Bali Medical Journal

COUNTRY

Indonesia

Universities and research institutions in Indonesia

Media Ranking in Indonesia

SUBJECT AREA AND CATEGORY

Medicine
Medicine (miscellaneous)

PUBLISHER

Sanglah General Hospital

H-INDEX

4

PUBLICATION TYPE

Journals

ISSN

20891180, 23022914

COVERAGE

2020-2022

INFORMATION

Homepage

How to publish in this journal

srimaliawan@unud.ac.id

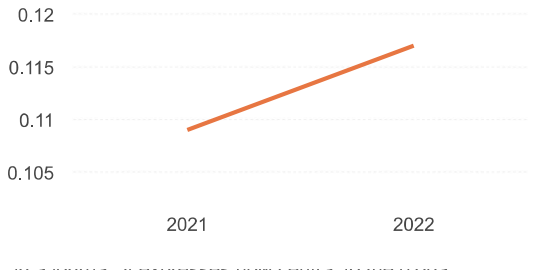
SCOPE

Bali Med. J. is open access, peer-reviewed journal aiming to communicate high-quality research articles, reviews, and general articles in the field. Bali Med. J. publish articles that encompass all aspects of basic research/clinical studies related to medical sciences. The Journal aims to bridge and integrate the intellectual, methodological, and substantive medical scholarship diversity and encourage a vigorous dialogue between medical scholars and practitioners.

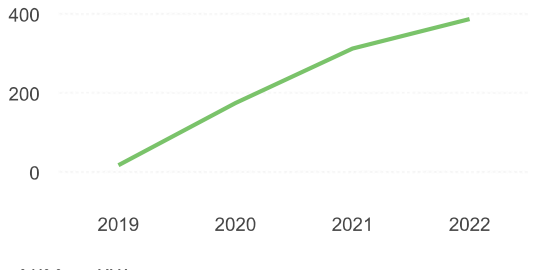
Join the conversation about this journal

