND CHAIR SIDE POLISHING ON COLOR, SURFACE ROUGHNESS AND STRENGTH OF COMMERCIALLY AVAILABLE FOUR DIFFERENT FELDSPATHIC PORCELAIN MATERIALS: AN INVITRO STUDY"

Principal Investigator: Dr. MOHAMMED SANA

Duration of study: 2020-2023

Sponsors (if any): NIL

REGISTRATION OF DISSERTATION

Name of the Student	: Dr. MOHAMMED SANA
PG Course & Subject	: MDS; Prosthodontics, Crown & Bridge and Implantology
Name of the Dental College	: KIMS Dental College and Hospital

Title of the topic: **"EFFECT OF AUTOGLAZING, REGLAZING AND CHAIR SIDE POLISHING ON COLOR, SURFACE ROUGHNESS AND STRENGTH OF COMMERCIALLY AVAILABLE FOUR DIFFERENT FELDSPATHIC PORCELAIN MATERIALS: AN INVITRO STUDY"**

Name of the Guide	: Dr. SUMEET SHARMA
Date of joining the course	: 16-07-2020
Date of Commencement of the course	: 07-09-2020
Date of Presentation/ Submission:	24/12/2020 29/12/2020

From,

Dr. Sumeet sharma,

Professor and Head,

Department of Prosthodontics, Crown& Bridge and

Implantology,

KIMS Dental College,

Amalapuram.

To,

The Registrar,

DR.N.T.R.U.H.S,

Vijayawada.

"Through Proper Channel"

Sir,

Sub: Thesis dissertation of Dr. Mohammed Sana, 1st year

Post graduate student in MDS Prosthodontics, Crown &

Bridge and Implantology (2020-2023) KIMS dental

college, Protocol Submission.

I am here with forwarding the protocol of the thesis of Dr. Mohammed Sana, MDS Prosthodontics, Crown& Bridge and Implantology, admitted in the course for the year 2020-2023.

TITLE OF THE TOPIC: **" EFFECT OF AUTOGLAZING, REGLAZING AND CHAIR SIDE POLISHING ON COLOR, SURFACE ROUGHNESS AND STRENGTH OF COMMERCIALLY AVAILABLE FOUR DIFFERENT FELDSPATHIC PORCELAIN MATERIALS: AN INVITRO STUDY"**

DURATION OF THE STUDY:

Proposed to complete the study in a period between 2020-2023

It is proposed that of Dr. Mohammed Sana, 1st year post graduate student in MDS Prosthodontics, Crown& Bridge and Implantology (2020-2023), will carry out this work under my guidance.

I request you to kindly accept the above proposal.

Thanking you sir,

Yours Sincerely,

Dr. Sumeet sharma,

Professor and Head

Prosthodontics, Crown& Bridge

and Implantology

PROFESSOR & H.O.D.
DEPARTMENT OF PROSTHODONTIA
KIMS DENTAL COLLEGE & HOSPITAL
AMALAPURAM - 533 201, E.G.Dt., A.P.

Amalapuram,

Date: 29/12/2020

PRINCIPAL
KIMS DENTAL COLLEGE
& HOSPITAL
AMALAPURAM, E.G.DIST.

From,

Dr.Sumeet Sharma,

Professor and Head,

Department of Prosthodontics, Crown& Bridge and

Implantology,

KIMS Dental College,

Amalapuram.

To,

The Principal,

KIMS Dental College,

Amalapuram.

Sub: Allotment of thesis topic to the post graduate student

in MDS Prosthodontics, Crown& Bridge and Implantology

This is to inform that the following topic is allotted to the 1st year Post Graduate student in MDS Prosthodontics, Crown &Bridge and Implantology towards the partial fulfilment for awarding degree.

"EFFECT OF AUTOGLAZING, REGLAZING AND CHAIR SIDE POLISHING ON COLOR, SURFACE ROUGHNESS AND STRENGTH OF COMMERCIALLY AVAILABLE FOUR DIFFERENT FELDSPATHIC PORCELAIN MATERIALS: AN INVITRO STUDY"

Dr. Mohammed Sana is the 1st year Post Graduate student in MDS Prosthodontics, Crown & Bridge and Implantology (2020-2023). She has to submit the protocol of the dissertation to the ethical committee of the college for their approval and for onward transmission to the Dr.N.T.R.University of Health Sciences for acceptance.

I will guide the post graduate student in conducting the research project.

Thanking you sir,

Yours Sincerely,

PROFESSOR & H.O.D.
DEPARTMENT OF PROSTHODONTIA
KIMS DENTAL COLLEGE & HOSPITAL
AMALAPURAM 533 201, E.G.Dt., A.P.

Dr. Sumeet sharma

Professor and Head

Department of Prosthodontics, Crown & Bridge and Implantology

Amalapuram,

Date: 29/12/2020

PRINCIPAL
KIMS DENTAL COLLEGE
& HOSPITAL
AMALAPURAM, E.G.Dt.(A.P.)

From

Dr. Mohammed Sana

Post graduate In Department of Prosthodontics, Crown & Bridge and Implantology

KIMS Dental College,

Amalapuram.

To

The Principal,

KIMS Dental College,

Amalapuram.

//Through Proper Channel//

Respected Sir,

Sub: - Post Graduate Dental education- Dr. Mohammed Sana, 1st year post graduate in MDS Prosthodontics, Crown & Bridge and Implantology (2020-2023), KIMS Dental College, Submission of dissertation protocol.

I, Dr. Mohammed Sana, joined as post graduate in MDS Prosthodontics, Crown & Bridge and Implantology on 16/07/2020 in KIMS Dental College.

I am working under the guidance of Dr.Sumeet sharma, Professor and Head, Prosthodontics, Crown & Bridge and Implantology KIMS Dental College, Amalapuram.

I was allotted the dissertation on **"EFFECT OF AUTOGLAZING, REGLAZING AND CHAIR SIDE POLISHING ON COLOR, SURFACE ROUGHNESS AND STRENGTH OF COMMERCIALLY AVAILABLE FOUR DIFFERENT FELDSPATHIC PORCELAIN MATERIALS: AN INVITRO STUDY"**

I am here with submitting the protocol and plan of thesis for your kind personal and necessary action.

Thanking you sir,

Yours sincerely

Md. Sana.

Dr. Mohammed Sana

Post Graduate student

Department of Prosthodontics,

Crown & Bridge and

Implantology

Amalapuram,

Date: 29/12/2020

PRINCIPAL
KIMS DENTAL COLLEGE
& HOSPITAL
AMALAPURAM, E.G.Dt.(A.P.)

From

Dr. Mohammed Sana,

Post Graduate Student,

Department of Prosthodontics, Crown & Bridge and

Implantology,

KIMS Dental College,

Amalapuram.

To,

The Chairman,

Institutional Ethics committee,

KIMS Dental College,

Amalapuram.

Respected sir,

I am here with submitting the protocol and plan of the thesis for your kind review and comments. I shall follow good clinical practice guidelines and approved protocol in conducting my research

PROJECT TITLE:-

"EFFECT OF AUTOGLAZING, REGLAZING AND CHAIR SIDE POLISHING ON COLOR, SURFACE ROUGHNESS AND STRENGTH OF COMMERCIALLY AVAILABLE FOUR DIFFERENT FELDSPATHIC PORCELAIN MATERIALS: AN INVITRO STUDY

DEPARTMENT :
Prosthodontics, Crown & Bridge and Implantology

INVESTIGATOR : Dr. Mohammed Sana

E-MAIL : Sanamohammed3333.sm@gmail.com

DURATION OF COURSE: 2020-2023

GUIDE : Dr.Sumeet sharma, MDS, Prosthodontics, Crown & Bridge and Implantology

SPONSORS : NIL

Md. Sana.
Sign of the investigator:

Sign of the Guide:
PROFESSOR & H.O.D.
DEPARTMENT OF PROSTHODONTIA
KIMS DENTAL COLLEGE & HOSPITAL
AMALAPURAM - 533 201, E.G.Dt., A.P.

Amalapuram

Date: 29/12/2020

From,

Dr. Mohammed Sana,

Post Graduate Student,

Department of Prosthodontics, Crown & Bridge and

Implantology,KIMS Dental College,

Amalapuram.

To,

The Registrar,

DR.N.T.R.U.H.S,

Vijayawada.

//Through Proper Channel//

Sir,

Sub :- submission of dissertation protocol to the Dr. NTRUHS, for registration and allotment of number –reg.,

I, Dr. Mohammed Sana, Post graduate student in Department of Prosthodontics, Crown & Bridge and Implantology (2020-2023),I am here with submitting the dissertation protocol for registration.

TITLE OF TOPIC:"**EFFECT OF AUTOGLAZING, REGLAZING AND CHAIR SIDE POLISHING ON COLOR, SURFACE ROUGHNESS AND STRENGTH OF COMMERCIALLY AVAILABLE FOUR DIFFERENT FELDSPATHIC PORCELAIN MATERIALS: AN INVITRO STUDY"**

Kindly register the topic and allot me a registration number.

Thanking you sir,

Md. Sana

Yours Sincerely,

Dr. Mohammed Sana

Postgraduate student

Department of Prosthodontics, Crown& Bridge and Implantology

PRINCIPAL
KIMS DENTAL COLLEGE
& HOSPITAL
AMALAPURAM, E.G.Dt.(A.P.)

Amalapuram
Date : 29/12/2020

KEY ARTICLE

J Indian Prosthodont Soc (Oct-Dec 2013) 13(4):478–485
DOI 10.1007/s13191-012-0223-9

ORIGINAL ARTICLE

An in vitro investigation to compare the surface roughness of auto glazed, reglazed and chair side polished surfaces of Ivoclar and Vita feldspathic porcelain

Sumit Sethi · Dilip Kakade · Shantanu Jambhekar · Vinay Jain

Received: 23 June 2012 / Accepted: 28 November 2012 / Published online: 14 December 2012

Abstract The change in surface roughness after different surface finishing techniques has attracted the attention of several prosthodontists regarding wear of opposing teeth or restorative material and the strength; plaque retention and appearance of the restoration. However, there is considerable controversy concerning the best methods to achieve the smoothest and strongest porcelain restorations after chair side clinical adjustments. The purpose of this in vitro study was to compare the average surface roughness of a self-glazed surface, a chair side polished surface and a reglazed surface of ceramic. Two feldspathic porcelain, namely VITA VMK94 (Vita Zahnfabrik, Bad Sachingen, Germany) and IVOCLAR CLASSIC (Vivadent AG, FL-9494 Schaan, Liechtenstein) were selected to fabricate 20 specimens of each in the shape of shade guide tabs. A medium-grit diamond rotary cutting instrument was used to remove the glaze layer, and then the surface of half the specimens were re-glazed and the other half were polished using a well-defined sequence of polishing comprising of: Shofu porcelain polishing system, White gloss disc/polishing wheel, Silicone cone with diamond polishing paste and finally with small buff wheel with pumice slurry. The surface roughness (Ra) (μm) of the specimens was evaluated using a profilometer and scanning electron microscope. The data were statistically analyzed by using Student's *t* test. The results had shown that there is no statistically significant difference both quantitatively and qualitatively, between the surface roughness of reglazed and chair-side polished surface. In addition, both reglazed and chair-side polished surfaces are better than the autoglazed surface. Within all the groups, there is no significant difference between companies. Polishing an adjusted porcelain surface with the suggested sequence of polishing will lead to a finish similar to a re-glazed surface. Therefore chair-side polishing can be a good alternative to reglazing for finishing adjusted porcelain surface.

Keywords Auto-glazed · Re-glazed · Chair-side polished · Surface profilometer · Scanning electron microscope

Introduction

Dental porcelain has been used extensively as a restorative material in a variety of dental restorations, including all-ceramic restorations like inlays, onlays, veneers, metal-ceramic crowns, all ceramic crowns and fixed partial dentures, because of its esthetic properties, durability, and biocompatibility.

Surface modifications are essential for correcting occlusal interferences and faulty contours, finishing the margins of ceramic restorations, and improving the esthetic appearance and surface smoothness of porcelain restorations. It is a common clinical practice to adjust the glazed surface of porcelain restorations before cementation by grinding [1]. These Adjustment procedures break the glaze layer which creates a rougher surface[2] which promotes plaque formation and maturation, thus producing gingival inflammation and adverse soft tissue reactions [3, 4]. It may also increase

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S. Jambhekar
MA Rangoonwala Dental College and Hospital, Pune, India

Present Address:
V. Jain
College of Dentistry, University of Tennessee Health Science Center, Memphis, TN 38163, USA

the wear of the opposing dentition or restorative material [5–7]. Therefore, glazing or polishing after the adjustment procedures is necessary to improve the flexural strength [8] and appearance of the restoration [9]. Literature reports of various techniques for finishing and polishing a porcelain restoration to achieve optimum smoothness of the glazed porcelain. Reglazing has been documented to adversely change the porcelain structure (for example devitrification) and is time consuming [10]. Polished ceramic restorations, when compared to the glazed restorations, may also have the advantage of reducing the wear of the opposing dentition. Several studies reported different polishing techniques of ceramic restorations and supported the use of polishing as an alternative to glazing. However, data evaluating different ceramic materials and surface finishing techniques, e.g. self-glazing, overglazing and polishing to achieve the smoothest and strongest porcelain restorations after chair side clinical adjustments is limited.

The purpose of this study was to compare the average surface roughness both quantitatively and qualitatively of a self-glazed surface, a chair side polished surface and a reglazed surface of ceramic of two manufacturers, i.e. Vita and Ivoclar.

Materials and Methods

Two feldspathic porcelains, namely VITA VMK94 (Germany, Bad Sackingen) and IVOCLAR CLASSIC (Vivadent AG, FL-9494 Schaan, Liechtenstein) were selected. Enamel powder of A2 shade of both the manufacturers was used to fabricate 20 specimens of each. A *mold of brass metal* was fabricated in the shape of shade guide tabs. This mold is a duplicate of the mold provided by the VITA Company to prepare ceramic shade tabs. It consists of two metal plates in rectangular shape. (Fig. 1) Upper metal plate has the mold in the shape of shade tab at one end with the following dimensions:

Length—10 mm
Width—4 mm
Height—decreasing gradually from 4 to 2 mm at the open end

This upper plate is attached at one end of lower plate which allows it to slide on either side.

Materials and Armamentarium for Sample Fabrication (Figs. 2, 3)

Each specimen was fabricated by weighing the porcelain powder (205.1 mg) and mixing with adequate amount of distilled water over the glass slab with metal blade instrument. Tissue paper was utilized to remove excess water by placing it at one end of the mass. The mixed mass was not allowed to dry completely while absorption of excess water. It was then loaded into the mould in increments. To condense the powder, the mold was given gentle vibrations with the serrated handle of the instrument. Tissue paper was again used to absorb excess water before adding the next increment. After complete condensation of the powder in the mold, the upper plate was slid over from the lower plate (Fig. 4) and the condensed mass was gently tapped to be released from the mould to fall over a sagger tray.

For each type of ceramic, 20 specimens were fabricated for each type of ceramic and placed over the tray. The tray

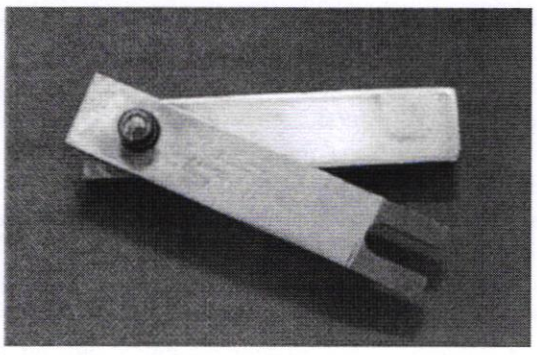

Fig. 1 Mold of brass metal

Fig. 2 Porcelain Adjustment kit

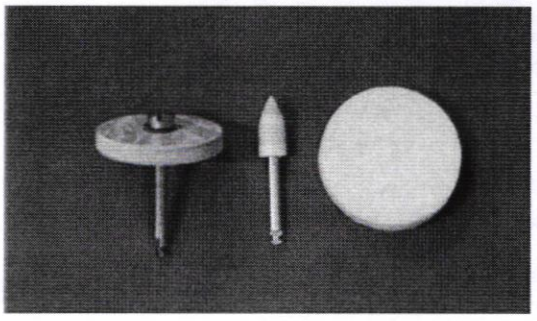

Fig. 3 Polishing disc, cone and buff

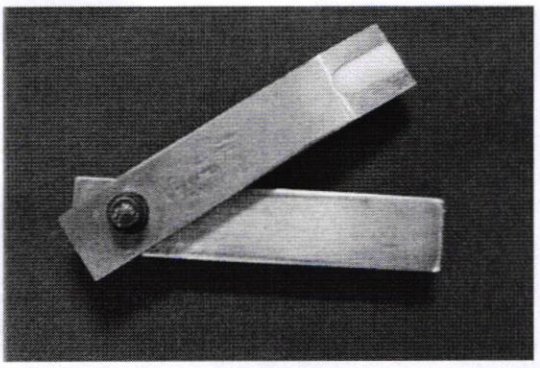

Fig. 4 Upper plate was slid over from the lower plate

was then placed in the porcelain furnace and fired according to the manufacturer's recommendations. The specimens were allowed to cool and then finished with a medium-grit diamond points all over to remove any irregularities. The specimens were then soaked in distilled water for 5 min. Then they were placed in the furnace to obtain an autoglazed surface. All these specimens were tested at this stage for the surface roughness to act as control group.

