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Case Report

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BILATERAL HORIZONTAL IMPACTIONS OF MANDIBULAR SECOND AND THIRD MOLARS: MIRROR IMAGE OF SLEEPING MOLARS

Dr. Manish Juneja*[1] Dr. Jiji George[2] and Dr. Devendra Mandhyan[3]

[1]Practicing General Dentist and Oral Pathologist 1249 Ashley Boulevard, New Bedford, Massachusetts, USA.
[2]Professor & Head of Department, Department of Oral & Maxillofacial Pathology, BBD College of Dental Sciences, Lucknow-226010. India.
[3]Director Cast A Bridge Pvt Limited, Prosthodontics & Maxillofacial Implantology 2/46b, Vijay Khand, Ujariyaon, Vijay Khand 2, Gomti Nagar, Lucknow – 226010.

***Corresponding Author: Dr. Manish Juneja**

Practicing General Dentist and Oral Pathologist 1249 Ashley Boulevard, New Bedford, Massachusetts, USA.

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ABSTRACT

Mandibular molar impactions are common; bilateral mesio-angular molar impactions are not rare either; however, bilateral horizontal impactions of molar pairs haven't been reported quite often. We present a rare case of horizontally impacted mandibular second and third molars on both right and left sides of the jaw, with a discussion on the probable causes and implications of not extending timely treatment in such situations. The significance of timely radiographs in prevention of eruption disturbances is also discussed.

KEYWORDS: Dentistry and oral medicine, Oral and maxillofacial surgery, impacted molars, wisdom teeth, Orthopantomogram.

INTRODUCTION

Eruption disturbances can be grouped as impaction, primary retention, secondary retention and primary failure of eruption.[1] Most common among them are impactions of maxillary and mandibular third molars, maxillary canines or central incisors, and mandibular second premolars.[2] Impaction of second molars has been reported to be 0.65%- 2.0%; the most common being mesio-angular.[3,4,5,6] Impaction of both second and third molars is very rare, a few cases have been reported earlier.[7,8,9] More often second molar impactions are incidental findings and are rarely a reason for any symptoms.[10] Most common problems encountered with impacted second molars are resorption of the distal surface of the first molars, increasing risk of dental caries, and decrease in masticatory abilities. Here we present an unusual case of a male in his mid 40's with bilateral horizontal impactions of both mandibular second and third molars. Timely diagnosis and intervention can be of prime significance in such cases where the general dentist can refer to the specialist for appropriate treatement.

CASE REPORT

The patient reported to the clinic for a routine check-up. His medical history was not relevant, his past dental history revealed endodontic therapy on maxillary left central incisor and history of orthodontic therapy 30 years ago. Clinical examination revealed partially impacted third molars and clinically missing second molars bilaterally. Also seen were malocclusion with rotation of lower right canine, bilaterally missing maxillary first premolars as well as missing left mandibular lateral incisor. Patient confirmed extractions of missing teeth due to orthodontic reasons. The orthodontic treatment was done elsewhere, and he did not provide previous records.

The patient was advised a panoramic radiographic examination (Figure 1), which revealed horizontal bilateral impactions of both mandibular second and third molars. The mandibular second molars were horizontally positioned under the third molars on both sides. No sign of resorption was seen on the distal side of the adjacent first molar. There was no caries either. On both sides the second molar was in close approximation with the distal root of the first molar but the crestal portion distal to the first molar had good bone support and no pocketing was noted. First molars were periodontally healthy.

Figure 1: Initial orthopantomogram at the first visit illustrating the bilateral horizontal impactions of the mandibular molar pairs.

Patient was referred to an Oral Surgeon for extraction of the impacted molars but he refused any treatment as he did not experience any pain or discomfort. Oral hygiene instructions were reinforced and patient was advised to be on regular follow up, to prevent caries or periodontal destruction of the molars which could worsen the situation.