Quartiles

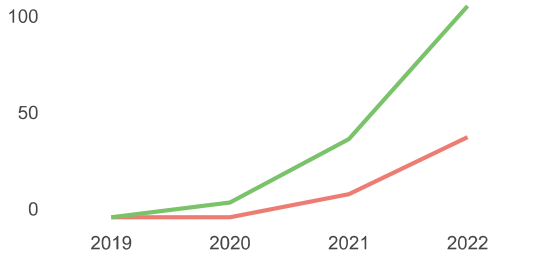
SJR



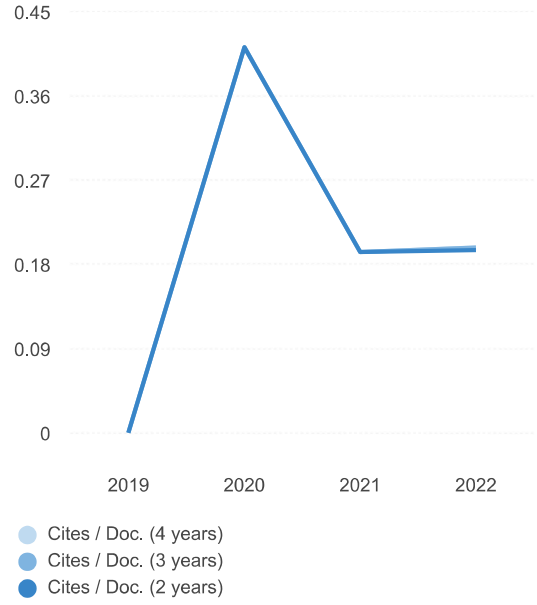
Total Documents



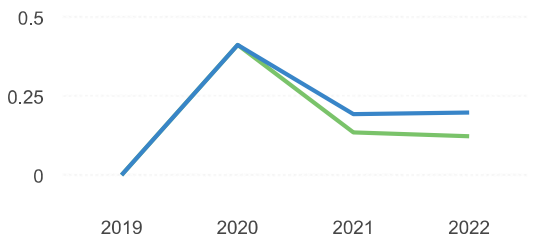
Total Cites Self-Cites



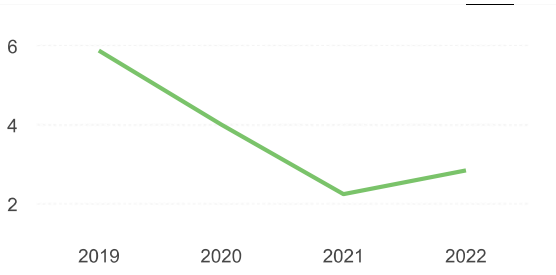
Citations per document



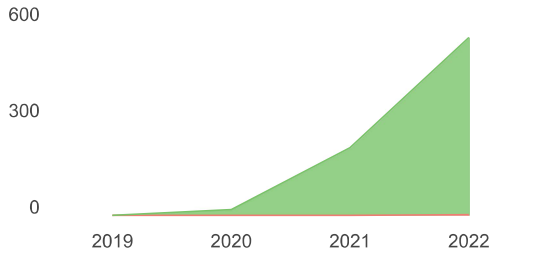
External Cites per Doc Cites per Doc



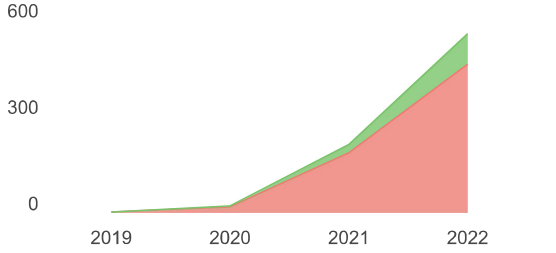
% International Collaboration

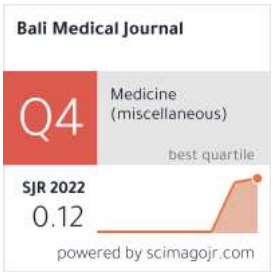


Citable documents Non-citable documents



Cited documents Uncited documents





← Show this widget in your own website

Just copy the code below and paste within your html code:

<a href="https://www.scimag

Metrics based on Scopus® data as of April 2023

R **R. Sutomo** 9 months ago

Dear SCImago Team,
I am an Indonesian, and I know exactly that the home base of this journal is in Bali, Indonesia. Would you kindly revise the information on the SCImago website? Thank you

reply

SCImago Team

Melanie Ortiz 9 months ago

Dear Sutomo, thank you for contacting us. We will proceed to analyze your request as soon as possible. Greetings from Spain and thank you for using the SCImago products, SCImago Team

A **Ahmad Al-Sarabbi** 2 years ago

Dear Scimago,

On this page, you mentioned that the country of origin is Italy, but the journal's website says Indonesia. And if I am not mistaken, Bali is indeed a very famous, beautiful island in Indonesia.

Which one is accurate? Does your website post misleading information?
Are other information regarding other journals can be trusted?

reply

SCImago Team

Melanie Ortiz 2 years ago

Dear Ahmad,
Thank you for contacting us. We will revise that information based on Scopus as soon as possible.
Best Regards, SCImago Team

Leave a comment

Name

Email
(will not be published)

I'm not a robot
reCAPTCHA
Privacy - Terms

Submit

The users of Scimago Journal & Country Rank have the possibility to dialogue through comments linked to a specific journal. The purpose is to have a forum in which general doubts about the processes of publication in the journal, experiences and other issues derived from the publication of papers are resolved. For topics on particular articles, maintain the dialogue through the usual channels with your editor.

WEB OF SCIENCE Clarivate Analytics · ELSEVIER Scopus · sinta S1

Bali Medical Journal
www.balimedicaljournal.org

BALI MEDICAL JOURNAL (BaliMedJ)

VOLUME 13, NUMBER 1, JANUARY-APRIL 2024
Print-ISSN: 2089-1180, E-ISSN: 2302-2914
DOI: http://dx.doi.org/10.15562/bmj.v13i1.5204

Bali Medical Journal
Published by Bali Medical Journal

Bali Medical Journal (*Bali MedJ*) 2024, Volume 13, Number 1: 1-192
P-ISSN.2089-1180, E-ISSN: 2302-2914

Editorial Board
Bali Medical Journal

Bali Medical Journal
www.BaliMedicalJournal.org
Published by Bali Medical Journal