The 20 specimens from each type of ceramic (Fig. 5) were randomly divided into two groups. One group was for reglazing and the other was for chair side polishing system. On one side of each specimen (that is the flat side), a medium-grit sintered diamond point of Shofu company attached to a straight hand piece of micromotor, was used to remove the glaze. This grinding was done at a constant speed and with constant amount of strokes given by the same operator. 20 such specimens, 10 from each type of ceramic were then subjected to reglazing with add on glaze following manufacturer's recommended procedure and temperature.

The remaining 20 specimens were subjected to chairside polishing with well defined sequence of a polishing system. The same investigator performed the polishing uniformly with micromotor handpiece by giving constant amount of strokes at a constant speed. The other side of the specimens, which were autoglazed, was used as a control group and 20 specimens were randomly selected for this.

For chair-side polishing of the specimens a well-defined sequence of the polishing system was utilized as follows:

1. Shofu Porcelain polishing system (Shofu Dental Corp., Menlo Park, California) consisting of Dura-white stones for contouring, standard Ceramiste points for smoothing surfaces and preparing them for polishing, Ultra Ceramiste points for polishing, and final polishing using the Ultra II Ceramiste points.
2. White gloss disc/polishing wheel.
3. Silicone cone was used with diamond polishing paste
4. Small buff wheel was used with pumice slurry.

The specimens were then cleaned with the steam, dried with a blast of air, and stored in a dust-free container at room temperature.

The surface roughness was evaluated using a surface profilometer (Perthometer- Mahr GmbH, Germany–Mahr Federal Inc. USA.). A diamond stylus (25 μm tip radius) was used under a constant measuring force of 25 mN. (Fig. 6) The instrument was calibrated using a standard reference specimen and then set to travel at a speed of 0.8 mm/s with a traversing length of 1.75 mm during testing. The surface analyzer was used to determine a roughness profile of each specimen. The roughness profile of the autoglazed, reglazed and chairside polished surface was obtained for each of the 3 passes per specimen. A mean surface roughness profile (Ra) was determined for each side of each specimen to describe the overall roughness of the surface. These values were tabulated to compare autoglazed, reglazed and chair side polished surfaces. The larger the value more is the surface roughness.

On completion of profilometric evaluation, the specimens from each group were prepared for SEM. Specimens

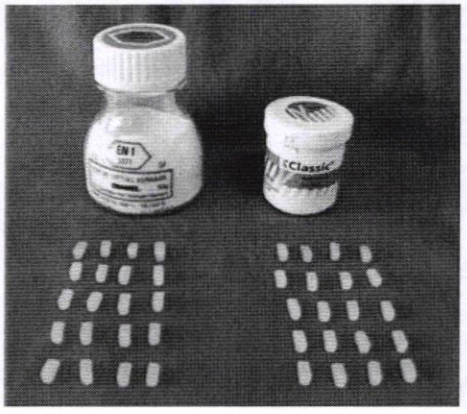

Fig. 5 Specimens from each type of ceramic

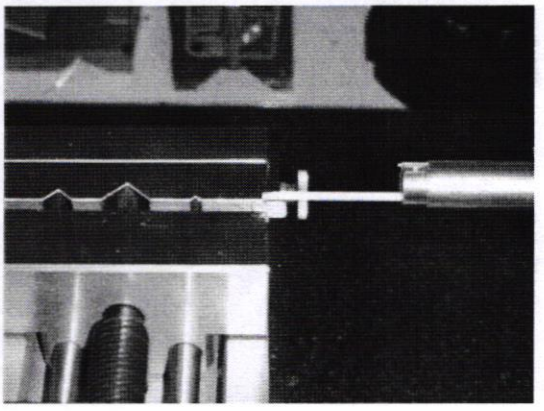

Fig. 6 Diamond stylus running over the specimen

were palladium sputtered with a fine coater machine and a scanning electron microscope (SEM) (Joel Ltd 1-2 Musashino 3-chome, Akishima, Tokyo 196-8558, Japan) was utilized to qualitatively evaluate the surface of all the specimens with different treatment. Only four specimens can be mounted on the mounting plate at a time. (Fig. 7) Both sides of each specimen were visualized at original magnification 200×. (Figs. 8, 9, 10, 11, 12, 13) Two investigators performed all procedures; the first prepared the specimens and the second was blind to the treatment and performed the data analysis.

The observations were subjected to statistical analysis. Mean and standard deviation were calculated and Student's 't' test was used to quantitatively analyze surface roughness data for significant differences between autoglazed, reglazed and chair-side polished porcelain surfaces of two different manufacturers. It is a standard practice to make pair-wise comparisons of the groups using an appropriate adjustment for multiple comparisons.

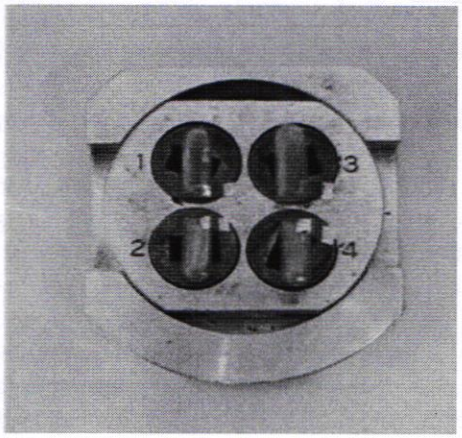

Fig. 7 Four specimens mounted on the mounting plate

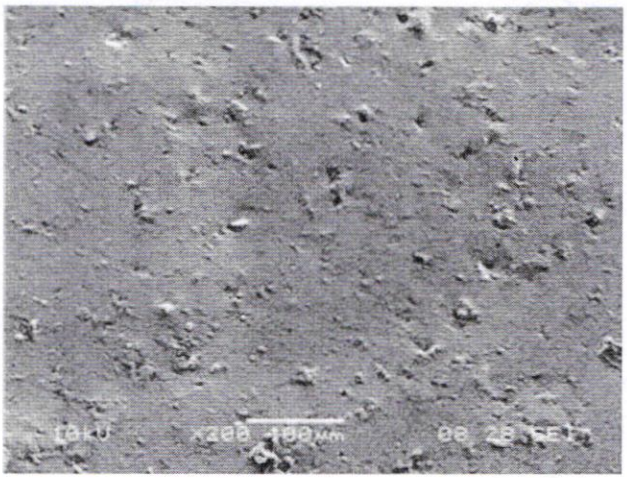

Fig. 8 SEM Photo of Autoglazed (Ivoclar)

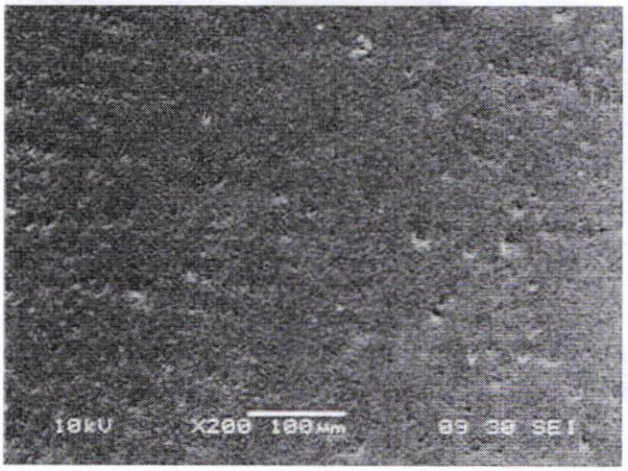

Fig. 9 SEM Photo of Re-glazed (Ivoclar)

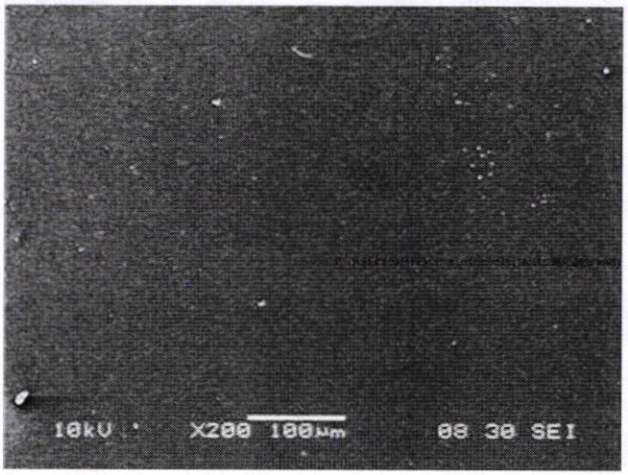

Fig. 10 SEM Photo of Chair-side polished (Ivoclar)

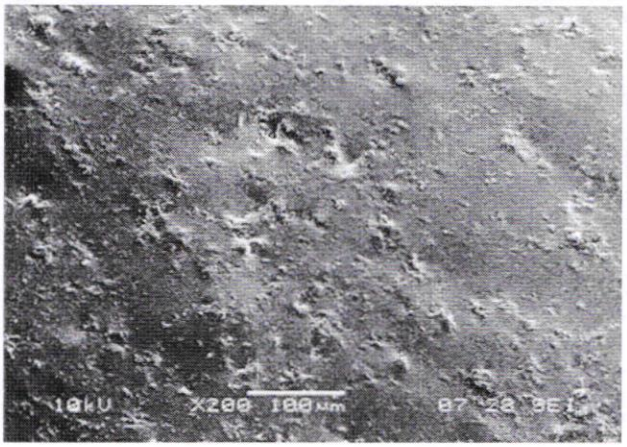

Fig. 11 SEM Photo of Autoglazed (Vita)

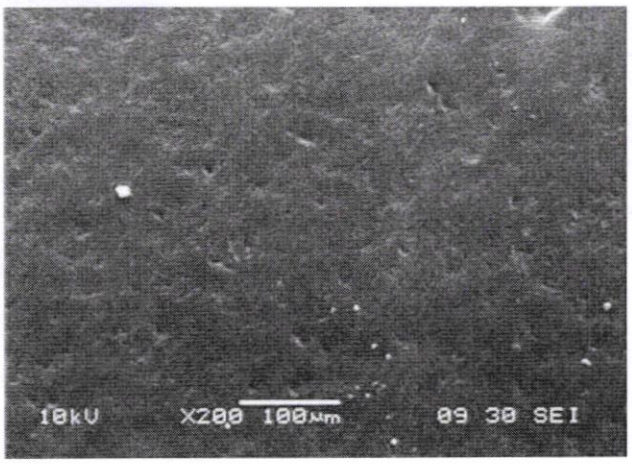

Fig. 12 SEM Photo of Re-glazed (Vita)

Fig. 13 SEM Photo of Chair-side polished (Vita)

These findings were further confirmed by qualitative analysis of the data given by SEM photographs.

Results

First the average surface roughness values were collected from the individual tracings for each of the three different groups of specimens of two different manufacturers. Then the means of surface roughness values of three different groups with their respective SD were calculated and compared (Tables 1, 2).

For both the porcelain materials, there was no statistically significant difference between the surface roughness of reglazed and chair-side polished surface. Both reglazed and chair-side polished surfaces are better than the auto-glazed surface.

The SEM photomicrogaphs of three different groups of specimens of two different manufacturers were evaluated according to the aforementioned criteria based on a scale 1–3 (Table 3):

1 rating means—Good finish
2 rating means—Very good finish
3 rating means—Excellent finish

A qualitative analysis was done by using Mann Whitney test and p values were again obtained and they also showed the similar results.

Discussion

Ceramic materials intrinsically have multiple flaws because of the inhomogeneous distribution of crystals in a glassy matrix. Additional defects induced during ceramic processing reduce the strength and increase the wear of enamel of opposing tooth. Sealing these with glazing or polishing may improve the strength and reduce the abrasiveness of dental ceramics [11].

Earlier researchers have advocated that adjusted porcelain should be reglazed only. It has been a common practice to reglaze the adjusted porcelain surface prior to cementation. However various disadvantages have been reported with reglazing like Devitrification, marginal distortion, reduced fracture toughness which is affected with the thickness of glaze, wearing of reglazed layer in short period of time and lastly an extra appointment to the patient.

The documentation of comparative evaluation of various methods to obtain a smoothest porcelain surface is limited. Some authors found the initial smoothness of a glazed surface to be superior to the polished surface [12–14], some found no significant difference between the glazed and polished surfaces [9, 15] and others concluded that surface polishing could equal or surpass the smoothness accomplished with surface glazing. [6, 16, 17] Studies that are more recent suggest that a polished surface is smoother and foster less plaque accumulation than a glazed surface [3, 18]. Esthetics results also may be improved by polishing rather than by glazing [10]. Therefore no comprehensive conclusion could be drawn from various studies, regarding which is a better method for finishing, reglazing or chair-side polishing.

In spite of advances in ceramic materials, the traditional feldspathic ceramics are still widely used [19] because of the fact that they give good esthetic results, which is achieved with the natural stratification and the artisan work of the dental ceramist. Therefore, in this study feldspathic porcelain was used for making the specimens, to check the efficacy of chairside polishing in reducing surface roughness.

Table 1 Shows the average surface roughness values collected from the individual tracings for each of the three different groups of specimens of two different manufacturers

Surface profilometry (Quantitative test showing Ra values for surface roughness)						
S. no.	Vita (Ra values in μm)			Ivoclar (Ra values in μm)		
	Auto glazed (Control group)	Study groups		Auto glazed (Control group)	Study groups	
		Re-glazed	Chair side polished		Re-glazed	Chair side polished
1	0.15	0.12	0.12	0.15	0.12	0.12
2	0.14	0.1	0.12	0.15	0.13	0.13
3	0.15	0.11	0.11	0.15	0.12	0.12
4	0.14	0.12	0.12	0.14	0.11	0.12
5	0.14	0.11	0.11	0.15	0.12	0.12
6	0.15	0.12	0.12	0.15	0.13	0.13
7	0.14	0.12	0.12	0.14	0.1	0.12
8	0.14	0.11	0.11	0.14	0.12	0.12
9	0.14	0.13	0.13	0.15	0.12	0.12
10	0.15	0.1	0.12	0.15	0.12	0.12

Note More is the Ra value, more is the surface roughness or more is the Ra value less is surface smoothness or finish

Table 2 Shows the means of surface roughness values of three different groups with their respective standard deviations

Company	Group	Mean	N	Standard Deviation
Ivoclar	Autoglazed	.1470	10	.00483
	Reglazed	.1190	10	.00876
	Chair-side polished	.1220	10	.00422
	Total	.1293	30	.01413
Vita	Autoglazed	.1440	10	.00516
	Reglazed	.1140	10	.00966
	Chair-side polished	.1180	10	.00632
	Total	.1253	30	.01525
Total	Autoglazed	.1455	20	.00510
	Reglazed	.1165	20	.00933
	Chair-side polished	.1200	20	.00562
	Total	.1273	60	.01471

In all the specimens one side is autoglazed which is kept as a control group to keep a check on surface roughness due to intrinsic flaws caused by variation in the condensed mass. The dimensions for the specimen were similar to previous studies and it was kept small to be compatible with the mounting plate of SEM.

Flat surfaces of all the specimens were ground with a medium grit diamond point at constant speed and for limited strokes. Since it was difficult to control the variation of force, same operator did all the grinding. And later, half of the specimens were subjected to reglazing and other half was subjected to chair-side polishing. It was very important to note here that the diamond point should be of medium or low grit as high grit points widens the pores opened during grinding. These large pores are difficult to close with both reglazing and chair side polishing [11].