After 9 years, of first detecting the problem, patient repeated the panoramic radiograph (Figure 2) which revealed no relevant changes in the impacted molar pairs. The patient had commendably maintained good oral hygiene.

Figure 2: Orthopantomogram after 9 years follow up illustrating no relevant changes in the impacted molar pairs on either side.

In the present case, both mandibular second and third molars were horizontally impacted. The second molars were deeply impacted bilaterally at a level below the CEJ of the adjacent first molar; their roots completely formed and revealed no signs of resorption; while the third molars on both sides lay occlusal and parallel to the second molars; their crowns were partially emerged and occlusal to the occlusal table of the adjacent first molar. The third molars revealed fused roots bilaterally. This was a case of 'mirror image of sleeping molars'. Permanent molars develop from a distal extension of the dental lamina whose growth is dependent on appropriate growth of both the jaws. They do not have a predecessor in the deciduous dentition to guide them to the perfect position; probably is the reason for their eruptive disturbances. Eruption is defined as the axial or occlusal movement of a tooth from its developmental position within the jaw towards its functional position within the occlusal plane.[11] Eruption is a lifelong process to compensate for occlusal wear and growth of the jaws. Along the course of eruption, the occlusal surface of mandibular molars which are mesially inclined, gradually becomes upright. The ligament traction theory, which is the most accepted among eruption theories of teeth, states that primary eruptive forces lay dependent on the periodontal ligament fibers. Principal fibers of the periodontal ligament viz, alveolar crest group, horizontal, apical and oblique group of fibers contract gradually and

assist in tooth eruption. Impaction of permanent second mandibular molars is less common and may lead to reduced vertical dimension of face.[12]

In the present case despite the fact that both second molars have fully formed roots (hence good ligament traction), their abnormal position as well as the physical barrier in the form of the third molar seems to block their eruption. The third molars on the other hand partially emerged with fully formed roots; but exhibits an abnormal eruption path; probably due to an unusual orientation of the tooth germ or due to its failure to upright from the mesial inclination due to lack of space. The cause of impaction in our case is difficult to assess due to the presentation of cases past the normal ages of development of second and third molars.

Multiple impacted teeth are more often reported in association with syndromes. In our case the patient had no underlying medical disorder. Most common reason reported for the impaction of second molars was most likely a malposition of the overlying third molar.[13] Literature search revealed just one very similar case reported prior to our's.[8] The difference between this earlier case is, the patient's younger age of presentation as well as his willingness to undergo treatment. The first ever case of this kind was documented in 1966 where all three molars were mesioangularly impacted bilaterally but their third molars were not fully developed and presented without any root formation. This patient also presented a high Frankfurt mandibular plane angle; whereas our case presented an otherwise good occlusion with fully formed horizontally impacted molars.[9] Patient had no records of a panoramic radiograph done for him earlier, even though he reported the orthodontic treatment which was done when he was younger. The importance of taking radiographs to assess the development of teeth and their eruption patterns give us the opportunity to prevent situations like this. Our case highlights the importance of routine radiographic examination as recommended by the American Dental Association (ADA).[14] They suggest taking a panoramic film after the eruption of the first permanent tooth and prior to eruption of third molars in young patients. In our case the patient presented at an older age and had no record of his previous treatment, hence we cannot comment on the position of the second and third molars while they were developing. But clearly the case represents how important it is to follow the radiographic guidelines along with clinical judgment to prevent significant loss of teeth. Treatment of similar cases involves removal of third molars followed by uprighting the second molars. However the success depends on the cause of the impaction. In cases of primary retention or ankylosis they can only be extracted, transplanted or surgically repositioned.[15] In cases like ours the transplantation of second molars is not a possibility because of the deep impaction and risk of mandibular fractures. Bonetti et al. presented a successful combined orthodontic and surgical approach to treat a similar case where the diagnosis and interception were done in a timely fashion.[8] If left untreated, patients can lose all the three molars due to accumulation of food causing caries and periodontal disease with loss of bone and large bone deformity that can be difficult, time consuming and may involve more complicated procedures like bone grafting to restore. In the present case no relevant changes were visualized after a 9 year follow up. This could be a rare occurrence where no new decay was detected in the dentition and absolutely no change in periodontal status was seen in molar area; which emphasizes the fact that thorough maintenance of oral hygiene with full patient compliance can go a long way in prevention of caries, periodontal pockets and bone loss; though we strongly advocate a combined surgical orthodontic intervention in such cases.