CrossMark

Bali Medical Journal (*Bali MedJ)* 2024, Volume 13, Number 1: 1-192
P-ISSN.2089-1180, E-ISSN: 2302-2914

TABLE OF CONTENTS

Bali Medical Journal 2024; 13(1): 1-110 | doi: 10.15562/bmj.v13i1.5204

Bali Medical Journal
www.BaliMedicalJournal.org

Bulk-fill composite as intraradicular retention in post-endodontic restoration

Yohanna Feter[1], Tien Suwartini[2*], Aryadi Subrata[2]

[1]Postgraduate Student of Conservative Dentistry, Faculty of Dentistry, Universitas Trisakti, Indonesia;
[2]Department of Conservative Dentistry, Faculty of Dentistry, Universitas Trisakti, Indonesia.

*Corresponding to:
Tien Suwartini;
Department of Conservative Dentistry, Faculty of Dentistry, Universitas Trisakti, Indonesia;
tien.s@trisakti.ac.id

ABSTRACT

Introduction: The success of endodontic treatment requires not only good-quality root canal treatment but also coronal restoration. The Nayyar core technique used amalgam placement 2-4 mm into the root canal and pulp chamber acting as post and core. Recently there was a development of bulk-fill resin composite for dentin replacement (Smart Dentin Replacement (SDR)) that can be cured up to 4 mm depth with less polymerization shrinkage compared to conventional resin composites. It was discovered that SDR has fracture toughness very similar to sound teeth. The retention of adhesive restoration is micromechanical and does not require macro-retentive feature, leading to less invasive preparation and maximal tooth structure preservation. In addition, it was proven that the use of adhesive material into the canal orifice reduces coronal leakage and increases fracture resistance. Therefore SDR, an adhesive material, will be used in this case report as intraradicular retention.

Case Illustration: A 23-year-old female patient came with complaint of spontaneous pain since a month ago on the lower right posterior region. No tenderness on percussion and no mobility observed. Intraoral examination showed a large disto-occlusal caries on tooth 47. Radiographic examination revealed deep caries without periapical radiolucency. Diagnosis of irreversible pulpitis on tooth 47 was made. Root canal treatment was done under rubber dam isolation. SDR was placed 3 mm below the orifice as intraradicular retention. The core was constructed using the same material. The tooth was restored with zirconia crown. At 3 months follow-up, the tooth demonstrated good clinical performance. The patient reported no pain or discomfort during mastication and the tooth can function normally.

Conclusion: The post- endodontic restoration successfully returns the form and function of the endodontically treated tooth. The SDR can be considered as a material for intraradicular retention.

Keywords: Post-endodontic restoration, minimal invasive, Nayyar core, adhesive restoration.

INTRODUCTION

Endodontically treated teeth are at risk of coronal leakage and fracture, which can cause failure of root canal therapy. According to clinical studies, around 11-13% endodontically treated teeth were extracted due to vertical root fracture.[1] This is due to removal of tooth structure during endodontic treatment and loss of dentin moisture. Therefore, the success of endodontic treatment requires both good quality root canal treatment and also coronal restoration that can reinforce residual tooth structure.

The Nayyar core technique involves amalgam placement 2-4 mm into the root canal and pulp chamber that act as post and core. This technique proved to be effective in endodontically treated tooth.[2] With the development of adhesive restoration material, the retention is now based on micromechanical retention, leading to minimal invasive preparation and maximal tooth structure conservation. Smart dentin replacement (SDR) is a bulk-fill composite for dentin replacement that can be cured up to 4 mm depth with less polymerization shrinkage compared to conventional resin composites.[3] It was discovered that SDR has fracture toughness very similar to sound teeth. The use of adhesive material into the canal orifice was proved to reduce coronal leakage and increase fracture resistance.[1] In this case report, SDR intraradicular retention in post- endodontic restoration on endodontically treated molar with extensive cavity.