Table 3 Shows the observations about the SEM photomicrogaphs of the three different groups of specimens of two different manufacturers

SEM (Qualitative test for surface roughness)						
S. no.	Vita			Ivoclar		
	Auto glazed (Control group)	Study groups		Auto glazed (Control group)	Study groups	
		Re-glazed	Chair side polished		Re-glazed	Chair side polished
1	1	2	2	1	2	2
2	1	3	2	1	2	2
3	1	2	2	1	2	2
4	1	2	2	1	3	2
5	1	2	2	1	2	2
6	1	2	2	1	2	2
7	1	2	2	1	3	2
8	1	2	2	1	2	2
9	1	2	2	1	2	2
10	1	3	2	1	2	2

After the use of shofu kit for initial polishing, the specimens were further polished with diamond paste with the help of silicone cone. Various studies have highlighted the importance of using a diamond paste during final stages to achieve the best possible finish [20, 21]. The smoothness produced by diamond paste can be explained by the particle size of the diamond polishing paste, which is 2 μm [22]. It is probable that, in the absence of a lubricant, porcelain particles removed from the surface become part of the abrasive system and contribute to an increase in roughness rather than smoothing of the surface. A lubricant and water spray can be expected to remove free and potentially abrasive particles. Grieve et al. [23] showed favorable results in terms of smoothness of porcelain using diamond paste, with no significant differences between this and glazed porcelain. Finally, the specimens were polished with pumice slurry and buff wheel [15].

Earlier studies have tested different properties affected or influenced by the finishing technique. However, the basic property that influences other properties is surface roughness. More is the surface roughness more is the wear caused, more is plaque accumulation, lesser is the fracture strength and poorer is the final esthetic appearance. Therefore, surface roughness was evaluated both quantitatively and qualitatively by surface profilometer and SEM respectively. This is in consensus with various studies that had used the same machines [1, 12, 24–27].

The results of this study has shown that both reglazing and chairside polishing is better than autoglazed. Reason for this could be that the pores (due to internal flaws while condensation) which are exposed while grinding of the ceramic surface are of variable size and are inhomogeneous in nature. Therefore, these could not be completely filled by autoglazing. These pores can be reduced or eliminated only with reglazing and chair-side polishing. Various earlier studies [7, 9, 12, 15, 22, 25, 27–29], had proved that chair-side polishing is equal to autoglazing. Some studies [1, 6, 26, 30, 31], had also proved that chair-side polishing is better than autoglazing. Only few studies had shown the opposite results, that is autoglazing or glazing is better than chair-side polishing [13, 14, 26, 32, 33]. And only one study reported in the literature, has compared autoglazing, reglazing and chair-side polishing [34].

In that study both autoglazing and reglazing were proved to be better than chairside polishing in terms of surface roughness and flexural strength.

Reasons for variation of results in different studies could be explained by:

- Size and number of surface pores or flaws that are opened due to grinding of porcelain depends upon the extent of condensation of ceramic particles. But in all the studies one specimen was used for reglazing or self glazing and the other was used for chairside polishing. So one cannot be sure about the uniformity of condensation in both the specimens. There can be false negative results due to variation of internal flaws that can be a cause of increase in surface roughness. In this study constant mass of ceramic powder was condensed for each specimen to control this factor to some extent.
- The coarseness of the diamond point used for grinding to simulate clinical adjustments. Although low grit diamond bur on air rotar handpiece with copious amount of water flow should be used but in this study medium grit diamond bur was used to grind the surface. It was not possible to do otherwise as it is difficult to control speed in air rotor handpiece.
- Polishing instruments were used with the presence or absence of a lubricating paste for final finishing. In this study diamond paste and pumice slurry was used for final finishing.
- Operator's variable which limits the standardization for grinding and polishing. Manual grinding and polishing is always difficult to standardize. However, in this study same operator has done the grinding and polishing, to reduce the variations to some extent.
- Different methods of evaluation were used.
- Most of the studies have compared autoglazed with chair side polished. Only one study-compared autoglazed, reglazed and chairside polished surfaces.

Within the limited scope of the study, the study indicated that the chair-side polishing can be an effective alternative to reglazing in order to get similar surface finish after clinical adjustments.

This study has assessed only surface roughness, so further studies are required to assess other properties simultaneously, to confirm the efficacy of chair-side polishing.

Conclusion

The degree of success of any polishing technique for porcelain is dependent upon having well-condensed porcelain, because porosities in the porcelain cannot be eliminated. With well-condensed porcelain, the surface achieved by polishing can be as smooth as that of a glazed surface. Therefore, within the limits of this study, the following conclusions were drawn:

1. Polishing an adjusted porcelain surface with Shofu polishing system along with the diamond paste and pumice slurry, reduced the surface roughness significantly such that the difference in roughness between the resulting polished surface and reglazed surface was not significant.

2. The surface roughness of anautoglazed porcelain was always found to be more than a reglazed and a chair-side polished surface.
3. There is no statistically significant difference between the surface finish of Vita and Ivoclar as obtained by glazing, reglazing and chair-side polishing.
4. Chair-side polishing can be a good alternative to reglazing for finishing adjusted porcelain surface.

Acknowledgments The authors thank all the staff members in the Department for rendering their help in any form.

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DISSERTATION SYNOPSIS

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ANNEXURE - II

PROFORMA : REGISTRATION OF SUBJECTS FOR DISSERTATION

1.	**NAME OF THE CANDIDATE AND ADDRESS**	Dr . MARTHALA SRUTHI REDDY KIMS DENTAL COLLEGE AND HOSPITAL CHAITANYA NAGAR, AMALAPURAM, KONASEEMA (DISTRICT) – 533201
2.	**NAME OF THE INSTITUTION**	KIMS DENTAL COLLEGE AND HOSPITAL CHAITANYA NAGAR, AMALAPURAM, KONASEEMA (DISTRICT)– 533201
3.	**COURSE OF THE STUDY AND THE SUBJECT**	MASTER OF DENTAL SURGERY (M.D.S.) PROSTHODONTICS, CROWN & BRIDGE AND IMPLANTOLOGY
4.	**DATE OF ADMISSION TO THE COURSE**	09-11-2021
5.	**TITLE OF TOPIC**	To Compare Dimensional Stability of casts obtained from Elastomeric Impression materials with different impression techniques at frequent times of cast pouring after subjecting them to Disinfection Protocols – An ***In Vitro Study.***

6. **BRIEF RESUME OF INTENDED WORK**

6.1 NEED FOR THE STUDY

- The success of fixed prosthodontic treatment depends on many steps among which impression making is critical step. [1] An accurate impression results in proper marginal fit leading to longevity of the restoration.[2] The accuracy of impression depends upon technique as well as material used. According to Craig the accuracy can be controlled more with technique rather than the material.[3]

- During impression making, the impression material is exposed to infected blood and saliva which is the potential source for cross contamination. These microbes can transfer from impression to dental stone. Simply washing the impression does not remove contaminating microbes.[4] This results in transfer of several contagious diseases such as Tuberculosis, HIV, Hepatitis, Herpes especially to the clinicians and laboratory workers. In order to overcome this cross infection the certain guidelines are published to control infection in dental office and laboratories.[5]

- The one of the most important parameter of elastomeric impression materials is dimensional stability. When an impression is subjected to disinfection there may be change in dimensional accuracy which results in faulty prostheses.

- In light of these facts a study was planned to compare the dimensional stability of casts which are obtained from impressions in different techniques at frequent times of cast pouring after subjecting them to disinfection protocols.

6.2 REVIEW OF LITERATURE

1. **Bard Idris, Frank Houston and Noel Claffey 1995** [3] Compared the dimensional accuracy of one stage & two stage technique. For this study they used PVS impression material. They used a model having abutments with and without undercut. They conclude that the inter abutment distances slightly increased with one and two stage techniques. The intra abutment measurements without undercut increased but abutments having undercuts decreased.

2. **Gelson Luis Adabo, Elaine Zanarotti, Renata Garcia Fonseca & Carlos Alberto dos Santos Cruz 1999** [5] Evaluated the dimensional stability of casts following immersion of impressions in disinfection solution. In this study they used PE, PVS impression materials and 5.25% sodium hypochlorite solution & 2% glutaraldehyde solution as disinfectant agents. They immersed impressions for 10 mins in hypochlorite solution and for 30 mins in 2% glutaraldehyde solution. They also used one control without disinfection agent. They reported that the casts which are obtained showed slightly the dimensions larger than the master model.

3. **Dario Melilli, Antonio Rallo, Angelo Cassaro and Giuseppe Pizzo 2008** [4] Conducted study on dimensional stability of PE &PVS materials after subjecting them to disinfection procedures. In this study they used sterigum powder and glutaraldehyde plus as disinfection agents. They measured impressions at four different intervals. T_0 as control, T_1 after first disinfection, T_2 6 hrs after first disinfection, T_3 after second disinfection. They concluded that the two disinfectants at T_1 cause expansion of polyether and addition silicone.

4. **Smitha Annie Jacob, Sanjana Vibu Nayar, V. Vidyashree Nandini 2012** [2] Conducted a study on dimensional accuracy and surface detail reproduction of polyether, polyvinyl siloxane & irreversible hydrocolloid under dry and moist conditions. They prepared artificial saliva for this study. They reported that moist condition had no effect on accuracy & surface detail reproduction of gypsum casts.

5. **Sakshi Garg, Sandeep Kumar, Shashikala Jain, Rajnish Aggarwal, Sunita Choudhary, Nandalur K Reddy 2019** [1] Compared the dimensional accuracy of casts fabricated from one step & two step putty wash and monophase technique. In this study they used two brands of poly vinyl siloxane. They used Aquasil & virtual brands. They conclude that the casts obtained from two step impression technique showed more accurate results as compared to other two techniques. Among the two different brands of PVS aquasil produced more accurate results.

7. AIM AND OBJECTIVES OF THE STUDY:

AIM :

- To compare dimensional stability of casts obtained from elastomeric impression materials with different impression techniques at frequent times of cast pouring after subjecting them to disinfection protocols using a stereomicroscope and digital caliper.

OBJECTIVES :

- To compare the dimensional stability of the casts obtained from two different elastomeric impression materials.
- To compare the dimensional stability of the casts obtained from two different impression techniques.
- To compare the dimensional stability the casts obtained following immersion of impression in two disinfection agents.

MATERIALS AND METHODS:

Materials used are :

- Elastomeric impression materials
- Stainless steel metal die
- Custom trays
- Vibrator

- Type 4 dental gypsum
- Rubber bowl
- Mixing spatula
- Disinfection agents
- Stereomicroscope
- Digital caliper

7.1 SOURCE OF DATA:

- All testing materials and testing machines will be collected from the open market through regular commercial channel. Testing to be carried out at laboratory.

7.2 METHOD OF COLLECTION OF DATA:

METHODOLOGY

- The model employed for this study have two dies having diameter and height of 6.330 x 8.015 mm and 8.450 x 8.015 mm. The distance between two dies will be 28.270 mm.[Used as per ANSI/ADA specifications no 19.]
- The impressions will be performed from the model using custom trays with two different techniques and then impressions will be subjected to disinfection only once. After disinfection the impressions are poured with type IV gypsum at frequent time intervals of 1 hr, 24 hrs, and 14 days.
- Then the casts will be separated from the tray after 45 minutes and will be evaluated for dimensional stability.
- Stereomicroscope will be used to measure the diameter and height of die and digital calliper will be employed to measure the interdistance between the dies. In order to enhance the accuracy all these measurements will be carried by single observer.
- Then the obtained data will be statistically analysed.

A total of 360 samples will be prepared by pouring the casts with two different Elastomeric impression materials using two different impression techniques and then the impressions are subjected for disinfection. After disinfection the casts will be poured at an interval of 1 hour, 24 hours, and 14 days.

Grouping of specimens based on materials used.

- Group A Elastomeric material I : (n = 180)
- Group B Elastomeric material II : (n = 180)

Each group is further subdivided into two sub groups based on technique used.

- Sub group I A [One stage technique] : (n = 90)
- Sub group II A [Two stage technique] : (n = 90)
- Sub group I B [One stage technique] : (n = 90)
- Sub group II B [Two stage technique] : (n = 90)

Each subgroup is further subdivided based on disinfectant used and according to time intervals of cast pouring. i.e 1 hour, 24 hours and 14 days.

ELASTOMERIC MATERIAL I :

- Sub group IA D_0 : (n = 30 at time intervals T_1, T_2, T_3)
- Sub group IA D_1 : (n = 30 at time intervals T_1, T_2, T_3)
- Sub group IA D_2 : (n = 30 at time intervals T_1, T_2, T_3)
- Sub group IIA D_0 : (n = 30 at time intervals T_1, T_2, T_3)
- Sub group IIA D_1 : (n = 30 at time intervals T_1, T_2, T_3)
- Sub group IIA D_2 : (n = 30 at time intervals T_1, T_2, T_3)

ELASTOMERIC MATERIAL II :

- Sub group IB D_0 : (n = 30 at time intervals T_1, T_2, T_3)
- Sub group IB D_1 : (n = 30 at time intervals T_1, T_2, T_3)
- Sub group IB D_2 : (n = 30 at time intervals T_1, T_2, T_3)
- Sub group IIB D_0 : (n = 30 at time intervals T_1, T_2, T_3)
- Sub group IIB D_1 : (n = 30 at time intervals T_1, T_2, T_3)
- Sub group IIB D_2 : (n = 30 at time intervals T_1, T_2, T_3)

Total : 360 specimens

- The dimensional stability of casts will be measured after impressions are subjected to disinfection protocols.

D_0 = Control
D_1 = Chemical disinfectant - I
D_2 = Chemical disinfectant - II
T_1 = After 1 hour
T_2 = After 24 hours
T_3 = After 14 days

7.3 Does the study require any investigation or intervention to be conducted on patients or other human or animal?

- NO -

7.4 Has the ethical clearance been obtained from your institution?

-

8. LIST OF REFERENCES:

1. Sakshi Garg, Sandeep Kumar, Shashikala Jain, Rajnish Aggarwal, Sunita Choudhary, Nandalur K Reddy - Comparison of dimensional accuracy of stone models fabricated by three different impression techniques using two brands of polyvinyl siloxane impression materials. The Journal of Contemporary Dental Practice 2019 ; 20(8) : 928-34.

2. Smitha Annie Jacob, Sanjana Vibu Nayar, V. Vidyashree Nandini – Comparison of the dimensional accuracy and surface detail reproduction of different impression materials under dry and moist conditions. Int.Journal of Contemporary Dentistry 2012 ; 3(2) : 47-54.

3. Badr Idris, Frank Houston and Noel Claffey - Comparison of the dimensional accuracy of one- and two-step techniques with the use of putty/wash addition silicone impression materials. JPD 1995 ; 74(5) : 535-41.

4. Dario Melilli, Antonio Rallo, Angelo Cassaro and Giuseppe Pizzo – The effect of immersion disinfection procedures on dimensional stability of two elastomeric impression materials. Journal of Oral Science 2008 ; 50(4) : 441-46.

5. Gelson Luis Adabo, Elaine Zanarotti, Renata Garcia Fonseca and Carlos Alberto dos Santos Cruz - Effect of disinfectant agents on dimensional stability of elastomeric impression materials. JPD 1999 ; 81(5) : 621-24.

6. Sergio Caputi and Giuseppe Varvara – Dimensional accuracy of resultant casts made by a monophase, one step and two step and a novel two step putty/light body impression technique . JPD 2008 ; 99(4) : 274-81.

7. Ali Hafezeqoran, Mahdi Rahbar, Roodabeh Koodaryan and Tina Molaei – Comparing the Dimensional accuracy of casts obtained from two types of silicone impression materials in different impression techniques and frequent times of cast preparation. International Journal of Dentistry 2021;1-8.

8. Giuseppe Varvara, Giovanna Murmura, Bruna Sinjari, Paolo Cardelli and Sergio Caputi – Evaluation of defects in surface details for monophase, two phase and three phase impression techniques. JPD 2014 ; 1-5.

9.	**SIGNATURE OF THE CANDIDATE**	M. Sruthi Reddy **Dr. MARTHALA SRUTHI REDDY**
10.	**REMARKS OF THE GUIDE**	
11.	**NAME AND DESIGNATION OF:** **11.1 GUIDE** **11.2 SIGNATURE** **11.3 CO- GUIDE** **11.4 SIGNATURE** **11.5 HEAD OF THE DEPARTMENT** **11.6 SIGNATURE**	Dr. Y. SRAVANTHI (Professor) **Dr. SUMEET SHARMA** **(PROF. & H.O.D)** PROFESSOR & H.O.D. DEPARTMENT OF PROSTHODONTIA KIMS DENTAL COLLEGE & HOSPITAL AMALAPURAM - 533 201, E.G.Dt., A.P.
12.	**12.1 REMARKS OF THE ~~CHAIRMAN AND~~ PRINCIPAL** **12.2 SIGNATURE**	PRINCIPAL KIMS DENTAL COLLEGE & HOSPITAL AMALAPURAM-E.G.

