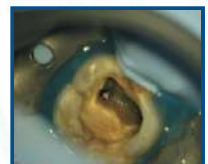




# INSTITUTIONAL BEST PRACTICE

CENTRE OF EXCELLENCE  
DEPARTMENT OF MICRODENTISTRY



## CONTENT

Sr. No.	Title	Page No.
1.	Background	3
2.	Aim and Objectives	4
3.	The Context	5
4.	The Practice	6
5.	Evidence of Success	10
6.	Problems Encountered	39
7.	List of Post Graduate Fellowship Students	40
8.	Letter of Establishment of Post Graduate Fellowship Program	49
9.	Post Graduate Fellowship – Information Brochure	53

## BACKGROUND

**Proposed in the Year:** 2007/2008

**Establishment** – 2009/2010 as Academy of Microdentistry

Founding Faculty Members appointed by Maharashtra University of Health Sciences, Nashik:

1. Dr. Mansing G. Pawar, Director and Professor Department of Microdentistry
2. Dr. P. D. Joshi, Consultant Department of Microdentistry
3. Dr. Abrar Sayed, Consultant Department of Microdentistry
4. Dr. Sangeeta Ambhore, Consultant Department of Microdentistry

**Department of Microdentistry, is a state of art set up situated at Government Dental College and Hospital, Mumbai.** This pioneering concept in India was one of its kind then, now evolved as a full-fledged department practicing Microdentistry as a super-specialty in pursuit of excellence with the global standards in Oral Health Care. Department of Microdentistry aims to enhance the clinical acumen and operating skills of undergraduates, post-graduates and fellowship students by upgrading their knowledge and access to magnification in diagnosis and treatment planning under the Dental Operating Microscope. The founding collaborator Carl Zeiss, India Pvt Ltd assisted the technical and financial support while Maharashtra University of Health Sciences offered administrative support to start a post graduate fellowship programme as follows:

Name of Course: “Post Graduate Fellowship Course in Microdentistry”

Course Duration ; 1 Year

Conducted by : Maharashtra University of Health Sciences, Nashik. & Government Dental College and Hospital Mumbai.

Venue : Academy of Microdentistry, Department of Conservative Dentistry & Endodontics, Government Dental College and Hospital, Mumbai.

Eligibility : B.D.S.or MDS or any other equivalent degree recognized by the Dental Council of India.

Admission : 10 seats/ year

The training comprises lectures, hands-on Demonstrations, and Discussions. This method is currently not taught at the undergraduate level and also in most specialties. Microdentistry will help dentist to hone their skills further and add more treatment options to already existing repertoire. The less invasive nature of microdentistry often results in Diagnosis of Dental issues at the earliest stage, reduced pain, discomfort, and anxiety for patients during and after procedures. By focusing on prevention and conservative treatment, microdentistry aims to maintain optimal oral health, preventing more complex and costly dental issues in the future.

## AIM & OBJECTIVES OF THE PRACTICE

**Aim:** To introduce a new method of practicing dentistry under high power magnification with the help of MICROSCOPE.

**Objectives:**

1. To shorten the learning curve in using Microscope
2. To teach many treatment options of advanced variety under magnification of various specialties such as:
  - a) Early Detection and Prevention of dental issues
  - b) Minimally Invasive Treatments
  - c) Patient Comfort
  - d) Improvement in Aesthetic Outcomes
  - e) Preservation of Oral Health By focusing on prevention and conservative treatment

This expands the scope by improving diagnosis and additional treatment options and also stimulates a dentist to be innovative in his work, thus making a dental professional more complete.

## THE CONTEXT

On daily basis, the doctors encounter and manage several complications in patients related to anatomy as well as iatrogenic. Anatomical complexities include extra/ accessory canals, curved root morphology, variable canal anatomy, calcifications in the canal, etc. Iatrogenic complications include inadequate preparation & obturation, perforation, instrument separation, misdiagnosis, etc. All these complications can be efficiently managed under magnification on the microscope. Apart from managing complication, microscopes offer magnification levels upto 20X significantly improving the clinician's vision to see the fine details invisible to the naked eye. Hence, intricate procedures are handled with great accuracy improving the treatment quality and outcome.

On daily basis, dental surgeons, Post graduates and fellowship students manage routine cases as well as cases those are clinically compromised due to diseased condition and iatrogenic factors. Such conditions may be Anatomical complexities including extra or accessory canals, curved root morphology, variable canal anatomy, calcifications in the canal etc. Iatrogenic complications include inadequate preparation & obturation, perforation, instrument separation, misdiagnosis, etc. All these mishaps are efficiently managed under magnification on the dental operating microscope.

The microscopes assist the clinician in offering magnification levels up to 20X, significantly improving vision and accessibility to see the finer details invisible to the naked eye. Hence, intricate procedures are handled with great accuracy improving the treatment quality and outcome.

The dental operating microscope aids in surgeries and increases the manifold diagnostic acumen. diagnosis of normal anatomical features to microscopical intricacies and diagnosis of disease outcome. It also helps in getting positive compliance from patient due to live videos and photos of their clinical procedures hence dental counseling is one of the important uses of DOM. In this era of technology and information, the live streaming of clinical work on different social platforms aids in the education of the fraternity. Dental operating microscope helps in learning and educating students through various recorded videos.