CASE ILLUSTRATION

A 23-year-old female patient came with complaint of spontaneous pain since a month ago on the lower right posterior region. Intraoral examination showed a large disto-occlusal caries on tooth 47. No tenderness on percussion and no mobility was observed. Radiographic examination revealed deep caries without periapical radiolucency. Diagnosis of irreversible pulpitis on tooth 47 was made. Root canal treatment was done under rubber dam isolation. All three root canals were prepared biomechanically with copious irrigation using sodium hypochlorite. Final irrigation with activation using sodium hypochlorite and EDTA were done. The root canals were obturated using warm vertical compaction technique using resin sealer. The gutta percha was removed 3 mm below the orifice. The SDR was then placed 3 mm below the orifice as intraradicular retention. The core was constructed using the same material, forming monoblock interphase. The SDR was applied incrementally with the thickness of 3 mm per layer and light cured. The tooth was restored using zirconia crown.

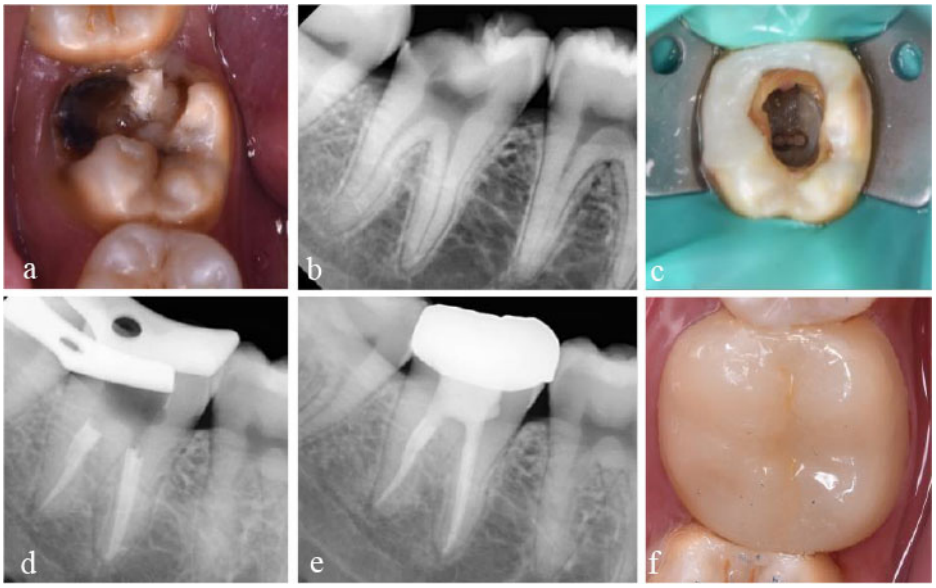


Figure 1. (a) and (b) pre-operative, (c) and (d) After obturation, the gutta-percha was removed 3 mm below the orifice, (e) and (f) After placement of SDR for post and core and zirconia crown.

DISCUSSION

Endodontically treated tooth showed significant reduction in mechanical properties due to caries lesion and endodontic procedure. There is a correlation between amount of remaining tooth structure and its ability to withstand occlusal force. Thus, providing an adequate restoration on endodontically treated teeth is very important to prevent fracture and failure. Nayyar *et al* used amalgam post and core technique which was effective in endodontically treated posterior teeth.[2] In this case report, SDR was used to fill 3 mm into the root canal spaces and pulp chamber to act as a post and core. SDR is non-fiber dentin replacement bulk-fill flowable composite base material with lower polymerization shrinkage and greater depth of cure up to 4 mm. SDR® has good adhesive properties and self-leveling properties which improve marginal integrity and adaptation of restorative materials to tooth structure.[4] In addition, SDR is an adhesive material that doesn't require macromechanical retention like amalgam, leading to minimal invasive procedure. It has been demonstrated that the use of adhesive material into the orifice and root canal, improved the fracture resistance and provide coronal sealing of endodontically treated tooth which is crucial for the success of the endodontically treated teeth.[1] One study showed that the SDR has superior result of pushout bond strength compared to other group that used fiber post with composite flowable and biological post as intraradicular restoration. This might be due to less interphases as it utilizes single material for post and core, forming "monoblock" restoration with mechanical properties similar to tooth structure.[5] Another study showed that SDR showed fracture toughness very close to sound teeth in endodontically treated molar.[3] At three months follow-up, the tooth exhibited good clinical function. SDR can be taken into consideration to be used as material for intraradicular retention in endodontically treated teeth.