THE SAMPLE SIZE AND MATERIALS USED CAN BE EXTENDED AS PER THE DEMAND OF THE STUDY.

CERTIFICATE OF DECLARATION

I, **Dr. MARTHALA SRUTHI REDDY**, Postgraduate student in the Department of Prosthodontic, Crown & Bridge and Implantology, KIMS Dental College and Hospital, Amalapuram, under the guidance of Dr.Y.Sravanthi have selected the title of my Dissertation is "**To Compare Dimensional Stability Of Casts Obtained From Elastomeric Impression Materials With Different Impression Techniques At Frequent Times Of Cast Pouring After Subjecting Them To Disinfection Protocols - An *In Vitro* Study**" and synopsis of the above proposed title will be submitting for registration to Dr. N.T.R University of Health Sciences, Vijayawada for the academic session 2021-2024.

M. Sruthi Reddy

Dr. MARTHALA SRUTHI REDDY

SIGNATURE OF CANDIDATE

DISSERTATION SYNOPSIS

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ANNEXURE – II

PROFORMA: REGISTRATION OF SUBJECTS FOR DISSERTATION

1.	**NAME OF THE CANDIDATE AND ADDRESS**	Dr. MANGIPUDI KRISHNA SRAVAN KIMS DENTAL COLLEGE AND HOSPITAL, CHAITANYA NAGAR, AMALAPURAM, EAST GODAVARI – 533201
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3.	**COURSE OF THE STUDY AND THE SUBJECT**	MASTER OF DENTAL SURGERY (MDS) PROSTHODONTICS, CROWN & BRIDGE AND IMPLANTOLOGY.
4.	**DATE OF ADMISSION TO COURSE**	16-07-2020
5.	**TITLE OF TOPIC**	Evaluation of Dimensional Stability & Elastic Recovery of Elastomeric impression materials after subjecting to Autoclave & Chemical disinfection – An *in vitro* study.

DISSERTATION SYNOPSIS

KIMS DENTAL COLLEGE & HOSPITAL, AMALAPURAM

ANDHRA PRADESH

Dr. DARA HANCY SUNAINA

1ST YEAR POSTGRADUATE

DEPARTMENT OF PROSTHODONTICS, CROWN & BRIDGE AND IMPLANTOLOGY

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Dr. SUMEET SHARMA

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ANNEXURE-II

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3.	*COURSE OF THE STUDY AND THE SUBJECT*	MASTER OF DENTAL SURGERY. PROSTHODONTICS, CROWN & BRIDGE AND IMPLANTOLOGY
4.	*DATE OF ADMISSION TO THE COURSE*	05-11-2021
5.	*TITLE OF TOPIC*	EVALUATION OF SURFACE ROUGHNESS, FLEXURAL STRENGTH, AND IMPACT STRENGTH OF VARIOUS HEAT CURE ACRYLIC RESINS WHEN TREATED WITH DIFFERENT NANOPARTICLES – AN IN VITRO STUDY

Dr. NTR UNIVERSITY OF HEALTH SCIENCES

VIJAYAWADA, ANDHRAPRADESH

PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1.NAME OF THE CANDIDATE	: Dr.KA. PRATHUSSHA
2.ADDRESS	:1st year MDS student, Oral and Maxillofacial Surgery, KIMSDental College and Hospital, NH-216, Chaitanya Nagar, Amalapuram, Konaseema (District), Andhra Pradesh - 533201
3.NAME OF THE INSTITUTION	: KIMS Dental College and Hospital NH-216, Chaitanya Nagar, Amalapuram, Konaseema (District), Andhra Pradesh-533201.

4. COURSE OF STUDY AND SUBJECT: MDS in Oral and Maxillofacial Surgery.

5.DATE OF ADMISSION INTO COURSE: 29/10/2021

6. TITLE OF THE DISSERTATION:

"EFFICACY OF 2 POINT FIXATION VERSUS 3 POINT FIXATION IN MALAR BONE FRACTURES – A CLINICAL STUDY"

Being submitted by course in	: Oral and Maxillofacial Surgery
Signature of the Candidate	:
Signature of Guide	:
Signature of H.O. D	:
Signature of Dean/Principal	:

PRINCIPAL
KIMS DENTAL COLLEGE
& HOSPITAL
AMALAPURAM-E.G.Dt., A.P.

KIMS DENTAL COLLEGE AND HOSPITAL, AMALAPURAM

From

Dr. KA. PRATHUSSHA,

1st year MDS student,

Department of Oral and Maxillofacial Surgery,

KIMS Dental College and Hospital, Amalapuram.

To

The Chairman,

Institutional Ethics Committee (IEC),

KIMS Dental College and Hospital, Amalapuram. 015/KIMS DENTAL/2022

Sub: Review of the Clinical trial/ Material protocol no ..... Dated..... 19/4/2022 .....

Project title**: EFFICACY OF 2 POINT FIXATION VERSUS 3 POINT FIXATION IN MALAR BONE FRACTURES – A CLINICAL STUDY.**

Place of study: Department of Oral and Maxillofacial Surgery.

KIMS Dental College and Hospital, Amalapuram.

Principal investigator's name: Dr.KA. PRATHUSSHA

Affiliation: Dr. NTRUHS-Vijayawada.

E-mail : prathusshakavali95@gmail.com

Duration of the study : 2021-2024

Sponsors (if any) : NIL

Approval from any other ethics regulatory committee (required) – NIL

Sir,

I hereby submit the above-mentioned study for the favour of review and approval. I shall follow the protocol guidelines and approved protocol in conducting my research.

Signature of the Principal investigator

Signature of Co. Investigator/guide

Prof and H.O.D

Enclosures:

1. Synopsis of the project containing introduction with aims and objectives, review of literature, justification of the study. Methodology describing the potential risks and benefits, statistical analysis, and whether it is of national significance (if any) with rationale
2. Informed consent form
3. Case record form
4. Study flow chart
5. Sponsor details (if any)- Nil
6. Investigator's brochure -Nil
7. Investigator's undertaking
8. Regulatory permission letter

FOR IEC OFFICE USE

Proposal: Approved/Not Approved

Date: 19/4/2022

Member	Member secretary	Chairman
IEC-KIMS Dental College and Hospital	IEC-KIMS Dental College and Hospital	IEC-KIMS Dental College and Hospital

MEMBER IEC KIMS Dental College & Hospital Amalapuram, (A.P.)

MEMBER SECRETARY IEC KIMS Dental College & Hospital Amalapuram, (A.P.)

CHAIRMAN IEC KIMS Dental College & Hospital Amalapuram, (A.P.)

INSTITUTIONAL ETHICS COMMITTEE (IEC) ETHICS CLEARENCE CERTIFICATE

The institutional ethics committee of KIMS Dental College and Hospital met on **18/04/2022** at **KIMS Dental College and Hospital** to scrutinize the Synopsis /Research projects of Post Graduate students / Undergraduate students /Faculty members of KIMS Dental College from an Ethics point of view. After scrutiny, the following version of the Synopsis of Dissertation /Research project has been accorded Ethics Clearance.

TITLE: **"EFFICACY OF 2 POINT FIXATION VERSUS 3 POINT FIXATION IN MALAR BONE FRACTURES – A CLINICAL STUDY"**

Member	Member secretary	Chairman
IEC-KIMS Dental College and Hospital	IEC-KIMS Dental College and Hospital	IEC-KIMS Dental College and Hospital

MEMBER SECRETARY
IEC
KIMS Dental College & Hospital
Amalapuram, (A.P.)

CHAIRMAN
IEC
KIMS Dental College & Hospital
Amalapuram, (A.P.)

DISSERTATION SYNOPSIS

Dr. KA. PRATHUSSHA

1st YEAR POSTGRADUATE

Guide:

Dr. PHANI HIMAJA DEVI. V

READER

DR. NTRUNIVERSITY OF HEALTH SCIENCES, VIJAYAWADA, ANDHRA PRADESH.

PROFORMA FOR REGISTRATION OF SUBJECTS FOR DISSERTATION

1.	NAME OF THE CANDIDATE (IN BLOCK LETTERS)	Dr. KA. PRATHUSSHA
2.	NAME OF THE INSTITUTION	KIMS DENTAL COLLEGE AND HOSPITAL, AMALAPURAM
3.	COURSE OF STUDY AND SUBJECT	MASTER OF DENTAL SURGERY (MDS), ORAL AND MAXILLOFACIAL SURGERY
4.	DATE OF ADMISSION TO THE COURSE	29/10/2021
5.	TITLE OF TOPIC	EFFICACY OF 2 POINT FIXATION VERSUS 3 POINT FIXATION IN MALAR BONE FRACTURES – A CLINICAL STUDY.

6.	**Brief Resume of Intended work:**	
	6.1	**Need for the study:** The zygomatic bone contributes to strength and stability of the facial skeleton and articulation of zygoma occurs with 4 other bones they are as follows: - frontal bone, sphenoid bone, temporal bone and maxillary bone.[1] The prominence of midface is contributed by zygomatic bone, and it forms the lateral and inferior part of orbital rim and also contributes to the floor of orbit. The anatomical location and pattern of the zygomatic bone allows it to withstand blows of greater forces. But because of its forward projection, the zygoma is frequently injured. Due to such heavy forces the zygomatic bone gets separated from the adjacent articulating bones at the suture lines above or below the suture lines. The detachment of the zygomatic bone from its four articulations can result in a Zygomaticomaxillary complex fracture, Zygomatic complex, or Orbito-zygomatic fracture or Naso-orbito-ethmoido-zygomatic complex fracture. They are seen as isolated displaced or undisplaced fractures of the zygoma or in association with the other facial fractures due to the complex anatomical location and relations with adjacent bones of the face and calavaria.[2] Fracture of zygoma if displaced not only cause adverse aesthetic defects but also disrupts functions of the mandible and may disturb ocular functions and if the fracture is not displaced it may heal uneventfully.[3] The debate for open reduction and internal fixation of the zygomaticomaxillary complex fractures at three points i.e. FZ, ZMB, IOR has

increased because of its inadequate results from two point i.e. FZ and ZMB (or) FZ and IOR (or) ZMB and IOR and one-point i.e. FZ fixation procedure.[4]

This study will be conducted to evaluate the efficacy of 2-point fixation versus 3-point fixation in the management of ZMC fractures, to formulate an operative strategy that will achieve the surgical objective of stable fixation with better clinical results and minimizing the morbidity of the procedure.

6.2

REVIEW OF LITERATURE:

- ***Seon Tae Kim et al (2011)[5];*** conducted a study to compare 1-point fixation in the zygomaticomaxillary complex area with 2-point fixation in the zygomaticomaxillary buttress and frontozygomatic suture areas in tripod fractures. They concluded that one-point fixation in zygomaticomaxillary buttress area in zygomatic tripod fractures can avoid unsightly scars and give high satisfaction with surgical outcomes in selected patients with tripod fractures.
- ***Majeed Rana et al (2012)[4];*** conducted to compare the efficacy of zygomatic bone after treatment with ORIF using 2-point fixation and open reduction and internal fixation using 3-point fixation and compare the outcome of two procedures. They concluded that based on this study-the outcome of two procedures. They concluded that based on this study-open reduction and internal fixation using three-point fixation by miniplates is the best available method for the treatment zygomatic bone fractures.
- ***Thiagarajan B et al (2013)[3];*** Conducted a study to discuss in detail the etiopathogenesis and the various management options available for treatment of faciomaxillary trauma and they concluded that majority of the patients with fractured zygoma presented with flattened malar region

(malar asymmetry). All the patients except for one with fractured zygoma had stable medial displacement and majority of the patients were managed conservatively or by Gillie's procedure, only two patients needed open reduction with three-point fixation.

- ***Gaurav Mittal et al (2019)[6];*** Conducted a study to evaluate the efficacy of 2-point fixation in Zygomaticomaxillary complex fractures. They concluded that 2-point fixation offers efficient outcome as compared to other modalities of management of ZMC.
- **Nishtha Gadkari et al (2019)[7];** conducted a study to evaluate which method of fixation corrects malar asymmetry in the treatment of zygomaticomaxillary complex fractures. They concluded that three-point fixation is superior to two-point fixation in reducing malar asymmetry in zygomaticomaxillary fractures.

AIM:

The aim of the study is to— "evaluation of the efficacy of 2-point fixation versus 3-point fixation in Zygomaticomaxillary complex fractures after open reduction and internal fixation with miniplates in 20 patients who will be divided into two groups, i.e. two-point fixation group and three-point fixation group".

OBJECTIVES:

1. To get an operative strategy that will aid in adequate reduction and stable fixation in Zygomaticomaxillary complex fractures.
2. To evaluate functional, esthetic and sensory outcome of the surgery.
3. To evaluate patient satisfaction.

The objectives of this study will be achieved through the following parameters:

PARAMETERS:

1. Pre-operative and post-operative 3D CT scan (Axial view, Coronal view and 3D reconstruction).
2. Intra operative manual digital palpation method.
3. Duration of surgery-from adaptation of miniplate to fixation of last screw.
4. Pre and post-operative photographs.
5. Pre and post-operative Inter incisal mouth opening.
6. Neurological assessment through pinprick test.
7. Patient satisfaction by standard questionnaire.
8. Postoperative complications.

7

7.1

MATERIALS AND METHODS:

- This study will be done with a **sample size** of **20 patients** who will be having Zygomaticomaxillary complex fractures.
- This is a **Clinical study** where the patients will be treated under General Anesthesia for Zygomaticomaxillary complex fractures.
- **Selection Criteria:** - Patients presenting with the diagnosis of Zygomaticomaxillary complex fractures will be divided into 2 groups i.e. **Group 1**- 2-point fixation group and **Group 2**- 3-point fixation group.
- Treatment procedure and possible complications will be explained to the patient priorly.
- A written informed consent will be taken from the patients to undergo open reduction and internal fixation.
- A standard proforma will be used to collect the necessary information regarding each case.

INCLUSION CRITERIA:

1.Patients with zygomaticomaxillary complex fractures.

2.Age group of 18-65years.

3.Displaced fractures of zygomaticomaxillary complex as evidenced on radiography (3D CT).

4. Presentation within one week of injury.

EXCLUSION CRITERIA:

1.Medically unfit patients for surgery.

2.Patients with infected fractures.

3.Patients with previously operated zygomatic maxillary complex fractures will be excluded from this study.

ARMAMENTARIUM:

2 POINT FIXATION: -

- FZ Fixation-

  2-hole or 3 hole or 4 hole 1.5 mm thickness stainless steel miniplates,

  1.5 * 6 mm stainless steel screws.

- ZMB Fixation-

  L shape or 4 hole or 5 hole or 6 hole 2mm thickness stainless steel miniplates,

  2 * 6 mm stainless steel screws.

3 POINT FIXATION: -

- FZ Fixation-

  2-hole or 3 hole or 4 hole 1.5 mm thickness stainless steel miniplates,

  1.5 * 6 mm stainless steel screws.

- ZMB Fixation-

  L shape or 4 hole or 5 hole or 6 hole 2mm thickness stainless steel miniplates,

  2 * 6 mm stainless steel screws.

- IOR Fixation-

  2 hole or 3 hole or 4 hole 1.5mm thickness stainless steel miniplates,

  1.5 * 6 mm stainless steel screws.

INVESTIGATIONS:

COMPLETE BLOOD PICTURE

CLOTTING TIME

BLEEDING TIME

VIRAL MARKERS i.e. HIV, HBV, HBsAg.

LIVER FUNCTION TEST

RENAL FUNCTION TEST

ECG

	CHEST XRAY 3 –D CT SCAN RTPCR (COVID-19 TEST)
7.2	**Does the study require any investigations or intervention to be conducted on patients or other humans or animals, if so, describe briefly?** **YES**. This study will be done on humans. Under general anesthesia, intubation will be done. The patients will be scrubbed and draped in a standard manner. 2 % lignocaine with 1 in 80,000 adrenaline will be injected at the local site for control of bleeding. Incision will be given in the upper buccal sulcus and reduction of the fractured zygoma will be done. After achieving adequate reduction, in case of two-point fixations, the fractured FZ region will be exposed. After visualization of fractured areas Fixation of reduced fractured segments will be done with 4 holed, 1.5 mm to 2 mm miniplate at zygomaticomaxillary buttress,

and 1.5 mm to 2 mm fronto zygomatic area (for two-point fixation) and additional infraorbital margins will be exposed and fixation will be done for infra orbital rim fracture (three-point fixation group) using 1.5mm thickness 4 holed miniplates. After achieving adequate hemostasis and thorough irrigation, wound closure will be done in layers. The parameters will be noted and assessed pre operatively and post operatively.