Record keeping of innumerable surgical cases and archives of clinical data becomes accessible to all.

# THE PRACTICE

Department of Microdentistry is working at following **Three Levels:**

- I] Introduction of Microdentistry to Undergraduate Students
- II] Post Graduate Fellowship Course in Microdentistry
- III] Post Graduate Training of Microdentistry

## **I] Introduction of Microdentistry to Undergraduate Students**

**1.II BDS Pre clinical demonstration on the dental operating microscope of class I Inlay cavity preparation**

<b>Sr. No</b>	<b>Academic Year</b>	<b>Number of batches</b>
1	2019-2020	8
2	2020-2021	8
3	2021-2022	8
4	2022-2023	8
5	2023-2024	8

**2. IV BDS clinical demonstration on the Dental Operating Microscope of Single visit Root canal therapy on Central incisor tooth**

<b>Sr. No.</b>	<b>Academic Year</b>	<b>Number of batches</b>
1	2019-2020	15 students per batch
2	2020-2021	15 students per batch
3	2021-2022	15 students per batch
4	2022-2023	15 students per batch
5	2023-2024	15 students per batch

## **II] Post Graduate Training of Microdentistry**

**Patient Work record of postgraduate students on Dental Operating Microscope :**

<b>Sr. No.</b>	<b>Academic Year</b>	<b>Total number of patients treated under DOM</b>
1	2019-2020	1644
2	2020-2021	1540
3	2021-2022	1425
4	2022-2023	1566
5	2023-2024	1480

### III] Post Graduate Fellowship Course in Microdentistry

**Teaching Methodology:** Consist of Two Modules

a) Contact Education

b) Distance Education

**a) Contact Education** - Total duration 6 Months divided into lectures & workshops.

#### **Lectures**

Stage I - 1 Week 3 Lectures

Stage II - 2 Weeks 3 Lectures

Stage III - 3 Weeks 12 – 15 Lectures

#### **Workshops**

Stage I - 1 Week Hands on

Stage II - 2 Weeks Hands on

Stage III - 1 ½ month Hands on

#### **Lectures**

##### **Stage I:** (3 Lectures)

- Introduction to Microscope
- History of Microscope use
- What is its scope and its features?
- How does scope work? How does it magnify and What are the levels of
- Magnifications?
- What are its different Parts and their functions like Lens, Binocular Tube,
- Fixed tilted and tiltable tubes, Focal Length, Magnification factor,
- Magnification changer etc.,the Arm,Stand, and illumination?
- Recording devices through different attachments like Beam splitter,
- Co-observation port, Video objective lens etc.

##### **Stage II:** Getting started with Microscope (1 Week)

How to position yourself for different teeth?

On – a) Lab Cast

b) Extracted Teeth

c) Mannequin

- d) Phantom Head
- e) Patient Examination and detailed reporting
- f) Using different Magnifications
- g) Learning Micro dentistry Instruments
- h) Interpupillary Distance Parfocaling
- i) Learning Direct & Reflected vision
- j) Hand – eye Co-ordination
- k) Instrument Handling, gripping, passing over assisting
- l) Ergonomics Posture etc.

**Stage III: Working with Microscope on Casts & Extracted teeth & Patients**

- Scaling
- Rubber Dam Application Pit & Fissure Sealants
- Incision & Flap reflection
- Cavity Preparation using Micro drills
- Restorations
- Finishing restorations
- Veneer Preparations
- Veneer Bonding & finishing
- Margin placements for Crown & Bridge
- Lab communication of fit of crowns and bridges Access Opening of different teeth, Locating MB2 Canals in Upper Molar
- Using Ultra Sonics
- Instrumentation with Hand & Rotary files
- Obturation
- MTA placement on Perforation
- Removal of Broken files
- Opening Calcified Canals
- Documentation before, during, after
- Co-diagnosis with Patients
- New Patient Examinations using SOM



- Basic Positioning Skills & Clinical Ergonomics
- Local Anesthesia Delivery
- Suturing with 5.0, 6.0, 7.0 needles
- Apicectomies
- Incision, Flap, Apical Curettage, Ultrasonic Apical Preparations, Placing MTA at Apex

**B| Distance Education** - The Course Material for Distant Education – Online Lectures and Online Live and Recorded video Demonstrations