CONCLUSION

The quality of post-endodontic restoration is essential for the success of endodontically treated tooth. The SDR can be used as intraradicular retention in endodontically treated molar to improved the fracture resistance and provide coronal sealing.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ETHICAL CLEARANCE

Written informed consent was obtained from the patient involved in this case report.

FUNDINGS

This case report received no external funding.

AUTHORS CONTRIBUTION

Yohanna Feter: Writing, reviewing, and editing. Tien Suwartini: Supervision, reviewing, and editing. Aryadi Subrata: Supervision, reviewing, and editing. All authors have read and approved this version of manuscript.

REFERENCES

1. Aboobaker S. Effect of intra-orifice barriers on the fracture resistance of endodontically treated teeth – an ex-vivo study. Journal of Clinical and Diagnostic Research. 2015;9(2):ZC17-ZC20.
2. Bhuva B, Giovarruscio M, Rahim N, Bitter K, Mannocci F. The restoration of root filled teeth: a review of the clinical literature. Int Endod J. 2021;54(4):509-535.
3. Magaravalli S, Patel SJr, Rangaswamy P, Ramachandra S, Govindappa K, Hiremath V. Effect of smart dentin replacement, biodentine, and its combination for dentin replacement as alternatives to full-crown coverage for endodontically treated molars: An in vitro study. J Int Soc Prev Community Dent. 2019;9(6):559.
4. Natsir N, Rahim F, Nugroho JJ, Rovani CA, Syam S, Ruslin M, et al. In vitro evaluation of the strength of dentin replacement in complex posterior tooth restoration. Applied Sciences. 2022;12(14):6877.
5. Sajjan GS, Sahu KK, Varma KM, Sigadam A, Chennanjali KA. Comparative evaluation of pushout bond strength of comprehensive techniques for intracanal rehabilitation of structurally compromised roots: an in vitro study. Journal of Operative Dentistry & Endodontics. 2020;5(1):1-5.

BMJ Bulk-fill composite as intraradicular retention

by Tien Suwartini FKG

Submission date: 01-Sep-2024 08:54AM (UTC+0700)
Submission ID: 2442093315
File name: 24_BMJ_Bulk-fill_composite_as_intraradicular_retention-10-11.pdf (231.55K)
Word count: 1378
Character count: 7994

PROCEEDING

Bali Medical Journal
www.BaliMedicalJournal.org

Bulk-fill composite as intraradicular retention in post-endodontic restoration

Yohanna Feter[1], Tien Suwartini[2*], Aryadi Subrata[2]

ABSTRACT

Introduction: The success of endodontic treatment requires not only good-quality root canal treatment but also coronal restoration. The Nayyar core technique used amalgam placement 2-4 mm into the root canal and pulp chamber acting as post and core. Recently there was a development of bulk-fill resin composite for dentin replacement (Smart Dentin Replacement (SDR)) that can be cured up to 4 mm depth with less polymerization shrinkage compared to conventional resin composites. It was discovered that SDR has fracture toughness very similar to sound teeth. The retention of adhesive restoration is micromechanical and does not require macro-retentive feature, leading to less invasive preparation and maximal tooth structure preservation. In addition, it was proven that the use of adhesive material into the canal orifice reduces coronal leakage and increases fracture resistance. Therefore SDR, an adhesive material, will be used in this case report as intraradicular retention.

Case Illustration: A 23-year-old female patient came with complaint of spontaneous pain since a month ago on the lower right posterior region. No tenderness on percussion and no mobility observed. Intraoral examination showed a large disto-occlusal caries on tooth 47. Radiographic examination revealed deep caries without periapical radiolucency. Diagnosis of irreversible pulpitis on tooth 47 was made. Root canal treatment was done under rubber dam isolation. SDR was placed 3 mm below the orifice as intraradicular retention. The core was constructed using the same material. The tooth was restored with zirconia crown. At 3 months follow-up, the tooth demonstrated good clinical performance. The patient reported no pain or discomfort during mastication and the tooth can function normally.

Conclusion: The post- endodontic restoration successfully returns the form and function of the endodontically treated tooth. The SDR can be considered as a material for intraradicular retention.