CONCLUSION

Impacted teeth are common but bilateral horizontal impactions of molar pairs have rarely been reported. Impactions if diagnosed early with regular and timely radiographs according to ADA specifications can help align the teeth in desired direction. The attempt should always be to intercept and treat early to avoid impactions due to lack of space in jaw.

REFERENCES

1. K I Janssen, G M Raghoebar, A Visser, A Vissink. Ned Tijdschr Tandheelkd, 2014 Apr; 121(4): 218-26.
2. Aitasalo K, Lehtinen R, Oksala E. An orthopantomographic study of prevalence of impacted teeth. Int J Oral Surg, 1972; 1: 117–120.
3. Fu, P.S.; Wang, J.C.; Wu, Y.M.; Huang, T.K.; Chen, W.C.; Tseng, Y.C.; Tseng, C.H.; Hung, C.C. Impacted mandibular second molars. Angle Orthod, 2012; 82: 670– 675.
4. Cassetta, M.; Altieri, F.; Di Mambro, A.; Galluccio, G.; Barbato, E. Impaction of permanent mandibular second molar. A retrospective study. Med. Oral Patol. Cir. Bucal, 2013; 18: e564.
5. Bondemark, L.; Tsiopa, J. Prevalence of ectopic eruption, impaction, retention and agenesis of the permanent second molar. Angle Orthod, 2007; 77: 773–778.
6. Magnusson, C.; Kjellberg, H. Impaction and retention of second molars: Diagnosis, treatment and outcome. A retrospective follow-up study. Angle Orthod, 2009; 79: 422–427.
7. Puryer J, Mittal T, McNamara C, Ireland T, Sandy J. Bilateral Transverse Mandibular Second Molars: A Case Report. Dent J (Basel), 2016 Nov 22; 4(4): 43. doi: 10.3390/dj4040043. PMID: 29563485; PMCID: PMC5806949.
8. Alessandri Bonetti G, Pelliccioni GA, Checchi L. Management of bilaterally impacted mandibular second and third molars. J Am Dent Assoc, 1999 Aug; 130(8): 1190-4.

doi:10.14219/jada.archive.1999.0373. PMID: 10491929.
9. Jerrold TL. Bilateral impactions of mandibular first, second, and third molars. Am J Orthod, 1966 Mar; 52(3): 190-201. doi: 10.1016/0002-9416(66)90182-5. PMID: 4951431.
10. Proffit, W.; Fields, H. Contemporary Orthodontics, 3rd ed.; Mosby: St Louis, MO, USA, 2000; 11: 541.
11. Ten Cate AR. Oral histology. Development, structure, and function, 3rd ed. StLouis: CV Mosby, 1989; 275-98.
12. Proffit WR. Equilibrium theory revisited: factors influencing position of the teeth. Angle Orthod, 1978: 48: 175-86.
13. Salentijn EG, Ras F, Mensink G, van Merkesteyn JP. The unerupted maxillary second molar, due to an overlying and malformed upper third molar: treatment and follow-up. J Orthod, 2008 Mar; 35(1): 20-4. doi: 10.1179/146531207225022374. PMID: 18287391.
14. American Dental Association. Dental Radiographic Examinations: Recommendations for Patient Selection and Limiting Radiation Exposure (Revised); American Dental Association: Chicago, IL, USA, 2012.
15. Johnson JV, Quirk GP. Surgical repositioning of impacted mandibular second molar teeth. Am J Orthod Dentofacial Orthop, 1987; 91(3): 242-51.