Links of online Lecture: D:\udaan my lecture\00010.MTS

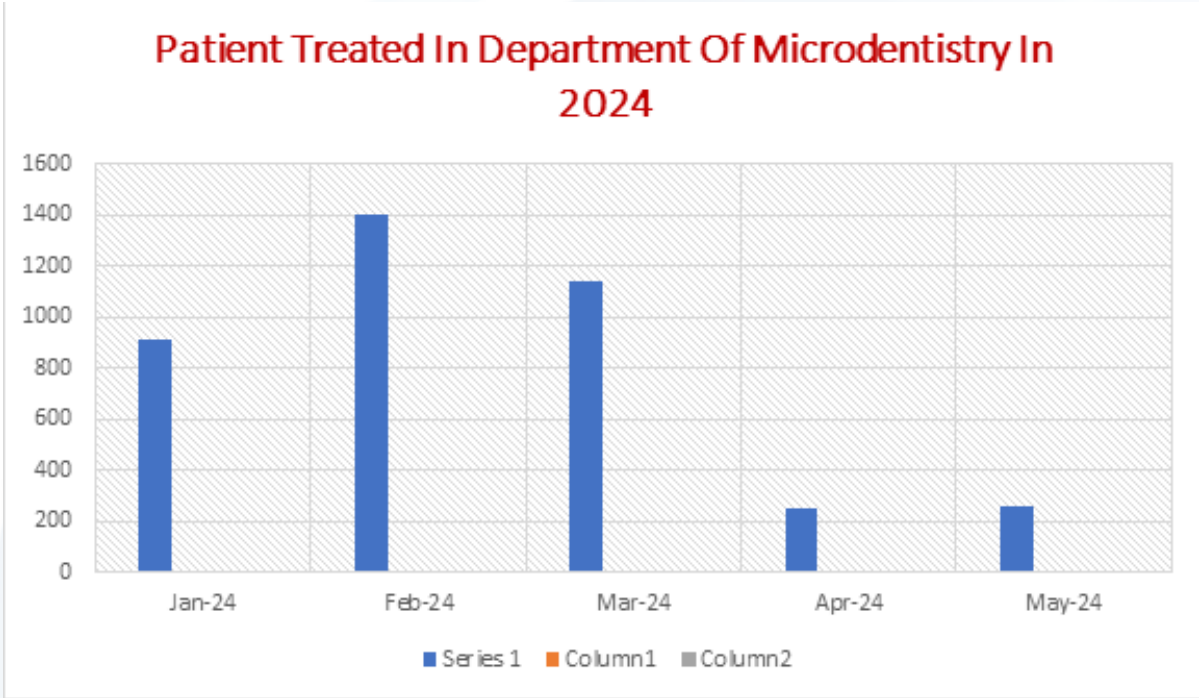
Completion of Research Project related to microscope.

Examination & Certifications Examination of theory and practical along with a viva voce. Post Graduation certificate course in Micro dentistry from MUHS Ceremony for conferment of certificates.

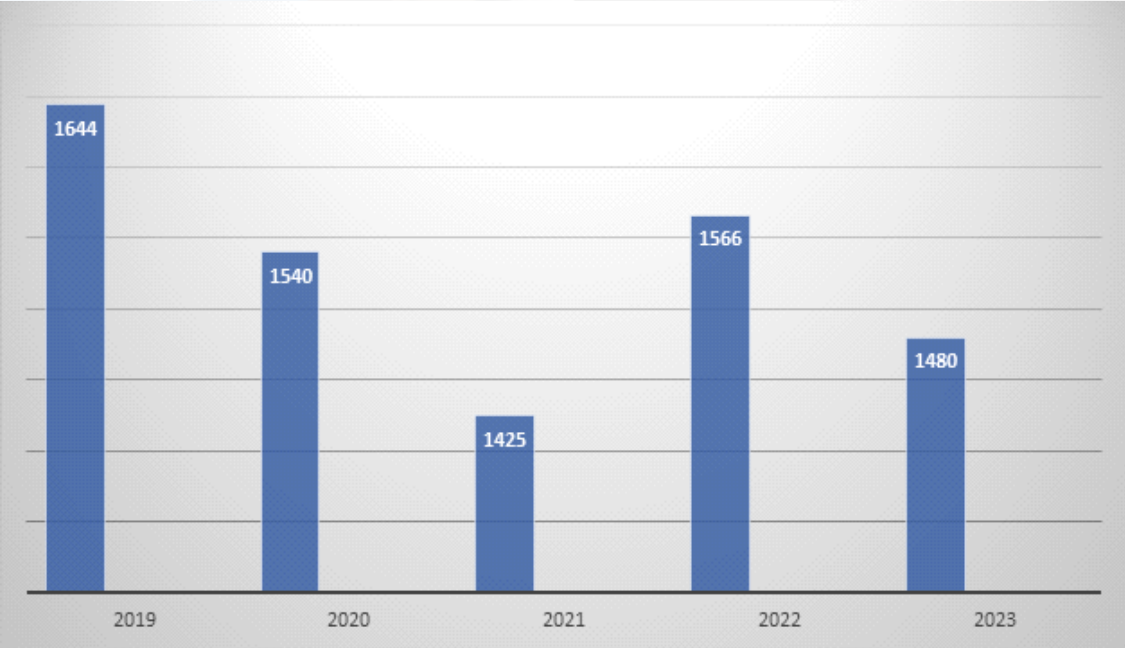
**Last Five year record of Students Working/ Practising Microdentistry**

Sr. No.	Year	Number of Students Working on Microscope		Total Number of Students
		Fellowship	PG Students	
1	2019-2020	07	04	11
2	2020-2021	09	03	12
3	2021-2022	05	03	08
4	2022-2023	07	03	10
5	2023-2024	14	03	17

