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## Biodentine – A new choice of retro filling material

### Comparative evaluation – An in vitro SEM study

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Poster Award

Best Poster Award

### Introduction

Quality endodontic surgical treatment is directly related to correct incision planning, flap design, root end resection and retro filling. Biodentine, a calcium silicate based cement, is biocompatible and bioactive with improved handling properties and is supposed to be a good retrofilling material and is comparative with other root endo restorative material like MTA. It has better handling which is of importance during endodontic surgery.

### Objectives

Comparative evaluation of the marginal adaptation of biodentine, mineral trioxide aggregate(MTA) and glass ionomer cement as root end filling materials.

### Material and Methods

The study has been carried out on 45 extracted single rooted human teeth (15 for each group). Root canals were cleaned, shaped and obturated using gutta percha and apexit as root canal sealer. After 3mm of root resection, root end cavities of 3mm deep were prepared. 15 samples in each group were root-end filled with biodentine, pro-root MTA and glass ionomer cement and imaged using scanning electron microscope.



Fig. 1: Biodentine



Fig. 2: MTA



Fig. 3: Glass Ionomer Cement

## Results

The SEM microphotographies show Biodentine and MTA both exhibited better marginal adaptation to dentin walls as compared to glass ionomer cement.

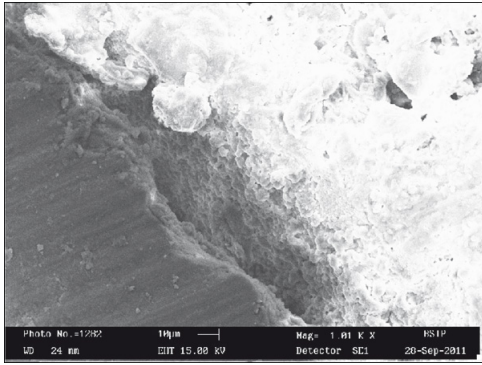


Fig. 4: Dentin/GIC interface

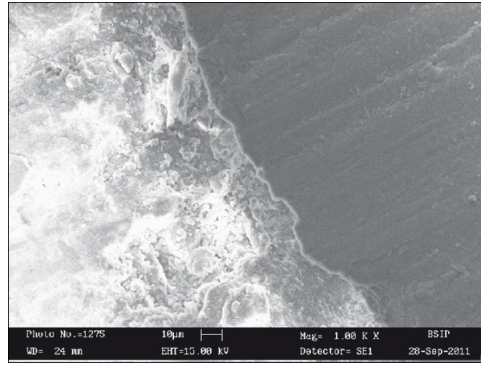


Fig. 5: Dentin/MTA interface

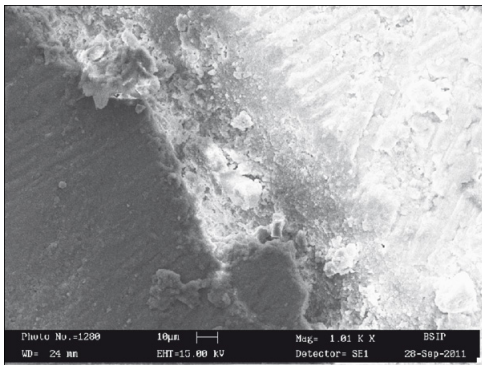


Fig. 6: Dentin/Biodentine interface

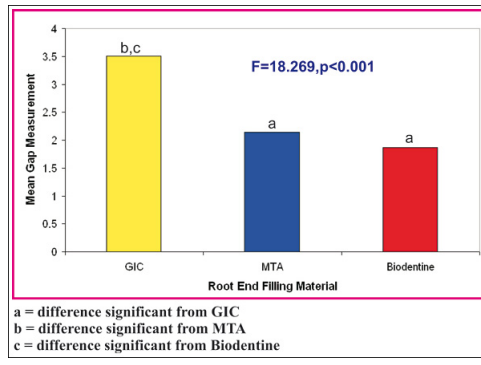


Fig. 7

## Conclusion

Biodentine, a newly introduced material showed promising result under scanning electron microscope and is recommended to be tried in vivo.

## Abbreviations

SEM = Scanning electron microscope  
MTA = Mineral trioxide aggregate

*This Poster was submitted by Dr. Deepika Aggarwal.*

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# Biodentine - A New Choice Of Retro Filling Material Comparative Evaluation- An In Vitro SEM Study

Guided by – Prof. (Mrs.) Dr. K.K. Wadhvani

## AIM:

To evaluate the marginal adaptation of biodentine ,mineral trioxide aggregate(MTA) and glass ionomer cement as root end filling materials.

## MATERIALS AND METHODS:

The study has been carried out on 45 extracted single rooted human teeth (15 for each group). Root canals are cleaned,shaped and obturated using gutta percha and apexit as root canal sealer. After 3mm of root resection,root end cavities of 3mm deep are prepared. The cavities are filled with biodentine, pro-root MTA and glass ionomer cement and imaged using scanning electron microscope.



Glass Ionomer Cement



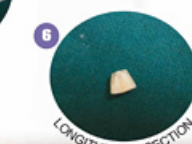
Pro-Root MTA



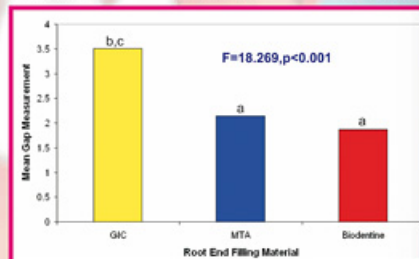
Biodentine

## RESULTS:

The SEM microphotographies show that Biodentine and MTA both exhibited better marginal adaptation to dentin walls as compared to glass ionomer cement.



IMAGED UNDER SCANNING ELECTRON MICROSCOPE



a = difference significant from GIC  
b = difference significant from MTA  
c = difference significant from Biodentine

## CONCLUSION:

Biodentine, a newly introduced material showed promising result under scanning electron microscope and is recommended to be tried in vivo.