7.3	**Has ethical clearance been obtained from your institution?**
	Yes.

8. REFERENCES

1.Wail F, Ezzeddin E, Mohammad A. et al. Two- versus three-point internal fixation of displaced zygomaticomaxillary complex fractures. Craniomaxillofac trauma Recon. 2018 Jul 27;11(4):256-264.

2.Fonseca Raymond J, Oral and maxillofacial surgery. Third edition. Chapel Hill, North Carolina: Jeffrey Patterson.2018.

3.Thiagarajan B, Narashiman S, Arjunan K.et al. Fracture zygoma and its management our experience. Otolaryngol Online J 2013;13:1–5.

4.Rana M, Warraich R, Tahir S.et al. Surgical treatment of zygomatic bone fracture using two points fixation versus three-point fixation – a randomised prospective clinical trial. Trials 2012;13-36.

5.Seon Tae Kim, MD, Doo Hyun Go. et al. Comparison of 1-point fixation with 2-point fixation in treating tripod fractures of zygoma. American Association of Oral and Maxillofacial surgeons 2011 Mar;11:0278-2391.

6.Mittal Gaurav, Garg R, Sharma S. et al. Efficacy of two-point fixation in the management of zygomatic complex fractures – A prospective clinical study. Natl J Maxillofac Surg 2019 Nov;10:223-227.

7.Nishtha Gadkari et al Comparative evaluation of 2-point vs 3-point fixation in the treatment of zygomaticomaxillary complex fractures -A systematic review Journal of Cranio-Maxillo-Facial Surgery 2019 Jul ;47: 1542-1550.

9. SIGNATURE OF THE CANDIDATE	Pratyusha
10. REMARKS OF THE GUIDE	
11 11.1 NAME & DESIGNATION OF THE GUIDE(IN BLOCK LETTERS)	Dr. PHANI HIMAJA DEVI. V READER ORAL AND MAXILLOFACIAL SURGERY
11.2 SIGNATURE	V. Phani Himaja
11.3 NAME & DESIGNATION OF THE CO-GUIDE (IF ANY)	
11.4 SIGNATURE	
11.5 HEAD OF DEPARTMENT	Dr. SRINIVAS GANTI PROFESSOR & HEAD OF THE DEPARTMENT ORAL AND MAXILLOFACIAL SURGERY
11.6 SIGNATURE	
12.1 REMARKS OF THE PRINCIPAL	
12.2 SIGNATURE	

PRINCIPAL
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Amalapuram,
Date:

From

Dr.PHANI HIMAJA DEVI.V,

READER,

Department of ORAL AND MAXILLOFACIAL SURGERY,

KIMS Dental College and Hospital,

Amalapuram.

To

The Registrar,

DR.N.T.R.U.H. S,

Vijayawada.

"Through Proper Channel"

Sub: Submission of Dissertation protocol. - 1st year MDS- Department of Oral and Maxillofacial Surgery. Reg

Respected sir,

I am here with forwarding the protocol of the Dissertation of Dr.KA. PRATHUSSHA, 1st year MDS studentin theDepartment of Oral and Maxillofacial Surgerywith the title **"EFFICACY OF 2 POINT FIXATION VERSUS 3 POINT FIXATION IN MALAR BONE FRACTURES – A CLINICAL STUDY"**

DURATION OF THE STUDY:

Proposed to complete the study in a period between 2021-2024.

It is proposed that Dr.KA. PRATHUSSHA, 1st year MDSstudent in the Department of Oral and Maxillofacial Surgery (2021-2024), will carry out this work under my guidance.

I request you to kindly accept the above proposal.

Thanking you sir,

Yours Sincerely,

V. Phani Himaja

Dr.PHANI HIMAJA DEVI.V

READER,

Department of Oral and Maxillofacial Surgery.

Amalapuram,

Date:

From

Dr.KA. PRATHUSSHA

1st year MDS student,

Department of Oral and Maxillofacial Surgery,

KIMS Dental College and Hospital,

Amalapuram.

To

The Registrar,

DR.N.T.R.U.H. S,

Vijayawada.

//Through Proper Channel//

Sub: -Submission of Dissertation protocol to the Dr. NTRUHS, for registration and allotment of number –Reg.,

Respected sir,

I Dr.KA. PRATHUSSHA, 1st year MDS student in the Department of Oral and Maxillofacial Surgery (2021-2024) is here with submitting the Dissertation protocol for registration. The title of the topic is **"EFFICACY OF 2 POINT FIXATION VERSUS 3 POINT FIXATION IN MALAR BONE FRACTURES – A CLINICAL STUDY"**

Kindly register the topic and allot me a registration number.

Thanking you sir.

Yours Sincerely,

Dr. KA. PRATHUSSHA,

1st Year MDS student,

Oral and Maxillofacial Surgery.

INFORMED CONSENT FORM

RESEARCH PARTICIPANT CONSENT FORM

Participant's name:

Address:

Title of the project:

"EFFICACY OF 2 POINT FIXATION VERSUS 3 POINT FIXATION IN MALAR BONE FRACTURES – A CLINICAL STUDY"

Name of the researcher(s): Dr. KA. PRATHUSSHA

Post Graduate student, Oral and Maxillofacial Surgery,

KIMS Dental College and Hospital.

The details of the study have been provided to me in writing and explained in my own language. I confirm that I have understood the above study and had the opportunity to ask questions. I understand that my participation in the study is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. I agree not to restrict the use of any data or results that arise from this study such use is only for the scientific purpose(s). I fully give my consent to participate in the above study.

Signature of the participant: Prathussha

Date:

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Submission Information

Author Name	Prathussha
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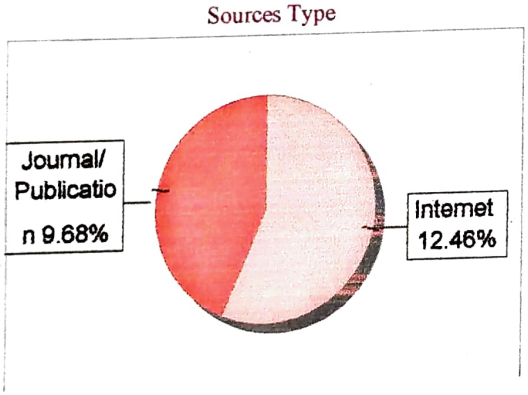

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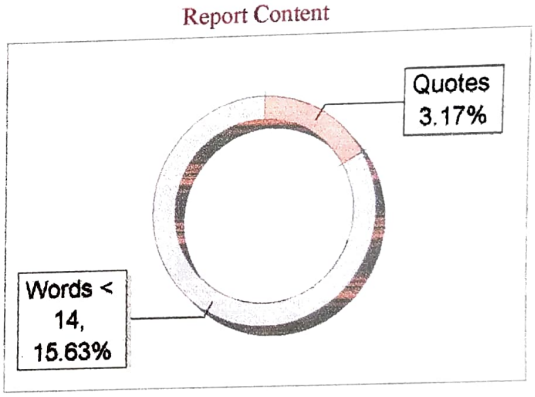

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Signature of the Student

Head of the Department

Signature of the Principal

Signature of the Authorized Person

Amalapuram,
Date:

From

Dr. Srinivas Ganti,

Professor and Head of the department,

Department of Oral and Maxillofacial Surgery,

KIMS Dental College and Hospital,

Amalapuram.

To

The Principal,

KIMS Dental College and Hospital,

Amalapuram.

Sub: Allotment of Dissertation topic to the postgraduate student in Oral and Maxillofacial surgery - Reg

Respected sir,

This is to inform you that the below mentioned topic is allotted to Dr.KA. PRATHUSSHA, 1st year MDS student in the Department of Oral and Maxillofacial Surgery, towards the partial fulfilment for awarding MDS degree.

"EFFICACY OF 2 POINT FIXATION VERSUS 3 POINT FIXATION IN MALAR BONE FRACTURES – A CLINICAL STUDY"

She has to submit the protocol of the Dissertation to the ethical committee for their approval and for onward transmission to the Dr.N.T.R University of Health Sciences for acceptance. I will guide the postgraduate student in conducting the research project.

Thanking you sir,

Yours Sincerely,

Dr. Srinivas Ganti,

Professor and Head of the Department,

Oral and Maxillofacial Surgery.

Amalapuram,

Date:

From

Dr.KA. PRATHUSSHA,

1st year MDS student,

Department of Oral and Maxillofacial Surgery,

KIMS Dental College and Hospital,

Amalapuram.

To

The Principal,

KIMS Dental College and Hospital,

Amalapuram.

//Through Proper Channel//

Sub: Submission of Dissertation protocol- 1st year MDS-ORAL AND MAXILLOFACIAL SURGERY. Reg

Respected sir,

I, DrKA. PRATHUSSHA, 1st year MDSstudent in the Department of oral and maxillofacial surgery joinedon 29/10/2021 at KIMS Dental College and Hospital is currently working under the guidance of **Dr. PHANI HIMAJA DEVI.V**, READER. I have been allotted Dissertation on **"EFFICACY OF 2 POINT FIXATION VERSUS 3 POINT FIXATION IN MALAR BONE FRACTURES – A CLINICAL STUDY"** .Hence, I am here with submitting the protocol and plan of the Dissertation for your kind personal and necessary action.

Thanking you sir,

Yours sincerely,

Dr.KA. PRATHUSSHA,

1st year MDS student,

Oral and maxillofacial surgery

Amalapuram,
Date:

From
Dr.KA. PRATHUSSHA,
1st year MDS student,
Department of Oral and Maxillofacial Surgery,
KIMS Dental College and Hospital,
Amalapuram.

To

The Chairman,
Institutional Ethics committee,
KIMS Dental College and Hospital,
Amalapuram.

Sub: -Submission of Dissertation protocol to the Institutional Ethics committee –Reg.,

Respected sir,

I am here with submitting the protocol and plan of the Dissertation with below mentioned title for your kind review and comments. I shall follow good clinical practice guidelines and approved protocol in conducting my research

PROJECT TITLE: -
"EFFICACY OF 2 POINT FIXATION VERSUS 3 POINT FIXATION IN MALAR BONE FRACTURES – A CLINICAL STUDY"

DEPARTMENT	: Oral and Maxillofacial Surgery
INVESTIGATOR	: Dr.KA. PRATHUSSHA
E-MAIL	:prathusshakavali95@gmail.com
DURATION OF COURSE	: 2021-2024
GUIDE	: Dr. PHANI HIMAJA DEVI.V
SPONSORS	: NIL

Sign of the investigator:

Sign of the guide:

APPLICATION FORMAT FOR IEC, KIMS DC CLEARANCE

To

Chairman,
IEC, KIMS Dental College & Hospital,
Amalapuram, Konaseema District,
Andhra Pradesh

Sub: Review of the Clinical Trial/ Clinical Material Protocol No..... Dated.....

Project Title : **"EFFICACY OF 2 POINT FIXATION VERSUS 3 POINT FIXATIO' IN MALAR BONE FRACTURES-A CLINICAL STUDY".**

Abbreviated Title :

Department (Place of study) : ORAL AND MAXILLOFACIAL SURGERY.
KIMS DENTAL COLLEGE AND HOSPITAL.
CHAITANYA NAGAR, AMALAPURAM,
KONASEEMA (DISTRICT) – 533201,
ANDHRA PRADESH

Principal Investigator
- Name : Dr.KA.PRATHUSSHA
- Affiliation : Dr. NTR University of Health Sciences, Vijayawada, AP
- Email : prathusshakavali95@gmail.com

Co Investigator (s) Guide (in case of dissertation)
- Name : Dr. PHANI HIMAJA DEVI.V
- Affiliation : Dr. NTR University of Health Sciences, Vijayawada, AP
- Email : himaja.vaaka@gmail.com

Duration Study : 2021 - 2024
Sponsors (If any) : NIL

Approval from any other ethics/regulatory committee (if required)

Sir,

I hereby submitted the above noted clinical trial protocol for favour of your review and approval. I shall follow the good clinical practice guideline and approved protocol in conducted my research.

Signature of the
Principal Investigator

Signature of HOD
Name & Seal

Signature of the
Co-Investigator(s) Guide

Investigator's Undertaking

I Certify that the information provided by me is complete and correct.

I understand that as principal investigator, I will take full responsibility for the protection of rights and welfare of all trial subjects including the conduct of study and ethical performance of the project.

I agree to comply will all rules and regulations of IEC and KIMS Dental College & Hospital, Amalapuram of the conduct of trail. I hereby declare.

- Qualified personnel according to IEC will conduct the study.
- No change will be made in the protocol or consent form until approved by the IEC.
- Legally effective Informed consent will be taken from Human subjects if applicable.
- Adverse events will be reported to IEC as per ICH GCP/DCGI adverse event reporting policy.

I further certify that the proposed research is not currently being conducted and will not begin until IEC approval has been obtained.

Investigators	Signature	Date
Principal Investigator		
Co-Invigilator-1		
Co-Invigilator-2		

Study Number :

Patient Identification Number for this trail:

CONSENT FORM FOR RESEARCH STUDY

Title of Project: "EFFICACY OF 2 POINT FIXATION VERSUS 3 POINT FIXATION IN MALAR BONE FRACTURES-A CLINICAL STUDY".

Name of Researcher: Dr.KA.PRATHUSSHA

	Please tick to confirm
I confirm that I have read and understand the information sheet dated.....(version.....) for the above study.	☐
I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily	☐
I understand that my participation is voluntary and that I am free to withdrawn at any time, without giving any reason, without my medical / dental care or legal rights being affected.	☐
I understand that relevant sections of any of my medical / dental notes and data collected during the study, may be looked at by responsible individuals from (company name), from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.	☐
I agree to my GP being informed of my participation in the study.	☐
I agree to take part in the above research study.	☐

Name of the Patient	Date	Signature
Name of Person taking consent (If different from researcher)	Date	Signature
Researcher	Date	Signature

When complete, 1 copy for patient, 1 copy for researcher site file: 1(original) to be kept in medical/dental notes.

DISSERTATION SYNOPSIS

Dr. VADREVU SREE SESHA KAMESWARI

1ST YEAR POSTGRADUATE

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

Guide:

Dr. A.MAHEEDHAR

ASSISTANT PROFESSOR

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

KIMS DENTAL COLLEGE

AMALAPURAM.

ANDHRA PRADESH

DR. NTRUNIVERSITY OF HEALTH SCIENCES, VIJAYAWADA,

ANDHRA PRADESH.

KIMS DENTAL COLLEGE AND HOSPITAL AMALAPURAM

PROFORMA FOR REGISTRATION OF SUBJECTS FOR DISSERTATION

1.	NAME OF THE CANDIDATE (IN BLOCK LETTERS)	Dr .VADREVU SREE SESHA KAMESWARI
2.	NAME OF THE INSTITUTION	KIMS Dental college and hospital, AMALAPURAM
3.	COURSE OF STUDY AND SUBJECT	MASTER OF DENTAL SURGERY, (MDS) ORAL AND MAXILLOFACIAL SURGERY
4.	DATE OF ADMISSION TO THE COURSE	09/07/2020
5.	TITLE OF TOPIC	MANDIBULAR OSTEOSYNTHESIS WITH A MODIFIED TITANIUM 3D MINIPLATE IN SYMPHYSIS AND PARASYMPHYSIS MANDIBULAR FRACTURES – A PROSPECTIVE STUDY.

6.	**Brief Resume of Intended work**:	
	6.1	**Need for the study:** Fractures through the mandible at the level of the parasymphysis extending obliquely and traversing through the transitional zone to body region are relatively common. Therefore, a surgeon should know the biomechanics of different plating techniques to fix these fractures. There is always a dilemma for the surgeon as to whether to fix these mandibular segments with one or two miniplates, and the presence of mental neurovascular bundle makes it more challenging. There might be a common human error while placing two miniplates at the region of mental nerve. The distance between two plates may be compromised which cause compression of mental neurovascular bundle. So we have designed a plate which is polygonal shaped and has a flip at one end which aids to encircle the mental nerve and fracture fixation without any neurovascular compression. This will be made of titanium metal which is biocompatible and also aids in osteosynthesis.. In the anterior part of the mandible, in front of the first premolar, there are mainly moments of torsion. They are higher the nearer they are to the mandibular symphysis. Therefore, the principle of osteosynthesis is to re-establish the mechanical qualities of the mandible, taking into account the anatomical conditions. So we are going to do a study on ten patients using this modified titanium mini plate for open reduction and internal fixation of mandibular fractures at symphysis and parasymphysis region.

