

Management of a Case of an Unusual Midline Diastema Creation Associated With Periapical Abscess: A Case Report

*Stephen Tobi AKINRODOYE, **Temiloluwa Olawale OGUNDARE, **Olusola Olutayo AYENI, **Olaide Olayemi ANJOORIN, **Judith Ejemen OHILEBO, ***Timothy OGUNLADE,**** Olatunji Abeeb LAWAL.

[*Department of Oral and Maxillofacial Surgery, **Department of Restorative Dentistry,***Department of Community Dentistry, ****Department of Oral Medicine and Oral Pathology, Obafemi Awolowo University Teaching Hospitals Complex]

Correspondence

Dr Temiloluwa O. Ogundare

Department of Restorative Dentistry, Obafemi Awolowo University Teaching Hospitals Complex

Email: likkysmart@yahoo.com

Stephen T. Akinrodoye

<https://orcid.org/0000-0001-8140-5744>

Temiloluwa O. Ogundare

<https://orcid.org/0000-0003-1570-4011>

Olusola O. Ayeni

<https://orcid.org/0009-0000-5672-9560>

Olaide O. Anjoorin

<https://orcid.org/0009-0007-4623-9243>

Judith E. Ohilebo

<https://orcid.org/0009-0002-5912-3745>

ABSTRACT

Background: People sought the creation of an artificial midline diastema, referring to the space between the upper and lower incisors for cosmetic reasons. Women typically undertake this procedure to enhance their appearance and social acceptance.

Objective: To report the complications associated with a case of an artificial midline diastema creation and the subsequent management.

Case Presentation: This case report highlights an unusual complication of artificial midline diastema creation, where an improperly filed upper right central incisor led to the formation of a periapical abscess, ultimately requiring professional dental intervention

Conclusion: Inappropriate tooth filing to create an artificial diastema for cosmetic purposes can lead to serious complications, including periapical abscesses, requiring prompt professional dental care. Hence there is a need to increase public awareness about the associated risks of undergoing artificial diastema creation, likewise policy change against dental quackery to ensure public safety from such procedures.

Keywords: Diastema, Periapical Abscess, Management

Timothy Ogunlade

<https://orcid.org/0009-0000-9496-9733>

Olatunji A. Lawal

<https://orcid.org/0009-0004-7488-4117>

Received: 8-Dec, 2024

Revision: 22 Jan, 2025

Accepted: 24 Jan, 2025

Citation: Akinrodoye ST, Ogundare TO, Ayeni OO, Anjoorin OO, Ohilebo JE, Ogunlade T, Lawal OA. Management of a case of an unusual midline diastema creation associated with periapical abscess: a case report. *Nig J Dent Res* 2025; 10(1):34-38. <https://dx.doi.org/10.4314/njdr.v10i1.6>

INTRODUCTION

A diastema refers to a gap or space between teeth. Specifically, a midline diastema is a space located between the upper central incisors or between the lower central incisors. These spaces may be found in the natural dentition as a result of developmental growth in children, oral habits (finger sucking and tongue thrusting), periodontal diseases, congenital, iatrogenic and trauma.¹ Closure of the spaces may be required for functional and aesthetic reasons, and this can be done through orthodontic tooth movement and tooth replacement with dentures and fixed prostheses.²

In some cultures, gaps between teeth, particularly a midline diastema, are perceived as a sign of beauty.³ A huge concern is whether the midline diastema is a sign of beauty or a dental anomaly requiring closure by a dentist. Also, astrologists have linked the presence of diastema to good luck and have termed the teeth involved as "happiness teeth".⁴ For these reasons, some individuals tend to undergo artificial filing of their teeth to create such gaps with the mindset of cosmetically improving their appearance. Minimal tooth filing might be done in the clinic to reshape or recontour teeth in cases of occlusal trauma and sharp tooth edges that irritate the tongue and buccal mucosa. However, dentists usually discourage the artificial creation of a midline diastema because of possible complications such as sensitivity, pain, and pulpal necrosis that could occur depending on the amount of tooth tissue removed. Furthermore, previous report shows that the procedures are usually performed by individuals who are unfamiliar with the complications that may arise from the procedure and are only interested in monetary gains.⁵

This case report is about a tooth filed to create an artificial midline diastema for aesthetics in a non-dental setting, however, the result was an uneven diastema creation with subsequent complications that necessitated professional dental care.

CASE PRESENTATION

The patient was a 28-year-old lady who presented on account of toothache of 4 weeks duration on tooth 11 with associated painful gum swelling which commenced 3 days before presentation. She claimed to have undergone a tooth filing procedure to create an artificial midline diastema between her upper central incisors in a non-clinical setting using unascertained armamentaria. The procedure was done without local anaesthesia and the tooth was not irrigated during the procedure. The patient reported

that there were no complaints during the procedure and expressed satisfaction after the procedure. However, the patient felt a sharp, spontaneous, throbbing and continuous pain in the tooth 1 week after the procedure with associated headache and sleep disturbance. A history of repeated use of analgesics and unascertained medications with no relief and associated swelling made her to present at our dental facility.