Keywords: Post-endodontic restoration, minimal invasive, Nayyar core, adhesive restoration.

[1]Postgraduate Student of Conservative Dentistry, Faculty of Dentistry, Universitas Trisakti, Indonesia;
[2]Department of Conservative Dentistry, Faculty of Dentistry, Universitas Trisakti, Indonesia.

*Corresponding to:
Tien Suwartini;
Department of Conservative Dentistry, Faculty of Dentistry, Universitas Trisakti, Indonesia;
tien.s@trisakti.ac.id

INTRODUCTION

Endodontically treated teeth are at risk of coronal leakage and fracture, which can cause failure of root canal therapy. According to clinical studies, around 11-13% endodontically treated teeth were extracted due to vertical root fracture.[1] This is due to removal of tooth structure during endodontic treatment and loss of dentin moisture. Therefore, the success of endodontic treatment requires both good quality root canal treatment and also coronal restoration that can reinforce residual tooth structure.

The Nayyar core technique involves amalgam placement 2-4 mm into the root canal and pulp chamber that act as post and core. This technique proved to be effective in endodontically treated tooth.[2] With the development of adhesive restoration material, the retention is now based on micromechanical retention, leading to minimal invasive preparation and maximal tooth structure conservation. Smart dentin replacement (SDR) is a bulk-fill composite for dentin replacement that can be cured up to 4 mm depth with less polymerization shrinkage compared to conventional resin composites.[3] It was discovered that SDR has fracture toughness very similar to sound teeth. The use of adhesive material into the canal orifice was proved to reduce coronal leakage and increase fracture resistance.[1] In this case report, SDR intraradicular retention in post- endodontic restoration on endodontically treated molar with extensive cavity.

CASE ILLUSTRATION

A 23-year-old female patient came with complaint of spontaneous pain since a month ago on the lower right posterior region. Intraoral examination showed a large disto-occlusal caries on tooth 47. No tenderness on percussion and no mobility was observed. Radiographic examination revealed deep caries without periapical radiolucency. Diagnosis of irreversible pulpitis on tooth 47 was made. Root canal treatment was done under rubber dam isolation. All three root canals were prepared biomechanically with copious irrigation using sodium hypochlorite. Final irrigation with activation using sodium hypochlorite and EDTA were done. The root canals were obturated using warm vertical compaction technique using resin sealer. The gutta percha was removed 3 mm below the orifice. The SDR was then placed 3 mm below the orifice as intraradicular retention. The core was constructed using the same material, forming monoblock interphase. The SDR was applied incrementally with the thickness of 3 mm per layer and light cured. The tooth was restored using zirconia crown.

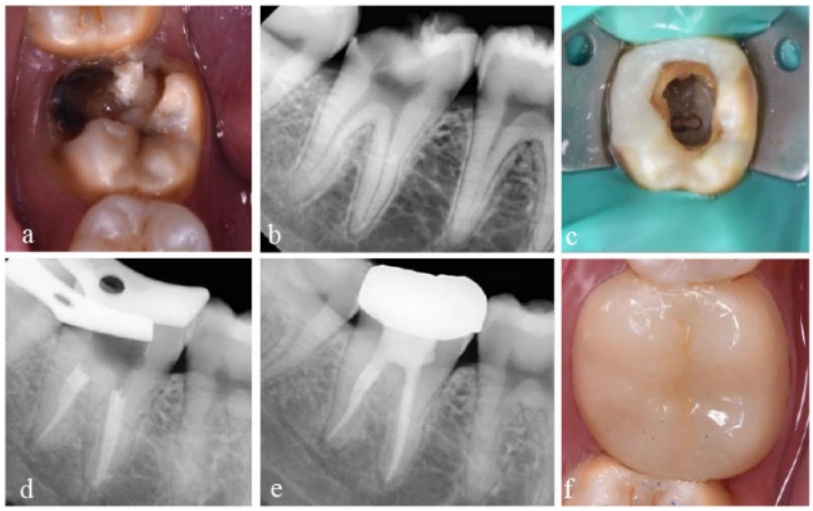


Figure 1. (a) and (b) pre-operative, (c) and (d) After obturation, the gutta-percha was removed 3 mm below the orifice, (e) and (f) After placement of SDR for post and core and zirconia crown.