# EVIDENCE OF SUCCESS



### Last Five Year Patients Record of Department of Microdentistry



## Special Cases Record

Academic Year 2019-2020

Sr.no	CASE	NUMBER OF PATIENTS TREATED
1	Esthetic rehabilitations	334
2	Vital pulp therapy (IPC/DPC/Pulpotomies)	290
3	Calcified canal, locating missed canals	242
4	Perforation repair	365
5	Instrument retrieval/bypass	376
6	Periapical surgeries	37
	<b>TOTAL</b>	<b>1644</b>

Teaching Head  
Department of Microdentistry

### Academic Year 2020-2021

<b>Sr.no</b>	<b>CASE</b>	<b>NUMBER OF PATIENTS TREATED</b>
<b>1</b>	<b>Esthetic rehabilitations</b>	<b>350</b>
<b>2</b>	<b>Vital pulp therapy (IPC/DPC/Pulpotomies)</b>	<b>282</b>
<b>3</b>	<b>Calcified canals , locating missed canals</b>	<b>153</b>
<b>4</b>	<b>Perforation repair</b>	<b>360</b>
<b>5</b>	<b>Instrument retrieval/bypass</b>	<b>359</b>
<b>6</b>	<b>Periapical surgeries</b>	<b>36</b>
	<b>TOTAL</b>	<b>1540</b>

Teaching Head  
Department of Microdentistry

## Academic Year 2021-2022

<b>Sr.no</b>	<b>CASE</b>	<b>NUMBER OF PATIENTS TREATED</b>
<b>1</b>	<b>Esthetic rehabilitations</b>	<b>324</b>
<b>2</b>	<b>Vital pulp therapy (IPC/DPC/Pulpotomies)</b>	<b>287</b>
<b>3</b>	<b>Calcified canal s , locating missed canals</b>	<b>187</b>
<b>4</b>	<b>Perforation repair</b>	<b>234</b>
<b>5</b>	<b>Instrument retrieval/bypass</b>	<b>362</b>
<b>6</b>	<b>Periapical surgeries</b>	<b>31</b>
	<b>TOTAL</b>	<b>1425</b>

Teaching Head  
Department of Microdentistry

## Academic Year 2022-2023

Sr.no	CASE	NUMBER OF PATIENTS TREATED
1	Esthetic rehabilitations	367
2	Vital pulp therapy (IPC/DPC/Pulpotomies)	385
3	Calcified canals , locating missed canals	147
4	Perforation repair	238
5	Instrument retrieval/bypass	392
6	Periapical surgeries	37
	<b>TOTAL</b>	<b>1566</b>

Teaching Head  
Department of Microdentistry

## Academic Year 2023-2024

<b>Sr.no</b>	<b>CASE</b>	<b>NUMBER OF PATIENTS TREATED</b>
<b>1</b>	<b>Esthetic rehabilitations</b>	<b>344</b>
<b>2</b>	<b>Vital pulp therapy (IPC/DPC/Pulpotomies)</b>	<b>289</b>
<b>3</b>	<b>Calcified canals , locating missed canals</b>	<b>187</b>
<b>4</b>	<b>Perforation repair</b>	<b>234</b>
<b>5</b>	<b>Instrument retrieval/bypass</b>	<b>385</b>
<b>6</b>	<b>Periapical surgeries</b>	<b>42</b>
	<b>TOTAL</b>	<b>1480</b>

Teaching Head  
Department of Microdentistry

## Record of Micro Surgical Procedures from 2019-2024

Academic Year 2019-2020

<b>Sr.no</b>	<b>CASE</b>	<b>NUMBER OF PATIENTS TREATED</b>
<b>1</b>	<b>Treatment of traumatized teeth (Fragment reattachments etc)</b>	<b>19</b>
<b>2</b>	<b>Treatment of developmental anomalies (Palatogingival groove/ Dens Invaginatus etc)</b>	<b>16</b>
<b>3</b>	<b>Surgical instrument retrieval and retreatments</b>	<b>8</b>
<b>4</b>	<b>Gingivectomies / Crown lengthening procedures</b>	<b>6</b>
<b>5</b>	<b>Hemisection / Root resection</b>	<b>5</b>
<b>6</b>	<b>Periapical cyst enucleation</b>	<b>37</b>
<b>7</b>	<b>Retrograde preparations and fillings</b>	<b>40</b>
	<b>TOTAL</b>	<b>131</b>

Teaching Head  
Department of Microdentistry



### Academic Year 2020-2021

<b>Sr.no</b>	<b>CASE</b>	<b>NUMBER OF PATIENTS TREATED</b>
<b>1</b>	<b>Treatment of traumtised teeth (Fragment reattachments etc)</b>	<b>28</b>
<b>2</b>	<b>Treatment of developmental anomalies (Palatogingival groove/ Dens Invaginatus etc)</b>	<b>13</b>
<b>3</b>	<b>Surgical instrument retrieval and retreatments</b>	<b>23</b>
<b>4</b>	<b>Gingivectomies / Crown lengthening procedures</b>	<b>7</b>
<b>5</b>	<b>Hemisection / Root resection</b>	<b>9</b>
<b>6</b>	<b>Periapical cyst enucleation</b>	<b>36</b>
<b>7</b>	<b>Retrograde preparations and fillings</b>	<b>36</b>
	<b>TOTAL</b>	<b>152</b>