On examination, patient was in obvious painful distress, afebrile, not pale, not cyanosed. There was obvious facial asymmetry evidenced by a diffused tender swelling on the right side of the philtrum (Figure 1). There was no limitation in mouth opening. The oral hygiene was fair with moderate plaque and calculus accumulation. There was an associated gingival swelling in relation to tooth 11 (Figure 2). The swelling was fluctuant on palpation and tender to touch. The mesial half of the upper right central was chipped (Figure 2). There was grade 1 mobility and marked tenderness to percussion on the tooth. Periapical radiograph of the tooth revealed coronal radiolucency with pulpal communication, widening of periodontal ligament space and apical radiolucency of the upper right central incisor. Tooth 11 was unresponsive to the pulp sensibility test using the electric pulp tester while both 21 and 12 had a normal response. A diagnosis of acute periapical abscess of the upper right central incisor secondary to tooth filing was made.



Figure 1: Preoperative photograph



Figure 2: Preoperative photograph (lip raised)



Figure 3: Preoperative radiograph

The treatment plan formulated was; Scaling and polishing of all quadrants with oral hygiene instruction, incision and drainage of the acute periapical abscess, root canal treatment of 11 and eventual restoration with a post, core build up and acrylic jacket crown. Medications prescribed include; Oral Amoxicillin 500mg, metronidazole 400mg 8 hourly for 5 days and paracetamol 1000mg 8 hourly for 3 days.

The procedure with a description of each visit

The treatment commenced with incision and drainage of the periapical abscess; using a size 11 blade through a stab incision, about 3mls of pus mixed with blood was drained and a gauze drain was inserted. Root canal treatment was initiated by using

a round bur mounted on a fast handpiece to create a triangular access cavity on the palatal surface of the tooth under local anaesthesia using 2% xylocaine 1:80,000 adrenaline. Necrotic pulp tissue was removed with sizes 15 – 40 Ni Ti files and irrigation done using 0.05% sodium hypochlorite solution alternated with normal saline. Subsequently, a dry cotton pledget was placed over the root canal orifice and the patient commenced the medications prescribed as well as warm saline mouth rinses 6 times daily. She was recalled in 24 hours and a marked reduction of the symptoms that is swelling and pain were observed. There was no active discharge from the drainage site and the gauze drain was removed. (Figure 4a, b and c).



Figure 4a, b and c: Regression of the abscess following incision and drainage and commencement of root canal treatment

She had scaling and polishing of all teeth, followed by biomechanical preparation of the canal using step back technique with the radiographic working length at 23mm, and was irrigated with 0.05% sodium hypochlorite and normal saline during the preparation. The canal was dried with paper points and a cotton pledget placed over the orifice and the access cavity was temporarily sealed with zinc oxide eugenol cement (cavit). The patient was reviewed at one week, there was no pain from healed drainage site and no tenderness to percussion or tooth mobility. When the access cavity was opened, the cotton pledget over canal orifice was dry, not foul smelling and the canal was dry upon the insertion of a paper point. The canal was subsequently obturated with gutta percha and root canal sealant (endoseal®) using the cold lateral compaction technique and the access cavity was sealed with glass ionomer cement. The trimmed tooth surface was etched with 37% phosphoric acid for 30 seconds and dried. Bonding agent was applied and cured for 20 seconds and the selected composite resin (shade A2) was placed incrementally with each increment cured for 40 seconds. The patient was subsequently scheduled for post placement and crowning a week after. Post space preparation was done using gate glidden burs (sizes 03 and 04) followed by a periapical radiograph to assess the space.(Figure 5) A fibre post was

cemented using dual cure luting resin cement (All Cem) with a subsequent light-cured composite (3M ESPE) core build up and crown preparation for an acrylic jacket crown was done. (Figures 6, 7 and 8) The prepared tooth was cleaned and an upper and lower impression was made using Alginate impression material (Hygedent). Shade of the crown was selected (A2) and a temporary crown was fabricated at the chairside using cellulose acetate strip crown form and acrylic temporary crown and bridge material and cemented with zinc oxide eugenol cement.(figure 9). At the next visit, the temporary crown was removed. After cleaning the prepared tooth, the fabricated acrylic jacket crown was cemented using luting glass ionomer cement.(figure 10) Occlusion was checked and patient was satisfied, post-operative instructions were given and at one month, the patient was recalled for a review and had no complain



Figure 5: Completion of root canal treatment and post space preparation



Figure 6: Fibre post cemented in place



Figure 7: Composite core build up



Figure 8: Tooth prepared for crown



Figure 9: Temporary crown in place



Figure 10: Acrylic jacket crown cemented

DISCUSSION

This case report described a complication of acute periapical abscess following a tooth filing procedure done outside a dental facility. The literature has reported the growing concern of associating diastema creation with significant beauty traits

especially among females.^{5,6} However, non-dental professionals creating artificial diastema risk causing severe complications including: pulpitis, tooth fracture, gingival enlargement, cellulitis, pulp necrosis, abscess, and tooth loss.⁷⁻⁹

Early symptoms such as sensitivity are often mild in most cases with complications of pain and swelling occurring weeks or months after the procedure.⁵ In this case, the patient was initially satisfied with the diastema created, however, because of the subsequent pain and swelling, she sought professional dental care. Delayed presentation to the hospital, following unsuccessful self-medication attempts to relieve pain and swelling is consistent with a previous study highlighting the poor attention to dental health within the Nigerian populace.¹⁰

Removing a significant amount of tooth structure without administering local anaesthesia and irrigating the tooth would inevitably lead to pulpal necrosis ultimately resulting in a periapical abscess. This outcome is consistent with a previous study⁷ which highlighted the severe complications that can arise from unqualified practitioners' lack of understanding of proper procedures.