DISCUSSION

Endodontically treated tooth showed significant reduction in mechanical properties due to caries lesion and endodontic procedure. There is a correlation between amount of remaining tooth structure and its ability to withstand occlusal force. Thus, providing an adequate restoration on endodontically treated teeth is very important to prevent fracture and failure. Nayyar *et al* used amalgam post and core technique which was effective in endodontically treated posterior teeth.[2] In this case report, SDR was used to fill 3 mm into the root canal spaces and pulp chamber to act as a post and core. SDR is non-fiber dentin replacement bulk-fill flowable composite base material with lower polymerization shrinkage and greater depth of cure up to 4 mm. SDR® has good adhesive properties and self-leveling properties which improve marginal integrity and adaptation of restorative materials to tooth structure.[4] In addition, SDR is an adhesive material that doesn't require macromechanical retention like amalgam, leading to minimal invasive procedure. It has been demonstrated that the use of adhesive material into the orifice and root canal, improved the fracture resistance and provide coronal sealing of endodontically treated tooth which is crucial for the success of the endodontically treated teeth.[1] One study showed that the SDR has superior result of pushout bond strength compared to other group that used fiber post with composite flowable and biological post as intraradicular restoration. This might be due to less interphases as it utilizes single material for post and core, forming "monoblock" restoration with mechanical properties similar to tooth structure.[5] Another study showed that SDR showed fracture toughness very close to sound teeth in endodontically treated molar.[3] At three months follow-up, the tooth exhibited good clinical function. SDR can be taken into consideration to be used as material for intraradicular retention in endodontically treated teeth.

CONCLUSION

The quality of post-endodontic restoration is essential for the success of endodontically treated tooth. The SDR can be used as intraradicular retention in endodontically treated molar to improved the fracture resistance and provide coronal sealing.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ETHICAL CLEARANCE

Written informed consent was obtained from the patient involved in this case report.

FUNDINGS

This case report received no external funding.

AUTHORS CONTRIBUTION

Yohanna Feter: Writing, reviewing, and editing. Tien Suwartini: Supervision, reviewing, and editing. Aryadi Subrata: Supervision, reviewing, and editing. All authors have read and approved this version of manuscript.

REFERENCES

1. Aboobaker S. Effect of intra-orifice barriers on the fracture resistance of endodontically treated teeth – an ex-vivo study. Journal of Clinical and Diagnostic Research. 2015;9(2):ZC17-ZC20.
2. Bhuva B, Giovarruscio M, Rahim N, Bitter K, Mannocci F. The restoration of root filled teeth: a review of the clinical literature. Int Endod J. 2021;54(4):509-535.
3. Magaravalli S, Patel SJr, Rangaswamy P, Ramachandra S, Govindappa K, Hiremath V. Effect of smart dentin replacement, biodentine, and its combination for dentin replacement as alternatives to full-crown coverage for endodontically treated molars: An in vitro study. J Int Soc Prev Community Dent. 2019;9(6):559.
4. Natsir N, Rahim F, Nugroho JJ, Rovani CA, Syam S, Ruslin M, et al. In vitro evaluation of the strength of dentin replacement in complex posterior tooth restoration. Applied Sciences. 2022;12(14):6877.
5. Sajjan GS, Sahu KK, Varma KM, Sigadam A, Chennanjali KA. Comparative evaluation of pushout bond strength of comprehensive techniques for intracanal rehabilitation of structurally compromised roots: an in vitro study. Journal of Operative Dentistry & Endodontics. 2020;5(1):1-5.

BMJ Bulk-fill composite as intraradicular retention

ORIGINALITY REPORT

6%	4%	2%	0%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

MATCH ALL SOURCES (ONLY SELECTED SOURCE PRINTED)

4%

★ d.docksci.com

Internet Source

Exclude quotes	On	Exclude matches	< 15 words
Exclude bibliography	On		

BMJ Bulk-fill composite as intraradicular retention

GRADEMARK REPORT

FINAL GRADE

/100

GENERAL COMMENTS

PAGE 1

PAGE 2