Teaching Head  
Department of Microdentistry

### Academic Year 2021-2022

<b>Sr.no</b>	<b>CASE</b>	<b>NUMBER OF P ATIENTS TREATED</b>
<b>1</b>	<b>Treatment of traumtised teeth (Fragment reattachments etc)</b>	<b>19</b>
<b>2</b>	<b>Treatment of developmental anomalies (Palatogingival groove/ Dens Invaginatus etc)</b>	<b>16</b>
<b>3</b>	<b>Surgical instrument retrieval and retreatments</b>	<b>8</b>
<b>4</b>	<b>Gingivectomies / Crown lengthening procedures</b>	<b>6</b>
<b>5</b>	<b>Hemisection / Root resection</b>	<b>5</b>
<b>6</b>	<b>Periapical cyst enucleation</b>	<b>31</b>
<b>7</b>	<b>Retrograde preparations and fillings</b>	<b>31</b>
	<b>TOTAL</b>	<b>116</b>

Teaching Head  
Department of Microdentistry

### Academic Year 2022-2023

<b>Sr.no</b>	<b>CASE</b>	<b>NUMBER OF PATIENTS TREATED</b>
<b>1</b>	<b>Treatment of traumatised teeth (Fragment reattachments etc)</b>	<b>19</b>
<b>2</b>	<b>Treatment of developmental anomalies (Palatogingival groove/ Dens Invaginatus etc)</b>	<b>16</b>
<b>3</b>	<b>Surgical instrument retrieval and retreatments</b>	<b>8</b>
<b>4</b>	<b>Gingivectomies / Crown lengthening procedures</b>	<b>6</b>
<b>5</b>	<b>Hemisection / Root resection</b>	<b>5</b>
<b>6</b>	<b>Periapical cyst enucleation</b>	<b>37</b>
<b>7</b>	<b>Retrograde preparations and fillings</b>	<b>37</b>
	<b>TOTAL</b>	<b>128</b>

Teaching Head  
Department of Microdentistry

### Academic Year 2023-2024

<b>Sr.no</b>	<b>CASE</b>	<b>NUMBER OF PATIENTS TREATED</b>
<b>1</b>	<b>Treatment of traumatised teeth (Fragment reattachments etc)</b>	<b>19</b>
<b>2</b>	<b>Treatment of developmental anomalies (Palatogingival groove/ Dens Invaginatus etc)</b>	<b>16</b>
<b>3</b>	<b>Surgical instrument retrieval and retreatments</b>	<b>8</b>
<b>4</b>	<b>Gingivectomies / Crown lengthening procedures</b>	<b>6</b>
<b>5</b>	<b>Hemisection / Root resection</b>	<b>5</b>
<b>6</b>	<b>Periapical cyst enucleation</b>	<b>42</b>
<b>7</b>	<b>Retrograde preparations and fillings</b>	<b>42</b>
	<b>TOTAL</b>	<b>138</b>

Teaching Head  
Department of Microdentistry

## Record of Completed Research in the Department of Microdentistry

### Research projects by Post Graduate Fellowship Course in Microdentistry

SR no	Name of the Candidate	RESEARCH	UPDATES
1	<b>Dr.Sabba Sayyed Dr.Deepali Wadhokar Dr.Sonali Dhumane</b>  (Batch of 2023-24)	<b>Dental operating microscope; effect of its live video output display on the patient anxiety experience related to restorative treatment and survey to determine information . Group A</b>	<b>Completed</b>
2.	<b>Dr.Akanhsha Bellani Dr.Divya Balani Dr. Bhavna Oswal</b> (Batch of 2023-24)	<b>Dental operating microscope; effect of its live video output display on the patient anxiety experience related to restorative treatment and survey to determine information . Group B</b>	<b>Completed</b>

Teaching Head  
Department of Microdentistry

## Research Projects By Postgraduate Students in the Department of Microdentistry

<b>SR no</b>	<b>Name of the Candidate</b>	<b>RESEARCH</b>	<b>UPDATES</b>
<b>1</b>	<b>Dr.Ronit Khade (Batch of 2018-20)</b>	<b>Magnification in Endodontics</b>	<b>Completed (LIBRARY DISSERTATION )</b>
<b>2</b>	<b>Dr.Wendy Lobo (Batch of 2020-23)</b>	<b>A Comparative evaluation of the resistance to vertical root fracture after removal of separated instruments using three instrument retrieval systems : An in vitro study using universal testing machine</b>	<b>Completed (THESIS)</b>
<b>3.</b>	<b>Dr.Zainab Khan (Batch of 2021-24)</b>	<b>Dental operating microscope Basic concepts</b>	<b>Completed (LIBRARY DISSERTATION )</b>