The general public needs more sensitization in order to discourage this act and to understand that diastema creation is termed malocclusion in the actual dental world and requires orthodontic treatment. This report would help educate individuals to dissuade from performing such procedures which translates to malocclusion and which can cause several complications such as maxillofacial space infections which can become life threatening.¹¹ Furthermore, the need to enact policies against dental quackery should be thoroughly reviewed as this would help avoid such dental complications as seen in this case.

It was quite amazing that the patient was satisfied with the asymmetric gap created between the teeth. This shows that all she wanted was just a gap, not minding the extent of tooth removal done. As seen in the case, the patient had to spend time and money in treating the infection and rehabilitating the tooth. Of particular interest was that at the time of crowning the tooth, the patient requested for closure of the space. This shows that the patient had realized the challenges attributed to the procedure done on her tooth and confirmed that her quality of life was improved following completion of the treatment.

CONCLUSION

Inappropriate tooth filing to create an artificial diastema for cosmetic purposes can lead to serious complications, including periapical abscesses, requiring prompt professional dental care. Hence there a need to increase public awareness about the associated risks of undergoing artificial diastema creation, likewise policy change against dental quackery to ensure public safety from such procedures.

Source of Support

Nil

Conflict of interest

None declared

REFERENCES

1. Sivakumar, N., Sravani, E., Sreekanth, K. M., Basim, A., Abdullah, A., Sara, A. A., Yong, C. and Sami, A. Etiological Factors of the Midline Diastema in Children: A Systematic Review. *Int. J. Gen. Med.* 2021; 14:2397-2405.
2. Marcos, J. C., Aron, A.D.C., Daniela, G., Guilherme, J. Stability of maxillary interincisor diastema closure after extraction orthodontic treatment. *Angle Orthod.* 2020; 90 (5): 627–633.
3. Onyejaka, N. K., Folaranmi, N., Mbanusi, C., Okeke, A. C., Akaji, E. A., Ituku-Ozalla, C. C and Corner, T. (2021). Knowledge and perception of midline diastema among adolescents in Enugu, South Eastern Nigeria. *Afr. J. Med. Med. Sci.* 2021; 50: 451-457.
4. Astrological significance of gap between teeth. Available @ <https://astrotalk.com> accessed on the 15th Jan, 2025.
5. Azodo, C. C. and Erhabor, P. Discrete gingival enlargement resulting from artificially created

- maxillary midline diastema. *J Clin. Sci.*2017; 14(1): 49-52.
6. Umanah, A., Omogbai, A. A., and Osagbemi, B. Prevalence of artificially created maxillary midline diastema and its complications in a selected Nigerian population. *Afr Health Sci.*2015; 15(1): 226–232.
7. Arigbede, A. O. and Adesuwa, A. A. (2012). A case of quackery and obsession for diastema resulting in avoidable endodontic therapy. *Afr Health Sci.* 2012; 12(1):77-80.
8. Luqman, M., Sadatullah, S., Saleem, M., Ajmal, M., Kariri, Y., and Jhair, M. The Prevalence and Etiology of Maxillary Midline Diastema in a Saudi population in Aseer region of Saudi Arabia. *Int. J. Clin. Dent.* 2012; 2 @ <https://api.semanticscholar.org/CorpusID:70445104>
9. Mabiaku, Y. O. and Ibhawoh, L. O. Prevalence and Perception of Midline Diastema among Students of Institute of Health Information Management, University of Benin Teaching Hospital (UBTH), Benin City, Edo State, Nigeria. *Nig J Dent Res*, 2017; 2(1), 33-36.
10. Ibikunle, A. A., Taiwo, A. O., Braimah, R. O., Adamson, O., Fashina, A., & Bala, M. The challenge of late presentation by dental patients in our climes: reasons behind the enigma. *J. Indian Assoc. Public Health Dent.* 2020; 18(3), 210-215.
11. Akhiwu, B. I., Akhiwu, H. O., Mudashiru, T. O., Ijehon, B., Aderemi, A. A., Bwala, L. Z., Ambrose, E., Sani, M. I., Dauda, A. M., Okafor, E. U., Chimbueze, E., and Ladeinde, A. L. (2021). Quackery as a Cause of Maxillofacial Infections and Its Implications. *J. West Afr. Coll. Surg.* 2021; 11(3), 24–28.