REVIEW OF LITERATURE:

1.DATTHAKAR et al The mandibular parasymphysis and body regions are highly dynamic areas. They are constantly 3 subjected to both occlusal and muscular forces. Fractures at this transition zone of the 4 parasymphysis and body region thus represent a special pattern that creates a dilemma for the 5 surgeons — whether to use one miniplate fixation or two miniplates as per Champy's guidelines. 6 Mental nerve paresthesia is a very common complication due to dissection and stretching of the 7 mental nerve in this region

2.According to the AO/ASIF principles, the goal of open reduction and internal fixation (ORIF) in the management of mandibular fractures is to achieve undisturbed healing and restoration of form and function without the adjunctive use of maxillomandibular fixation (MMF)

Kazanjian appears to be the first author to stress that early fixation of fracture fragments is the most important means of controlling infection and preventing complications.

Spiessl and Prein stressed 2 fundamental principles to obtain adequate rigid internal fixation for comminuted mandibular fractures. First, the fixation needs to support the full functional loads (load-bearing osteosynthesis). Second, absolute stability of the fracture construct must be achieved.

3.REGINALD et. al : Mandibular fracture, specifically in the symphysis and body region, is very common and often multiple.The benefit of open reduction with internal fixation to eliminate interfragment mobility is considered greater than the cost of interrupting periosteal blood supply.

Schilli, writing on mandibular fractures in children, states that research shows that “titanium implants most probably do not interfere with the growth of the membranous skeletal bones.” When body and/or symphysis fractures exist, the best surgical outcome will be achieved by the combination of a correct

diagnosis, proper treatment plan, and the appropriate operation.

6.3

4.V. SINGH et.al :.Early restoration of function is the biggest advantage of functionally stable fixation. This is lost if postoperative MMF is done for a period of 4 weeks as COLLINS et al.12 did in their prospective study.When comparing the overall complication rates according to plates used, the x2 test showed no statistically significant difference between the locking and nonlocking plates ($p > 0.05$). In conclusion, mandible fractures treated with 2.0-mm locking plates and 2.0-mm nonlocking plates present similar short-term complication rates.

5..jason A et al: Patients who use alcohol or drugs daily are often malnourished and have poor healing capacity.6 They also tend to be less compliant with postoperative instructions

It has been proposed that a delay in repair of mandible fractures increases the risk of infectious complications.

6. sakshi agarwl et.al : 3D plating system uses more amount of hardware in body and angle regions of the mandible owing to extra vertical bars. It uses less hardware in cases of parasymphysis and symphysis regions of the mandible (1 plate and 4 screws) as compared to 2D locking system (2 plates and 8 screws) thus increasing the cost of the treatment.

7. phillip L Maloney et al. : e believe that an initial delay in treatment of a compound fracture is a central factor in increasing the risk of post ORIF bone infection.patients with mandibular fractures “often do not have proper insight into the injury” and often are eating a regular diet in the immediate postoperative period.

Aim ; To evaluate the efficacy of modified polygonal plate in open reduction and internal fixation of mandibular fractures.

OBJECTIVES;

1.minimising wound healing time.

2.Minimizing operating time.

3.minimising the compressive force on metal nerve.

4.increaing the stability of fixation of mandibular fractures

5.fixation of transition zone (parasymphysis-body) fractures.

7

7.1 **MATERIALS AND METHODS**

This is a study to be done on 10 patients, conducted at department of oral & maxillofacial surgery KIMS DENTAL COLLEGE , AMALAPURAM. This is a case series study where the patients were treated under local anesthesia or general anesthesia for mandibular fractures using modified polygonal shaped plate in open reduction

This modified polygonal shaped plate has a flip at one end which is more advantage when compared with other plate

Treatment procedure and possible complications were explained to the patient priorty.

A written informed consent is taken from the patients to undergo open reduction .

A standard proforma was use to collect the necessary information regarding each case

INCLUSION CRITERIA;

1.minimally displaced or un displaced fractures
2.unfavourble fractures of mandibulas parasymphysis body region
3.fractures in symphysis, parasymphysis region .
4.patients above 18 years of age .
5.patients medically fit for general /local anesthesia
6.Non-comminucted fractures
7.Non infected fractures

EXCLUSION CRITERIA

1. Patients below 18 yrs of age
2. Patients with any systemic disease which contraindicates genral anesthesia
3. Patients with comminuted fractures
4. Patients with frank infection.
5. Patients with fractures of body of mandible ;ramus and angle of mandible.

The patients after inclusion criteria were divided into three groups based on their age

Group A are the patients with age 18-30 yrs

Group B are the patients with age 30-50 yrs

Group C are the paient with age above 50 yrs

Throughout the study these patients will be evaluated preoperatively, intraoperatively and post operatively for various parameters.

Preoperatively opg will be taken and compared with postopertive opg to check the adequacy of reduction & fixation.

Routine boold & radiological investigations will be done .surgical approach either through an intraoral or extra oral approach.

The intravenorus line will be secured to administer antibiotics

All the patients will be evaluated postoperatively on 1^{st} 4^{th} & 8^{th} week.

Clinical utility & out come of this modified polygonal shaped plate will be evaluated in following parameters

1.Operative time :the operative time for the surgery will be calculated as commencing of the incision and ending with completion of wound closure

2. **Ease of placement of modified polygonal plate:**

This will be based on operators evaluation of the degree of difficulty in adapting & placing the plate it will be assessed as easy, mildly difficult , moderately difficult and severely difficult Based on operator's experience.

3.**OCCLUSION:**

The pre operative & postoperative occlusion will be evaluated

0-stable occlusion

1-mildy deranged (slight gap b/w for 2 cups on unilateral/bilateral sides

2-unstable /grossly deranged occlusion(no occlusal contact)

4.postoperative reduction of fracture

Patients will be evaluated radiologically at 1 week 4 week and 8 week intervals with opg

If a discrepancy of

1-3 mm- good reduction

3-5 mm – fair reduction

5mm - poor reduction

5.Neurosensory disturbances ; the patients will be asked for their subjective impression of any alteration sensory function.

All pts were evaluated preoperatively the sensation at the opposite side of

	the fracture act as control area.all the neurosensory test will be performed in a room free of acoustic visual stimuli **6.post operative infection:** Criteria for infection a)purulent discharge from infection b)pain in operated region c)serosanguinous drainage Analysis for each parameter i.e, operative time ease of placement of modified polygonal plate,occlusion ,post operative reduction of fracture, neurosensory disturbance were evaluated in 3 groups of patients using wilkoksan signed rank test.
7.2	**Does the study require any investigations or intervention to be conducted on patients or other humans or animals, if so, describe briefly?** **YES. A modified titanium miniplate with flip to aid in encircling mental nerve is placed during mandibular fracture fixation to prevent compression of mental nerve.**
7.3	**Has ethical clearance been obtained from your institution?**

8. REFERENCES

1. Abhay Datarkar, Shikha Tayal, Abhishek Thote, Manlio Galie, An in-vitro evaluation of a novel design of miniplate for fixation of fracture segments in the transition zone of parasymphysis-body region of mandible using finite element analysis,Journal of Cranio-Maxillofacial Surgery,Volume 47, Issue 1,2019,Pages 99-105 ISSN 1010-5182,

2. Scolozzi P, Richter M: Treatment of severe mandibular fractures using AO reconstruction plates. J Oral Maxillofac Surg 61(4): 458e461, 2003 Apr 1.

3. Reginald H.B. Goodday, DDS, MSc, FRCD(C), FICD .Management of Fractures of the Mandibular Body and Symphysis.

4. V. Singh, I. Kumar, A. Bhagol: Comparative evaluation of 2.0-mm locking plate system vs 2.0-mm nonlocking plate system for mandibular fracture: a prospective randomized study. Int. J. Oral Maxillofac. Surg. 2011; 40: 372–377.

5. Jason A. Biller, MD; Steven D. Pletcher MD; Andrew N. Goldberg, MD, MSCE; Andrew H. Murr, MD, FACS Complications and the Time to Repair of Mandible Fractures. The American Laryngological, Rhinological and Otological Society
   DOI: 10.1097/01.MLG.0000157328.10583.A7 Laryngoscope 115: May 2005

6 Aggarwal, S., Singh, M., Modi, P., Walia, E., & Aggarwal, R. (2017). Comparison of 3D plate and locking plate in treatment of mandibular fracture—a clinical study. Oral and Maxillofacial Surgery, 21(4), 383–390.

7.Maloney, P. L., Lincoln, R. E., & Coyne, C. P. (2001). A protocol for the management of compound mandibular fractures based on the time from injury to treatment. Journal of Oral and Maxillofacial Surgery, 59(8), 879–884. doi:10.1053/joms.2001.25021

9. SIGNATURE OF THE CANDIDATE	
10. REMARKS OF THE GUIDE	
11 11.1 NAME & DESIGNATION OF THE GUIDE(IN BLOCK LETTERS)	Dr. A MAHEEDHAR ASSISTANT PROFFESSOR
11.2 SIGNATURE	

11.3 NAME & DESIGNATION OF THE CO- GUIDE(IF ANY)	-N. A-
11.4 SIGNATURE	-N. A-
11.5 HEAD OF DEPARTMENT	Dr. SRINIVAS GANTI
11.6 SIGNATURE	
12.1 REMARKS OF THE PRINCIPAL	
12.2 SIGNATURE	

DISSERTATION SYNOPSIS

Dr.VELAGANA MOUNIKA

1st YEAR POSTGRADUATE

DEPARTMENT OF ORAL &MAXILLOFACIAL SURGERY

Guide:

Dr. PHANI HIMAJA DEVI. V

READER

DEPARTMENT OF ORAL & MAXILLOFACIAL SURGERY

KIMS DENTAL COLLEGE AND HOSPITAL

AMALAPURAM

ANDHRA PRADESH

DR. NTRUNIVERSITY OF HEALTH SCIENCES, VIJAYAWADA,

ANDHRA PRADESH.

KIMS DENTAL COLLEGE AND HOSPITAL AMALAPURAM

PROFORMA FOR REGISTRATION OF SUBJECTS FOR DISSERTATION

1.	NAME OF THE CANDIDATE (IN BLOCK LETTERS)	Dr. VELAGANA MOUNIKA
2.	NAME OF THE INSTITUTION	KIMS Dental College and Hospital, AMALAPURAM
3.	COURSE OF STUDY AND SUBJECT	MASTER OF DENTAL SURGERY, (MDS) ORAL & MAXILLOFACIAL SURGERY
4.	DATE OF ADMISSION TO THE COURSE	30/07/2020
5.	TITLE OF TOPIC	Comparative evaluation of cyanoacrylate tissue adhesive and silk suture in intra oral wound closure following the surgical removal of impacted mandibular third molar- a randomized controlled study.

6.	**Brief Resume of Intended work**:	
	6.1	**Need for the study:** Surgical extraction of impacted mandibular third molars is a common procedure in oral surgery. The most common method of wound closure following third molar surgery is suturing. However, suturing in this confined space increases surgical time and necessitates good suturing skills. Needle penetration during suturing also causes trauma & acts as a pathway for passage of bacteria. Silk has been the most universally used suture material in dentistry and many other surgical disciplines. Silk is easy to handle, economical and has good knot security. However it is non-absorbable, thus there is a need for second appointment to remove the sutures. The removal may increase both direct &indirect costs to the patient. Although absorbable sutures are available, most have unpredictable resorption rates In the oral cavity; they weaken and dissolve early, or remain in the incision area for too long. These have prompted the need for an alternative method of wound closure. The use of cyanoacrylate tissue adhesive as an alternative to suturing in surgical procedures is described to be effective. It has an immediate haemostatic effect when used in the treatment of prolonged oral bleeding. It rapidly adheres to hard and soft tissues and its ease of application shortens the operating time. It also has an antimicrobial effect in the oral cavity because of its bacteriostatic nature. Cyanoacrylate on contact with moisture form strong bridge that keeps wound edges in contact and allows for healing by primary intension. The polymerization reaction takes about 10-15 seconds. Cyanoacrylate is non-absorbable and takes 7-10 days to slough off the mucosa and skin after application.

6.2

REVIEW OF LITERATURE:

FOUAD A. AL-BELSAY etal. (2003) Evaluated the local haemostatic effect of n-butyl-2-cyanoacrylate glue in warfarin –treated patients who undergo outpatient oral surgery without a change in their level of anticoagulation. They concluded that multiple extractions Can be performed in patients taking oral anticoagulant therapy without a change in their level of anticoagulation provided an efficient local haemostatic measure is instituted. And , in this regard ,histoacryl glue used as a topical adhesive over approximated wound edges is an effective and easily applicable local haemostatic agent for oral surgery in such patients

BYUNG-HO CHOI etal (2006) Assessed the efficacy of cyanoacrylate adhesive in the management of large perforations of the maxillary sinus membrane during sinus lifts. Wounds repaired with cyanoacrylate adhesive showed newly formed continuous epithelium across the previous perforation site and there was sinusitis on the contra lateral side. These results support the clinical use of cyanoacrylate adhesive for repairing sinus membrane perforations.

P. DANIEL KNOTT etal. (2007) compared the long-term cosmesis of Dermabond (octyl-2-cyanoacrylate) and traditional skin sutures among patients undergoing primary cleft lip palate repair. Dermabond tissue adhesive offers equivalent mature wound cosmesis as traditional suture closure in the repair of the congenital cleft lip palate.

MEHDI GHOREISHIAN etal (2009)

Evaluated the efficacy of cyanoacrylate Tissue adhesive and suturing for closure of the surgical wound after removal of impacted mandibular third molars. This study suggested that the efficacies of cyanoacrylate and suturing in wound closure were similar in the severity of pain, but use of cyanoacrylate resulted in better hemostasis

AJIT D. JOSHI • HARISH SALUJA etal (2011) compared the efficacy of cyanoacrylate (tissue glue) placement after surgical removal of impacted mandibular third molars. The data analysis showed that postoperative bleeding with cyanoacrylate method was less significant than with suturing on the first and second day after surgery. There was no significant difference in the severity of pain between the two methods. This study suggested that the efficacy of both, cyanoacrylate and suturing in wound closure were similar in the severity of pain, but use of cyanoacrylate showed better hemostasis.

SNEHASETIA etal (2015) evaluated the efficacy, advantages, and disadvantages of cyanoacrylate glue (Iso Amyl 2-Cyanoacrylate) for sutureless_wound_closure after surgical removal of impacted mandibular_third_molars.This study suggested that the efficacy of both, cyanoacrylate glue and suturing, was similar in wound healing, but the use of cyanoacrylate glue showed better hemostasis, decreased pain and swelling and was expeditious.

	6.3	**Aim & Objectives of the study** : The aim of the study is the comparative evaluation of cyanoacrylate tissue adhesive and silk suture in intra oral wound closure following the surgical removal of impacted mandibular third molar- A randomized controlled study.

7

7.1 **MATERIALS AND METHODS**

A randomized controlled clinical study to compare the use of cyanoacrylate tissue adhesive and silk suturing for closure of the surgical wound after extraction of impacted mandibular third molars. A total of 30 patients will be taken in this study. History and clinical examination will be carried out for all patients presenting at the oral surgery clinic for extraction of impacted mandibular third molar. To determine the subjects eligible for the study, Radiographs (IOPA/OPG) of the impacted tooth will be taken for each subject. Investigations include complete blood picture (including CT, BT) & serological tests will be advised, Informed consent will be obtained from subjects who met the inclusion criteria.

Inclusion criteria

1. All subjects of 18 years and above with any type of impacted mandibular third molar.
2. Subjects not allergic to the drugs or anaesthetic agent in the surgical protocol.
3. Subjects with good oral hygiene.
4. Subjects who were non-smokers.

Exclusion criteria

1. Distoangularly impacted tooth.
2. Subject's with known systemic diseases such as Bleeding dyscrasias and immunosuppressive disorders like(un-controlled diabetes mellitus).

Preoperative consideration

Eligible subjects will be allocated into either group A (suture) or group B (cyanoacrylate) using a table of random numbers. Subjects and Surgeon will be blinded to wound closure method. And the method of closure will be decided at the time of closure.

Preoperative measurements

The subjects will be educated on how to complete the subjective measurements.

Pain: The pain perception will be recorded subjectively by the subjects using a Visual Analogue Scale (VAS).

Facial swelling: This will be recorded by measurement of Tragus to Pogonion (ear to chin), Tragus to Oral Commissure (outer corner of the mouth), and Outer Canthus to Gonion (angle of the mandible). The mean value of these three measurements will be then calculated. The measurement will be in millimeters.

Mouth opening: The mouth opening will be taken as the maximum distance between mesial incisal edges of maxillary and mandibular central incisors in the midline. The measurement will be in millimeters.

Operative procedure

1. All the surgical extractions will be carried out under local anesthesia by the same Surgeon.

2. Subjects will be asked to rinse their mouth with 0.12% chlorhexidine solution for 1 min prior to the procedure, and no preoperative medication will be given.

3. The inferior alveolar, long buccal and lingual nerves will be anaesthetized with 2% lidocaine hydrochloride with epinephrine 1:2,00000 using conventional block technique.

4. Buccal approach with a modified wards incision will be used. The flap will be reflected and ostectomy performed by buccal guttering technique with a number-702 SS-White bur under copious irrigation with sterile 0.9% normal saline solution.

5. The tooth will be sectioned with a fissure burr; if necessary, then all parts of the tooth will be removed. Once the extraction will be completed, socket will be curetted and sharp bony edges will be rounded up with bone file along with copious irrigation with about 50 ml of 0.9% normal saline.

6. The bone operating time will be recorded by a trained assistant using a calibrated stopwatch. This time will be referred to as the time required for tooth delivery from beginning of incision. The measurement will be in minutes.

Closure method

Group A:
After achieving haemostasis, the flap will be repositioned and closed with 3-0 silk suture using an interrupted suturing technique.
Three sutures will be placed; one at the mesial relieving incision, the second placed distal to the second molar and the third placed distal to the extraction socket to achieve healing by primary intention.

Group B:

After achieving haemostasis, the flap will be repositioned and closed by using cyanoacrylate glue [n-butyl-2- Cyanoacrylate). The wound edges will be adapted together with a tissue holding forceps, then 1st layer of cyanoacrylate glue will be applied by dropping the liquid from a syringe and needle (provided by manufacturer) along the whole incision lines (distal incision, mesial relieving incision and flap over the socket), followed by another layer after 20 s. The closure will also be done to achieve healing by primary intention.

Closure time:

The closure time (in seconds) will be recorded by a trained assistant using a calibrated stopwatch. In group A, the closure time will be regarded as the time between the placement of the first suture and the final suture. In group B, the closure time will be regarded as the time between the placement of the first drop of n-butyl-2-cyanoacrylate and the final drop.

Postoperative procedure

After the extraction, subjects will be informed to eat a soft diet and avoid using the operated side for mastication within the first 24 h.

Normal oral hygiene including warm saline mouth rinse and tooth brushing started a day after surgery.

All subjects will given similar postoperative medications which will be commenced immediately after the procedure; Caps. Amoxicillin 500 mg 8 hrly for 5 days Tabs zerodol-sp for 5 days.

Postoperative evaluation

Postoperative pain, swelling (facial width) and trismus will be measured as described preoperatively.

1. Pain will be measured for 5 consecutive postoperative days.

2. Swelling and trismus will be measured on postoperative days 1, 3 and 7.

3. Bleeding: The subjects will be asked to indicate their subjective perception of bleeding on a modified VAS in a similar fashion for 3 postoperative days; from day 1 to day 3. The scale used was a categorical ordinal scale. It was Subdivided into 4 equal parts with
   score 0 corresponding to No bleeding,
   1: oozing,
   2: Accidental Low Bleeding,
   3: Continuous Low Bleeding, and
   4: Massive Bleeding.

4. Wound dehiscence: Presence of gaping along the incision line will be regarded as dehiscence. This will assessed by visual inspection and by gentle probing with a Williams probe. The assessment will be done on the 7th postoperative day.

5. Wound infection: A diagnosis of surgical wound infection will be established if there is any purulent discharge from the surgical site or there are other signs of infection, such as fever, lymphadenopathy, or persistent swelling and pain that cannot be explained by surgical trauma. The assessment will be done on postoperative days 1, 3 and 7.

7.2	**Does the study require any investigations or intervention to be conducted on patients or other humans or animals, if so, describe briefly?** Yes, this study will be performed on humans. In this study 30 subjects with impacted mandibular 3rd molars will be included and the surgical removal of impacted tooth will be done under local anesthesia. Silk sutures, cyanoacrylate will be placed in patients who will be selected randomly and they will be divided in to suture group & cyanoacrylate group. Investigations include radiographs (IOPA/OPG) & complete blood picture, serological tests (CT, BT). The results will be compared between two groups
7.3	**Has ethical clearance been obtained from your institution?**

8. REFERENCES

1. Al-Belasy FA, Amer MZ: Haemostatic effect of n-butyl-2-cyanoacrylate (histoacryl) glue in warfarin-treated patients undergoing oral surgery. J Oral Maxillofac Surg.2003 Dec, 61(12); 1405-1409.
2. Choi B, Kim B, and Huh J, Lee S: Cyanoacrylate adhesive for closing sinus membrane perforations during sinus lifts. J Cranio-Maxillofac Surg.2006, 34;505-59.
3. Knott PD, Zins JE, Banbury J, Djohan R, Yetman RJ, Papay F: A comparison of dermabond tissue adhesive and sutures in the primary repair of the congenital cleft lip. Ann Plast Surg. 2007 Feb, 58(2);121-125.
4. Ghoreishian M, Gheisari R, Fayazi M: Tissue adhesive and suturing for closure of the surgical wound after removal of impacted mandibular third molars: a comparative study. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2009 Jul, 108(1);14-16.
5. Joshi A, Saluja H, and Mahindra U, Halli R: A comparative study: efficacy of tissue glue and sutures after impacted mandibular third molar removal. J Maxillofac Oral Surg.2011, 10(4);310-315.
6. Setiya S, Halli R, Shah A, Chhabaria G, Singh T: Comparative evaluation of efficacy of tissue glue and sutures after surgical removal of impacted mandibular third molars e a prospective controlled clinical study. J Oral Maxillofac Surg Med Pathol.2015, 27(2);183-188.

9. SIGNATURE OF STUDENT	

10. REMARKS OF THE GUIDE	
11 11.1 NAME & DESIGNATION OF THE GUIDE (IN BLOCK LETTERS)	Dr. PHANI HIMAJA DEVI.V
11.2 SIGNATURE	
11.3 NAME & DESIGNATION OF THE CO-GUIDE (IF ANY)	-N. A-
11.4 SIGNATURE	-N. A-
11.5 HEAD OF DEPARTMENT	Dr. SRINIVAS.G
11.6 SIGNATURE	
12.1 REMARKS OF THE PRINCIPAL	
12.2 SIGNATURE	

DISSERTATION SYNOPSIS

Dr. CHINTHAPALLY SHANTHI PUSHPA

1st YEAR POSTGRADUATE

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

Guide:

Dr. SRINIVAS GANTI

PROFESSOR AND HEAD

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

ANDHRA PRADESH

DR. NTRUNIVERSITY OF HEALTH SCIENCES, VIJAYAWADA,

ANDHRA PRADESH.

PROFORMA FOR REGISTRATION OF SUBJECTS FOR DISSERTATION

1.	NAME OF THE CANDIDATE (IN BLOCK LETTERS)	Dr. CHINTHAPALLY SHANTHI PUSHPA
2.	COURSE OF STUDY AND SUBJECT	MASTER OF DENTAL SURGERY, (MDS) Oral & maxillofacial surgery
3.	DATE OF ADMISSION TO THE COURSE	23/07/2020
4.	TITLE OF TOPIC	Evaluating the efficiency of local infiltration technique as a simpler substitute for IANB in mandibular posterior teeth extraction

6. Brief Resume of Intended work:

6.1 **Need for the study:**

IANB is the common anesthetic technique used in the posterior mandible

When successfully administered, it provides sufficient anesthesia in a wide zone of the posterior mandible to perform surgery and restorations.

At the same time, it has a somewhat high failure rate of 7 to 75%

It has major complications as systemic toxicity from

a. Iatrogenic intravascular injections
b. Bleeding from injury to neighboring blood vessels
c. Also transient or even permanent paresthesia of the inferior alveolar or lingual nerves

To evade these draw backs of IANB, alternatives like PDL, infiltration anesthesia can used. Local infiltration anesthesia is another simple alternative with less complications. local infiltration advantages over IANB is that, it decreases the patient's discomfort of a painful injection this can be beneficial for patients with non-vital teeth, remaining roots and teeth with grade-3 mobility.

6.2 **REVIEW OF LITERATURE**:

David L. Vreeland, et.al (1989), evaluated the anesthetic efficacy of 1.8 ml of 2% lidocaine with 1:100,000 epinephrine, 3.6 ml of 2% lidocaine with 1:200,000 epinephrine, and 1.8 ml of 4% lidocaine with 1:100,000 epinephrine in human inferior alveolar nerve block using electrical pulp tester. No significant differences in anesthetic success or failure were found among the three solutions.

Thomas Yonchak et.al (2001) measured the degree of anesthesia obtained with unilateral and bilateral inferior alveolar nerve blocks to determine whether cross innervation occurs in anterior teeth. Cross innervation does seem to occur in mandibular central and lateral incisors. However, the success rates in these teeth with bilateral inferior alveolar nerve blocks were below 75%. The failure of the inferior alveolar nerve blocks to anesthetize the anterior teeth was the overriding reason for failure. Clinically, bilateral inferior alveolar nerve blocks to provide profound pulpal anesthesia in mandibular anterior teeth are not recommended on the basis of the results of this study

Geoffrey Steinkruger et.al(2006) compared the degree of pulpal anesthesia achieved with the use of a conventional inferior alveolar nerve (IAN) block administered with the needle bevel oriented away from the mandibular ramus or toward the mandibular ramus using a 27-gauge needle with the bevel oriented away from the mandibular ramus was similar to using the same needle with the bevel oriented toward the mandibular ramus to administer successful IAN blocks in adults

Hengameh Ashraf et.al (2013) compared the anesthetic success rate of buccal infiltration injections of articaine and lidocaine when supplemented with an IANB. Supplementing an incomplete articaine IANB with articaine infiltration raises the anesthetic success more effectively compared with lidocaine in mandibular molars with irreversible pulpitis

Khalid E. El-Kholey (2013). investigated the clinical anesthetic efficacy obtained with 1:100,000 epinephrine plus 4% articaine (A100) 1.8ml versus 3.6 ml as mandibular first molar buccal infiltration during removal of impacted lower third molars. Infiltration in the buccal vestibule opposite the mandibular first molar by A100 3.6 ml may be a good option for extraction of mandibular third molars, with supplemental lingual anesthesia

Stella Agra Silva et.al (2019) compared the anesthetic efficacy of two volumes of articaine in conventional inferior alveolar nerve block (IANB) of mandibular molars with irreversible pulpitis, and in cases of anesthetic failure, its complementation with periodontal ligament injection (PDL). Both volumes presented a similar efficacy, though neither resulted in effective pain control during irreversible pulpitis treatment.

	7 **7.1**	**Aim & Objectives of the study:** The aim of the study is to assess the success of infiltration anesthesia over inferior alveolar nerve block during mobile & non-vital teeth extraction in posterior mandible

7.2 **MATERIALS AND METHODS**

PATIENTS:

This is a prospective study involving 100 patients classified into groups of 50 each to be given either IANB or local infiltration for mandibular mobile, non-vital posterior teeth extraction.

Detailed medical history and informed consent will be taken for each patient
Investigations- CT,BT,APTT & IOPA

Inclusion criteria

a. Older than 18years
b. Healthy patients- patients without any systemic diseases such as bleeding dyscrasias & immune suppression(like Diabetes mellitus & AIDS)

Exclusion criteria

a. Allergy
b. Pregnancy
c. Patients taking medication that affects pain sensation (analgesics, anti-depressants, narcotics & sedatives)
d. Patients having active pathology at the site of injection

OPERATIVE PROCEDURE:

All the extractions are carried out under L.A & by same surgeon
Patients are divides into 2 groups A & B
For group A Inferior alveolar, Long buccal & lingual blocks are given
For group B buccal infiltration is given
1.8ml cartridge loaded with 1: 2,00,000 epinephrine
For IANB
1ml L.A –for inferior alveolar block
0.5ml L.A--for lingual nerve block
0.3ml L.A--for long buccal nerve

For local infiltration
2 injections using short needle & dental syringe
1.5ml out—for buccal soft and hard tissues
0.3ml-------for lingual soft and hard tissues

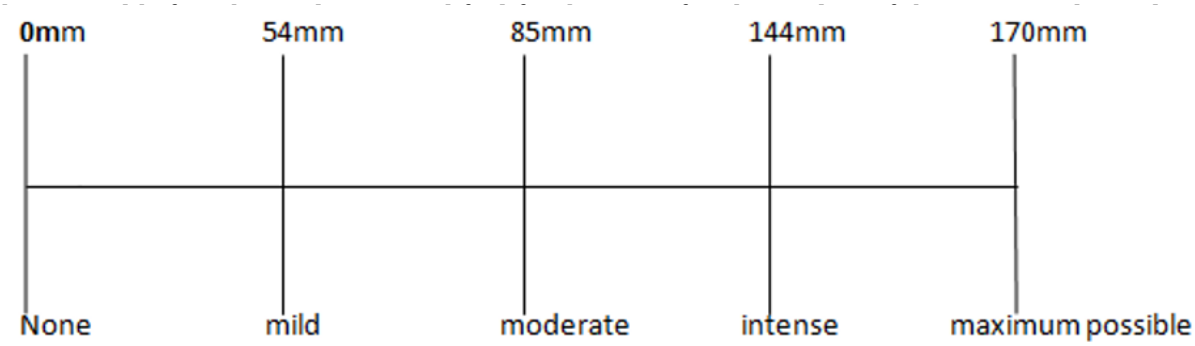
Parameters:
1.Onset of action
2.Pain
3.Duration of anesthesia

Onset of action

The success of anesthetic effect will be tested in 2-5 min.
Onset of anesthesia is tested using stop watch.
subjectively- by asking the patient about numbness in the lip & the tongue.
objectively- by putting a probe at the gingival margin from buccal to lingual sides.

Pain

Subjects will be educated on how to mark the subjective descriptors
Pain assessment will be done with modified Heft parker scale.
The original Heft parker scale is modified for the ease of understanding of the patient and to reduce the descriptor bias.



Each patient will be asked to put a mark on the line below to show the amount of pain that he felt
If the patient felt no pain the anesthetic technique considered successful
If there is pain, the procedure will be terminated IANB performed to the patient to complete the extraction

	Duration of anesthesia Duration of anesthesia will be measured with stop watch Beginning point: from the beginning of onset of anesthesia End point: until the patient symptoms of numbness subside and patient starts to feel pain
7.2	**Does the study require any investigations or intervention to be conducted on patients or other humans or animals, if so, describe briefly?** Yes, this study will be conducted on humans .In this study patients with either mobile / non-vital teeth are included, and the extractions will be done under L.A Investigations: CT,BT,APTT,IOPA's Results will be compared between 2 techniques
7.3	**Has ethical clearance been obtained from your institution?**

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1.Thomson wm, Dixon gs, Kruger e. the west coast study ii: dental anxiety and satisfaction with dental services. n z dent j. (1999); 95(420):44–48.

2. Kaufman e, Epstein jb, naveh e, gorsky m, gross a, Cohen g. a survey of pain, pressure, and discomfort induced by commonly used oral local anaesthesia injections. anesth prog. (2005);52(4):122–127. ormalamed sf (1997) handbook of local anaesthesia.

3. Mosby, St. louis. 4. foster w, drum m, reader a, beck m. aesthetic efficacy of buccal and lingual infiltrations of lidocaine following an inferior alveolar nerve block in mandibular posterior teeth. anesth prog. (2007); 54(4):163–169.

4. shabazfar n, daublander m, al-nawas b, kämmerer pw. periodontal intraligament injection as alternative to inferior alveolar nerve block—meta-analysis of the literature from 1979 to 2012. clin oral investig**.** (2014); 18(2):351–358.

5.Davis mj, vogel ld. local anaesthetic safety in paediatric patients. n y state dent j. (1996); 62(2):32–35.