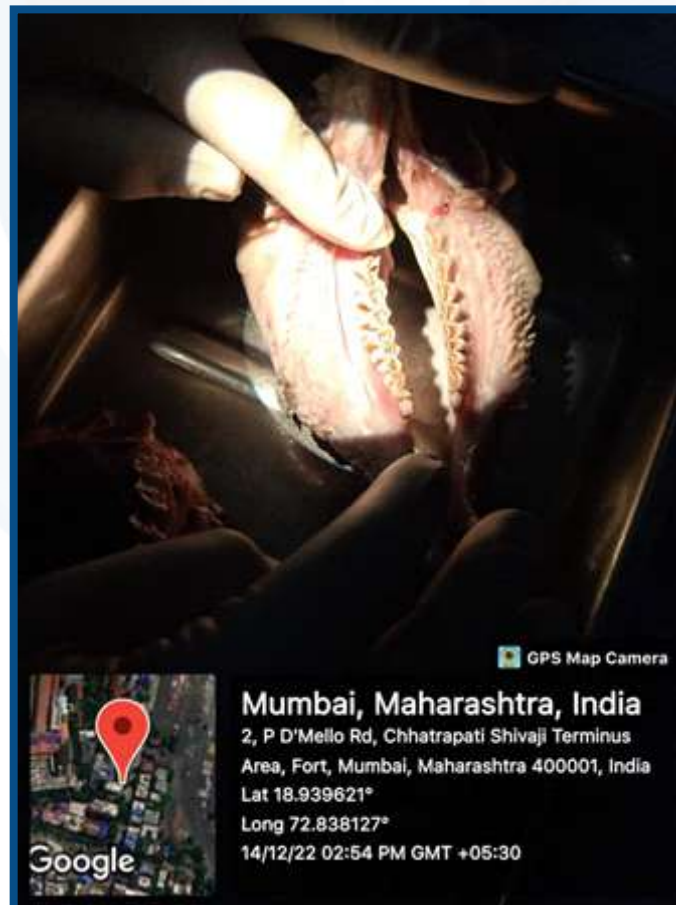
Teaching Head  
Department of Microdentistry

## Research Project for Phd in the Department of Microdentistry

SR no	Name of the Candidate	RESEARCH	UPDATES
1	Dr.Abrar Sayed	Dental operating microscope; effects of its inculcation on the skill levels of undergraduate students, effect of its live video output display on the patient anxiety experience related to restorative treatment and survey to determine information, knowledge, attitude and barriers related to its use among dental practitioners of Maharashtra.	ONGOING

Teaching Head  
Department of Microdentistry

## I.POSTGRADUATE PRECLINICAL EXERCISES

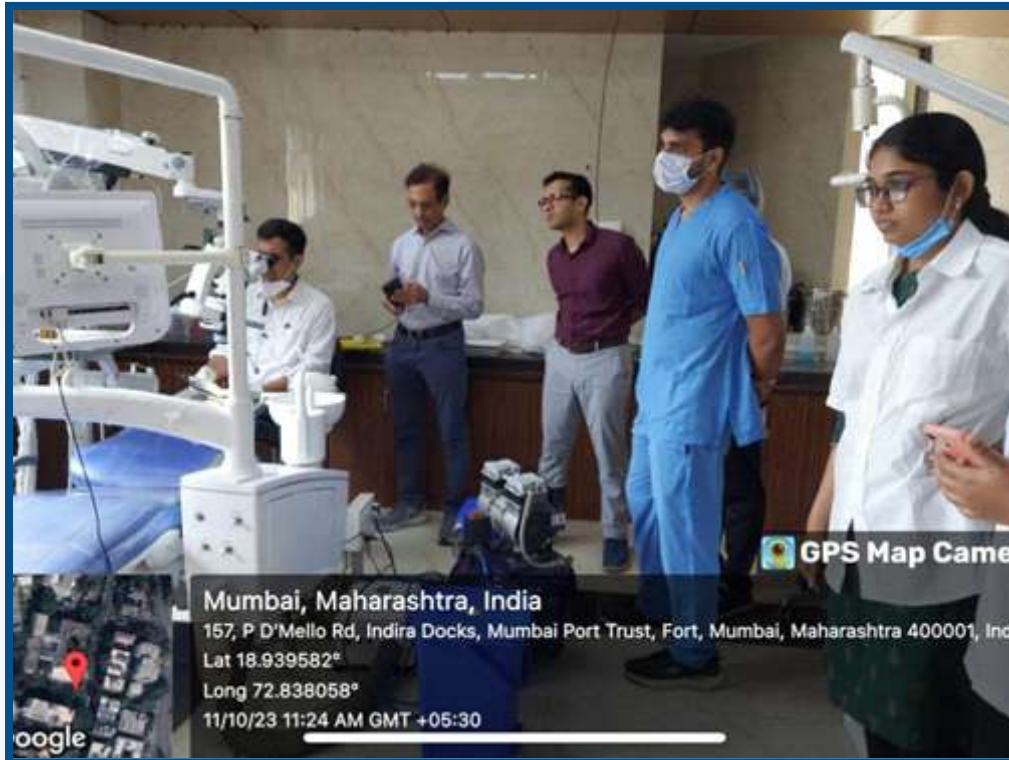




## II BDS PRE CLINICAL DEMONSTRATION OF CLASS I INLAY CAVITY PREPARATION IN THE DEPARTMENT OF MICRODENTISTRY



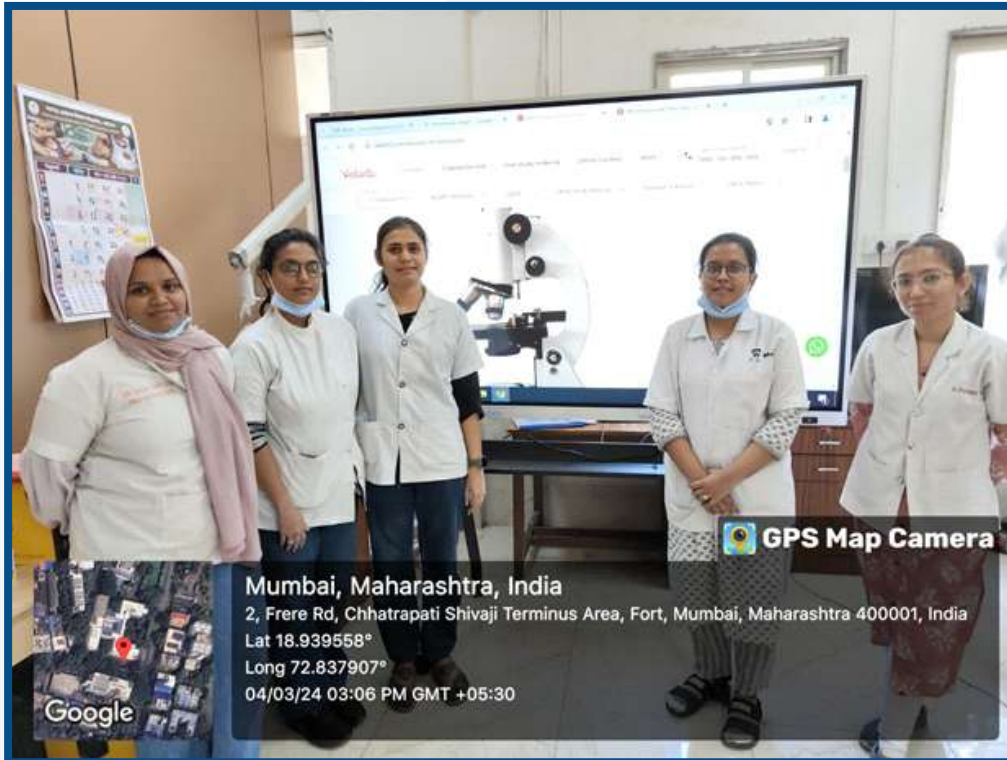
## IV BDS CLINICAL DEMONSTRATION OF SINGLE VISIT ENDODONTICS IN THE DEPARTMENT OF MICRODENTISTRY



## PRECLINICAL MICRODENTISTRY FELLOWSHIP ACTIVITY



## PRECLINICAL MICRODENTISTRY FELLOWSHIP ACTIVITY



## **CASES DONE IN THE DEPARTMENT OF MICRODENTISTRY**

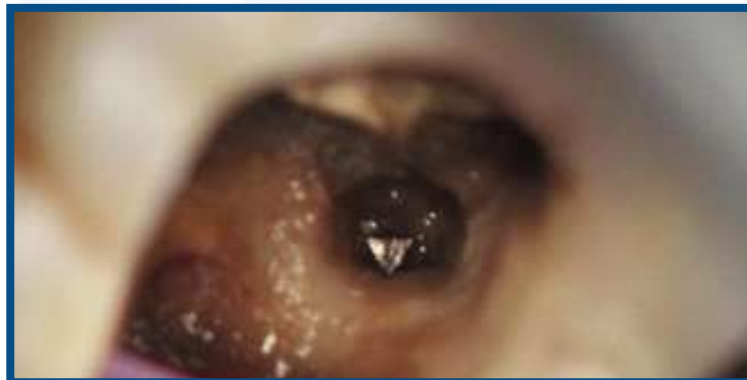
### **ESTHETIC REHABILITATION UNDER DENTAL OPERATING MICROSCOPE IN THE DEPARTMENT OF MICRODENTISTRY**