6. kämmerer pw, palarie v, daublander m, bicer c, shabazfar n, brullmannd, al-nawas b. comparison of 4% articaine with epinephrine (1:100,000) and without epinephrine in inferior alveolar block for tooth extraction: double-blind randomized clinical trial of anaesthetic efficacy. oral surg oral med oral pathol oral radiol. (2012); 113(4):495– 499.

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9. SIGNATURE OF THE CANDIDATE	
10. REMARKS OF THE GUIDE	
11. NAME & DESIGNATION OF THE GUIDE (IN BLOCK LETTERS)	Dr. SRINIVAS GANTI
12. SIGNATURE	
13. NAME & DESIGNATION OF THE CO-GUIDE (IF ANY)	-N. A-
14. SIGNATURE	-N. A-
15. HEAD OF DEPARTMENT	Dr. SRINIVAS GANTI
16. SIGNATURE	
18. REMARKS OF THE PRINCIPAL	
19. SIGNATURE	

DISSERTATION SYNOPSIS

Dr. BADAVATH SURESH

1ST YEAR POSTGRADUATE

Guide :

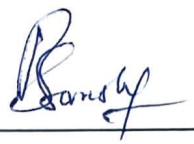
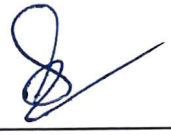
Dr. SRINIVAS GANTI

PROFESSOR & HEAD OF THE DEPARTMENT

DR. NTR UNIVERSITY OF HEALTH SCIENCES, VIJAYAWADA,
ANDHRA PRADESH.

PROFORMA FOR REGISTRATION OF SUBJECTS FOR DISSERTATION

1.	NAME OF THE CANDIDATE (IN BLOCK LETTERS)	Dr. BADAVATH SURESH
2.	NAME OF THE INSTITUTION	KIMS DENTAL COLLEGE AND HOSPITAL, AMALAPURAM
3.	COURSE OF STUDY AND SUBJECT	MASTER OF DENTAL SURGERY, (MDS) ORAL AND MAXILLOFACIAL SURGERY
4.	DATE OF ADMISSION TO TO THE COURSE	28/10/2021
5.	TITLE OF TOPIC	EVALUATION OF CLINICAL OUTCOME OF PATIENTS WITH MANDIBULAR ANGLE FRACTURES TREATED BY 3 DIMENSIONAL RECTANGULAR MINI PLATE THROUGH SUBMANDIBULAR APPROACH - A PROSPECTIVE STUDY.

9. SIGNATURE OF THE CANDIDATE	
10. REMARKS OF THE GUIDE	
11.1 NAME & DESIGNATION OF THE CO-GUIDE(IN BLOCK LETTERS)	DR.SRINIVAS GANTI PROFESSOR & HEAD OF THE DEPARTMENT
11.2 SIGNATURE	
11.3 NAME & DESIGNATION OF THE CO- GUIDE(IF ANY)	DR. A.VENKATA MAHEEDHAR READER
11.4 SIGNATURE	
11.5 HEAD OF DEPARTMENT	Dr. SRINIVAS GANTI
11.6 SIGNATURE	
12.1 REMARKS OF THE PRINCIPAL	
12.2 SIGNATURE	

DISSERTATION SYNOPSIS

DR. BOLISETTY RAJA VENKATA NAGA SAI MANOHAR

1ST YEAR POSTGRADUATE

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

Guide:

Dr.SRINIVAS GANTI

PROFESSOR & HEAD OF THE DEPARTMENT

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

KIMS DENTAL COLLEGE

AMALAPURAM.

ANDHRA PRADESH

DR. NTR UNIVERSITY OF HEALTH SCIENCES, VIJAYAWADA,

ANDHRA PRADESH.

KIMS DENTAL COLLEGE AND HOSPITAL AMALAPURAM

PROFORMA FOR REGISTRATION OF SUBJECTS FOR DISSERTATION

1.	NAME OF THE CANDIDATE (IN BLOCK LETTERS)	DR .BOLISETTY RAJA VENKATA NAGA SAI MANOHAR
2.	NAME OF THE INSTITUTION	KIMS DENTAL COLLEGE AND HOSPITAL, AMALAPURAM
3.	COURSE OF STUDY AND SUBJECT	MASTER OF DENTAL SURGERY, (MDS) ORAL AND MAXILLOFACIAL SURGERY
4.	DATE OF ADMISSION TO THE COURSE	15/11/2021
5.	TITLE OF TOPIC	COMPARATIVE EVALUATION OF PERIIMPLANT BONE LEVELS OF IMMEDIATE AND DELAYED LOADED IMPLANTS

Dr.NTR UNIVERSITY OF HEALTH SCIENCES::AP::VIJAYAWADA- 520 008

Dr.No.412/A4/MDS/Diss/2020-21 Dt: 06-05-2021

To
The Principal,
KIMS Dental College & Hospital,
NH-216,
Chaitanya Nagar,
Amalapuram – 533 201.
East Godavari Dist.

Sir,

Sub:- Dr.NTR UHS: Academic – MDS Course 2020-21 – Registration of Dissertation Topics – Allotment of Registration Numbers – Reg.

Ref:- 1) Your Lr.No.17/E3/2021, Dt.21.04.2021.
2) 4891/EA2b/MDS/2020, dt.12.11.2020.

* * * * *

With reference to the above, it is to inform that the dissertation topics of the following MDS students for the year 2020-21 batch whose admissions were approved vide reference 2nd cited are registered with this University duly allotting the registration numbers as noted against their names and topics:

Sl. No.	Name of the Student & Speciality	Topic	Reg. No.
1	Dr. JAHNAVI JAVVADI Conservative dentistry & Endodontics	TIME-DEPENDENT COMPARATIVE EVALUATION OF NEWER IRRIGATING SOLUTIONS AS FINAL WASH ON APICAL SEALING ABILITY AND PUSHOUT BOND STRENGTH OF ROOT CANAL OBTURATION – AN IN-VITRO STUDY.	D200150160
2	Dr. MACHERLA KRANTHI KUMAR Conservative dentistry & Endodontics	COMPARING THE EFFICACY OF TWO IRRIGATION TECHNIQUES ON CLEANLINESS OF DENTINAL TUBULES DURING ENDODONTIC RETREATMENT - AN INVITRO SEM STUDY.	D200150161
3	Dr. KANCHETI CHAMINI Conservative dentistry & Endodontics	EFFECT OF DIFFERENT CHEMICAL AND HERBAL DISINFECTANT SOLUTIONS ON THE SURFACE TOPOGRAPHY AND TENSILE STRENGTH OF GUTTA-PERCHA: AN IN VITRO STUDY.	D200150162
4	Dr. MANGIPUDI KRISHNA SRAVAN Prosthodontics And Crown & Bridge	EVALUATION OF DIMENSIONAL STABILITY & ELASTIC RECOVERY OF ELASTOMERIC IMPRESSION MATERIALS AFTER SUBJECTING TO AUTOCLAVE & CHEMICAL DISINFECTION – AN IN VITRO STUDY.	D200150556

Sl. No.	Name of the Student & Speciality	Topic	Reg. No.
5	Dr. MOHAMMED SANA Prosthodontics And Crown & Bridge	EFFECT OF AUTOGLAZING, REGLAZING AND CHAIR SIDE POLISHING ON COLOUR, SURFACE ROUGHNESS AND STRENGTH OF COMMERCIALLY AVAILABLE FOUR DIFFERENT FELDSPATHIC PORCELAIN MATERIALS:AN INVITRO STUDY.	D200150557
6	Dr. VALLAMETI PALLAVI Orthodontics And Dentofacial Orthopaedics	EVALUATION OF TOOTH SIZE PROPORTION BETWEEN MAXILLARY AND MANDIBULAR ARCHES USING BOLTON'S ANALYSIS.	D200150855
7	Dr. MUDUNURI NAVYA Orthodontics And Dentofacial Orthopaedics	ESTIMATION OF THE PREVALENCE OF MALOCCLUSION AND THE GENDER WISE DISTRIBUTION IN 13-18 YEAR OLD INDIVIDUALS.	D200150856
8	Dr. RUDRAGONI SAI KIRAN GOWD Orthodontics And Dentofacial Orthopaedics	COMPARATIVE EVALUATION OF BIO MECHANICAL PROPERTIES OF DIFFERENT LOOP DESIGNS FABRICATED USING TITANIUM-BASED ALLOYS- AN FEM STUDY.	D200150857
9	Dr. CH SHANTHI PUSHPA Oral & Maxillofacial Surgery	EVALUATING THE EFFICACY OF LOCAL INFILTRATION TECHNIQUE AS A SIMPLER SUBSTITUTE FOR IANB IN MANDIBULAR POSTERIOR TEETH EXTRACTION.	D200150238
10	Dr. VELGANA MOUNIKA Oral & Maxillofacial Surgery	COMPARATIVE EVALUATION OF CYANOACRYLATE TISSUE ADHESIVE AND SILK SUTURE IN INTRA ORAL WOUND CLOSURE FOLLOWING THE SURGICAL REMOVAL OF IMPACTED MANDIBULAR THIRD MOLAR- A RANDOMIZED CONTROLLED STUDY.	D200150239
11	Dr. VADREVU SREESESHA KAMESWARI Oral & Maxillofacial Surgery	MANDIBULAR OSTEOSYNTHESIS WITH A MODIFIED TITANIUM 3D MINIPLATE IN SYMPHYSIS AND PARASYMPHYSIS MANDIBULAR FRACTURES - A PROSPECTIVE CLINICAL STUDY.	D200150240

For further correspondence the registration number of the dissertation must be quoted without fail.

The Principal is further informed to make a note of the following:

a) All the dissertations in respect of the admissions made in 2021-22 should be sent before 31-12-2021 to the University for registration with only one soft copy in excel format or Word file containing consolidated data of all dissertations topics instead of multiple CDs for each individual.

b) All dissertation topics in respect of **Admission Approved** students only should be sent to the University for registration

c) Each topic of a student should be recommended by HOD and to be forwarded by Principal. In case of any repetition of the topics, the concerned Principal / HOD will be held responsible.

Yours faithfully,
Sd/-REGISTRAR

// ATTESTED //

7/5/2021
JOINT REGISTRAR (ACADEMIC)
7/5/21

Copy to the individuals ----- Through the Principal, KIMS Dental College & Hospital, Amalapuram.

Copy to Controller of Examinations, Dr. NTR UHS, Vijayawada.

Dr.YSR UNIVERSITY OF HEALTH SCIENCES::AP::VIJAYAWADA- 520 008

Dr.No.127/A4/MDS/Diss/2021-2022 Dt: 24-11-2022

To
The Principal,
KIMS Dental College & Hospital,
NH-216,
Chaitanya Nagar,
Amalapuram – 533 201.
East Godavari Dist.

Sir,

Sub:- Dr.YSR UHS: Academic – MDS Course 2021-22– Registration of Dissertation Topics – Allotment of Registration Numbers – Reg.

Ref:- 1) Your Lr.No.01/E3/EXAMS/2022, Dt. 30.04.2022.
2) Admissions approved list.
3) Orders of the Vice-Chancellor, dt.24.11.2022.

* * * * *

With reference to the above, it is to inform that the dissertation topic of the following MDS students for the year 2021-22 batch whose admissions are approved vide reference 2nd cited are registered with this University duly allotting the registration numbers as noted against their guides, names and topics:

Sl. No.	Name of the Guide	Name of the Student & Speciality	Topic	Reg. No.
1	Dr. K. SREEHA	Dr. AVINA ARJAMPUDI Conservative Dentistry and Endodontics	"COMPARISON OF EFFECTS OF VARIOUS HEMOSTATIC PROCEDURES ON SEALING ABILITY OF MTA PLUS, MTA REPAIR HP, BIO C REPAIR AS FURCATION REPAIR MATERIALS: AN INVITRO STUDY – SEM ANALYSIS"	D210150160
2	Dr. SUDHENDRA DESHPANDE	Dr. KEERTHI SRI. THOTA Conservative Dentistry and Endodontics	"COMPARATIVE EVALUATION OF DIFFERENT SEALER PENETRATION AFTER REMOVAL OF CALCIUM HYDROXIDE USING PASSIVE ULTRASONIC IRRIGATION :- A CONFOCAL LASER SCANNING MICROSCOPIC ANALYSIS"	D210150161
3	Dr. K. KRISHNA MOHAN	Dr. T. PRASANNA LAKSHMI SUDHA Conservative Dentistry and Endodontics	"COMPARATIVE EVALUATION OF SHEAR BOND STRENGTH AND FLUORIDE RELEASING ABILITY OF THREE DIFFERENT RESTORATIVE MATERIALS: AN IN VITRO STUDY"	D210150162
4	Dr. GANTI SRINIVAS	Dr .BOLISETTY RAJA VENKATA NAGA SAI MANOHAR Oral & Maxillofacial Surgery	"COMPARATIVE EVALUATION OF PERIIMPLANT BONE LEVELS OF IMMEDIATE AND DELAYED LOADED IMPLANTS"	D210150238
5	Dr. V. PHANI HIMAJA	Dr. KA.PRATHUSSHA Oral & Maxillofacial Surgery	"EFFICACY OF 2 POINT FIXATION VERSUS 3 POINT FIXATION IN MALAR BONE FRACTURES – A CLINICAL STUDY."	D210150239

Sl. No.	Name of the Guide	Name of the Student & Speciality	Topic	Reg. No.
6	Dr. GANTI SRINIVAS	Dr. BADAVATH SURESH Oral & Maxillofacial Surgery	"EVALUATION OF CLINICAL OUTCOME OF PATIENTS WITH MANDIBULAR ANGLE FRACTURES TREATED BY 3 DIMENSIONAL RECTANGULAR MINI PLATE - A PROSPECTIVE STUDY"	D210150240
7	Dr. SUMEET SHARMA	Dr. DARA HANCY SUNAINA Prosthodontics & Crown and Bridge	"AN IN VITRO INVESTIGATION OF SURFACE ROUGHNESS, FLEXURAL AND IMPACT STRENGTH OF TWO DIFFERENT HEAT CURE DENTURE BASE RESINS WITH THREEDIFFERENT NANO PARTICLES"	D210150556
8	Dr. A. JYOTHI	Dr . MARTHALA SRUTHI REDDY Prosthodontics & Crown and Bridge	"EVALUATION OF DIMENSIONAL STABILITY OF CASTS OBTAINED FROM ELASTOMERIC IMPRESSION MATERIALS IN DIFFERENT TECHNIQUES AT FREQUENT TIMES OF CAST POURING AFTER SUBJECTING THEM TO DISINFECTION PROTOCOLS - AN IN VITRO STUDY."	D210150557
9	Dr. SRI HARSHA. YELCHURU	Dr. TALIYAKULA ADITYA SESHA SAI Orthodontics and Dentofacial Orthopaedics	"RELIABILITY OF NUMERIC MEASUREMENTS FOR SAGITTAL DISCREPANCIES AND ITS COMPARISON WITH NON- NUMERIC MEASUREMENTS"	D210150855
10	Dr. VASUDEVAN	Dr. SALI DHARMITHA Orthodontics and Dentofacial Orthopaedics	"COMPARATIVE EVALUATION OF SHEAR BOND STRENGTHS OF 3 DIFFERENT UNIVERSAL BONDING ADHESIVES ON DIFFERENT SURFACES – AN IN VITRO STUDY"	D210150856
11	Dr. VASUDEVAN	Dr. DERANGULA LIKHITHA Orthodontics and Dentofacial Orthopaedics	"ASSESSMENT OF PERIODONTAL BIOTYPE IN MAXILLARY AND MANDIBULAR ANTERIOR REGION OF INDIVIDUALS WITH DIFFERENT LEVELS OF CROWDING AND PROCLINATION - A GENDER BASED EVALUATION."	D210150857

For further correspondence the registration number of the dissertation must be quoted without fail.

The Principal is further informed to make a note of the following:

a) All the dissertations in respect of the admissions made in 2022-23 should be sent before 31-12-2022 to the University for Registration with only one soft copy containing consolidated data of all dissertations topics instead of multiple CDs for each individual.

b) All dissertation topics in respect of **Admission Approved** students only should be sent to the University for registration

c) Each topic of a student should be recommended by HOD and to be forwarded by Principal. In case of any repetition of the topics, the concerned Principal / HOD will be held responsible.

Yours faithfully,
Sd/-REGISTRAR

// ATTESTED //

26/11/2022

JOINT REGISTRAR (ACADEMIC)

26/11/22

Copy to the individuals ----- Through the Principal, **KIMS Dental College & Hospital, Amalapuram.**
Copy to the Controller of Examinations, Dr. YSR UHS, Vijayawada.