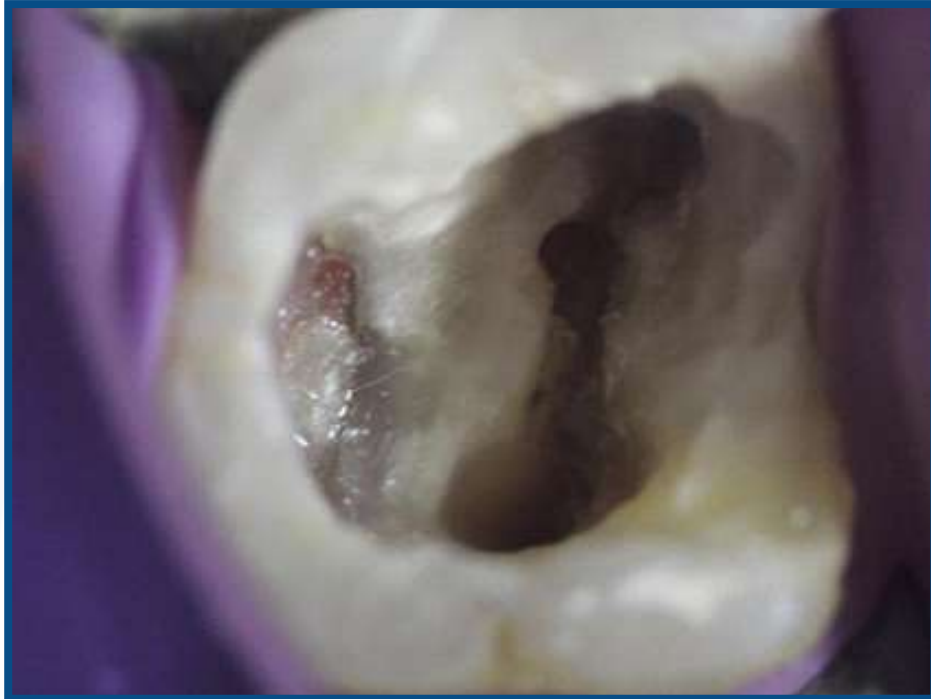
## ACCESS OPENINGS UNDER DENTAL OPERATING MICROSCOPE



## INSTRUMENT RETRIEVAL UNDER DENTAL OPERATING MICROSCOPE

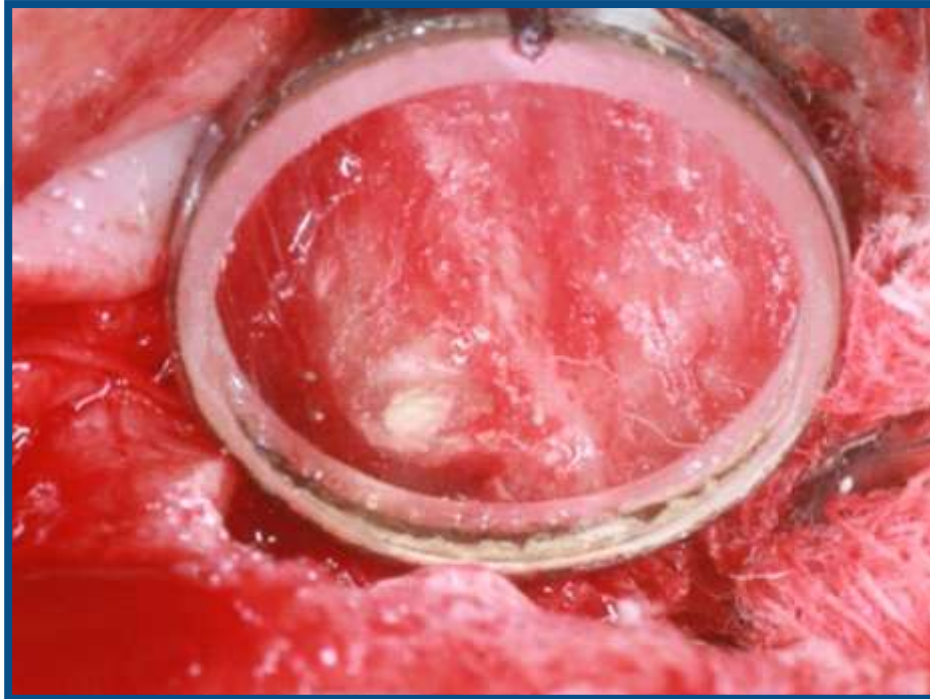


## PERFORATION REPAIR UNDER DENTAL OPERATING MICROSCOPE





**MTA RETROFILLING UNDER DENTAL  
OPERATING MICROSCOPE**



**MIDDLE MESIAL CANAL LOCATED UNDER DENTAL  
OPERATING MICROSCOPE**



## LIVE DEMONSTRATION OF PERIAPICAL CYST ENUCLEATION SURGERY IN THE DEPARTMENT OF MICRODENTISTRY



## MICRODENT CONFERENCE HELD ON 5<sup>TH</sup> AND 6<sup>TH</sup> APRIL 2024



# PRECLINICAL WORKSHOP HELD ON MAGNIFICATION BY THE DEPARTMENT OF MICRODENTISTRY 27<sup>th</sup> & 28<sup>th</sup> June 2019

District 3141  
**Rotaract**  
Entry 1340 Member

**Government Dental College & Hospital, Mumbai**  
Department of Conservative Dentistry and Endodontics and Department of Microdentistry  
&  
Rotaract Club of Government Dental College  
Welcomes you to

**"VISION ENHANCEMENT IN DENTISTRY"**

**Dr. Vivek Pakhmode**  
Dean  
Government Dental College & Hospital,  
Mumbai

Club Advisor-FCGDC  
**Dr. Jyoti Tembhurne**  
Professor & Head  
Department of Prosthodontics  
and Crown & Bridge

Workshop Director  
**Dr. Abrar Sayed**  
Professor & Head  
Department of Conservative Dentistry and  
Endodontics & Department of Microdentistry

Date: 27<sup>th</sup> & 28<sup>th</sup> June, 2019 | Time: 9.30 am - 4.00 pm.  
Venue: Auditorium and Preclinical Lab No.108, Government Dental College & Hospital, Mumbai.

Rtr Ayushi Tibrewal  
Rtr Shreyakalyani P  
Rtr Somil Gupta







## PROBLEMS ENCOUNTERED AND REQUIRED RESOURCES

Using an endodontic microscope in dental procedures offers numerous benefits, but it also comes with its own set of challenges. Here are some common problems encountered:

