

Proceeding



FDI - PDGI Continuing Education
Good oral health for brighter smile

Bandung, 11 - 12 Nov 2016
Holiday Inn Pasteur



The Radiograph Fourth Molars Mandibular Impaction (Case Report Patients in The City of Tasikmalaya)

Hadiyat Miko¹, Ernawati², Emma Kamelia^{3*}, Yayah Sopianah⁴ , Fahmi Oscandar⁵

¹*Departement of Dental Therapist, Health Polytechnic of Tasikmalaya, 46196, West Java, Indonesia.*

²*Departement of Orthodontic, General Hospital City of Tasikmalaya , West Java, Indonesia*

³*School of Post Graduate, Faculty of Medicine, Hasanuddin University Makassar Indonesia. Indonesia*

⁵*Department of Oral Maxillofacial Radiology, Faculty of Dentistry, Padjadjaran Universiy, Bandung, Indonesia*

¹ *Email : drgmiko@yahoo.com*

²*Email : ernawatitasik@gmail.com*

³*kamelia.emma@gmail.com*

⁴*Email: yayahsopianah@gmail.com*

⁵*Email: fahmi.oscandar@fkg.unpad.ac.id*

ABSTRACT

Supernumerary teeth of fourth molars can be found in the region of the maxillary or mandibular posterior. They are classified according to their shape and location. Further clinical problem can occur when it is found on both jaw the right and left. Detection of Supernumerary fourth molars is difficult because rare, found by chance when there are complaints in patients in private clinic in city of Tasikmalaya on one women with bad Oral Hygiene and several caries at first molars. Patients present with symptoms of TMD. The purpose of this paper is to analyze of root defect between fourth molars and third molars to detect the risk factors occurrence of the resorbtion, cyst and pericoronitis. Thorough clinical and radiographic examination of the patient is required for comprehensive treatment plan. This article presents an overview of the clinical problems associated with supernumerary fourth molars, also on the classification, diagnosis and management.

Keywords: Fourth molars, risk factor, diagnosis, management

INTRODUCTION

Supernumerary structures occurring in molar region can be divided into paramolars and distomolars.¹ Fourth molars or distomolars are situated distal to the third molars, they have a rudimentary shape and are usually seen as impacted teeth.² Supernumerary molars occur more frequently in the maxilla i.e., 79.7% and often were impacted (88.7%) and found bilaterally (23.9%)³⁻⁴ The etiology of supernumerary teeth has not been yet completely clarified and various theories have been suggested relating this anomaly such as hereditary disorders, horizontal proliferation of the dental lamina, and abnormal embryological formation. Environmental factors may also have a role.⁴ Paramolar is usually small and dysmorphic supernumerary tooth located buccally or palatally/lingually to one of the molar series. Distomolars are located distal or distolingual to third molars. ¹ Paramolars are relatively uncommon supernumerary anomalies occurring in molars series with prevalence of 0.09–0.29%.⁵ Exact mechanism of their development is still unclear but various factors such as genetic and environmental factors have been proposed. According to dichotomy theory supernumerary teeth such as paramolar arise from third tooth bud arising from dental lamina near permanent tooth bud or possibly by splitting of permanent bud itself. According to theory of phylogenetic reversion, paramolars may be an atavistic appearance of fourth molar of primitive dentition. Hyperactivity theory is the most acceptable one. It states that supernumerary teeth such as paramolars are result of local, independent conditional hyperactivity of dental lamina. According to this lingual extension of additional tooth, bud gives supplemental or eumorphic tooth. Rudimentary form arises from proliferation of epithelial remnants of dental lamina induced by presence of complete dentition.⁵⁻⁶ In the literature, one can find various theories of A rare case of retained fourth molar teeth in maxilla and mandible. hyperdontia, namely atavistic, vascular, genetic (hereditary) and hyperdontia of dental lamina hyperfunction. An atavistic theory holds that the occurrence of supernumerary teeth is the return to the teeth pattern of primitive higher mammals/eutheria with dental formula 3143 and having 44 teeth. It should be noticed though that the primitive dental formula includes neither supernumerary canine nor distomolars – retromolars. A vascular theory explains the occurrence of supernumerary teeth in the front part of the maxilla. The authors of this theory assume that such a location is related to the survival of a sphenopalatine artery that should have disappeared along with embryonic development of a specimen. According to a genetic theory, supernumerary teeth result from activation of genetic information that was deactivated in the process of evolution. The occurrence of atavistic forms in humans indicates that genetic information, contained in DNA, may be latent across many generations and is activated by the organism in specific and favourable circumstances. An inheritance theory says about familial occurrence of hyperdontia. Such a thesis is a subject of many suggestions that assume autosomal dominant inheritance and autosomal recessive inheritance either X-linked or polygenic. A view on inheritance connected with sex was proved by observations of many authors who noticed more frequent occurrence of hyperdontia in boys. The concept of hyperfunction of dental lamina assumes

that after a normal number of teeth buds supernumerary teeth appear. Dental lamina that did not undergo the process. The local factors such as inflammatory processes, scarring, pressure and injuries may be the causes of dental lamina hyperfunction.⁷⁻¹⁰

CASE REPORT

Patient female, age 22, attended clinical practice with feel pain in the lower right tooth region, the patient did not report any systemic alteration. The panoramic radiograph (figure 1) showed the teeth #18, #28, #8 and #48 retained, and the presence of the fourth molars retained distally to the teeth #18 and #28 (figure 2). The radiographic picture looks a resorption on the roots of molar teeth 18 and 38. The radiographic picture looks a resorption on the roots of molar teeth 18 and 38. The resulting of considerable pressure towards mesial.

DISCUSSION

Supernumerary structures occurring in molar region can be divided into paramolars and distomolars.¹ Fourth molars or distomolars are situated distal to the third molars, they have a rudimentary shape and are usually seen as impacted teeth.² Supernumerary molars occur more frequently in the maxilla i.e., 79.7% and often were impacted (88.7%) and found bilaterally (23.9%).³⁻⁴ The etiology of supernumerary teeth has not been yet completely clarified and various theories have been suggested relating this anomaly such as hereditary disorders, horizontal proliferation of the dental lamina, and abnormal embryological formation. Environmental factors may also have a role.¹¹ Paramolar is usually small and dysmorphic supernumerary tooth located buccally or palatally/lingually to one of the molar series. Distomolars are located distal or distolingual to third molars.¹ Paramolars are relatively uncommon supernumerary anomalies occurring in molars series with prevalence of 0.09–0.29%.⁵ Exact mechanism of their development is still unclear but various factors such as genetic and environmental factors have been proposed. According to dichotomy theory supernumerary teeth such as paramolar arise from third tooth bud arising from dental lamina near permanent tooth bud or possibly by splitting of permanent bud itself. According to theory of phylogenetic reversion, paramolars may be an atavistic appearance of fourth molar of primitive dentition. Hyperactivity theory is the most acceptable one. It states that supernumerary teeth such as paramolars are result of local, independent conditional hyperactivity of dental lamina. According to this lingual extension of additional tooth, bud gives supplemental or eumorphic tooth. Rudimentary form arises from proliferation of epithelial remnants of dental lamina induced by presence of complete dentition.⁵⁻⁶ In the literature, one can find various theories of A rare case of retained fourth molar teeth in maxilla and mandible. hyperdontia, namely atavistic, vascular, genetic (hereditary) and hyperdontia of dental lamina hyperfunction. An atavistic theory holds that the occurrence of supernumerary teeth is the return to the teeth pattern of primitive higher mammals/eutheria with dental formula 3143 and having 44 teeth. It should be noticed though that the primitive

dental formula includes neither supernumerary canine nor distomolars – retromolars. A vascular theory explains the occurrence of supernumerary teeth in the front part of the maxilla. The authors of this theory assume that such a location is related to the survival of a sphenopalatine artery that should have disappeared along with embryonic development of a specimen. According to a genetic theory, supernumerary teeth result from activation of genetic information that was deactivated in the process of evolution. The occurrence of atavistic forms in humans indicates that genetic information, contained in DNA, may be latent across many generations and is activated by the organism in specific and favourable circumstances. An inheritance theory says about familial occurrence of hyperdontia. Such a thesis is a subject of many suggestions that assume autosomal dominant inheritance and autosomal recessive inheritance either X-linked or polygenic. A view on inheritance connected with sex was proved by observations of many authors who noticed more frequent occurrence of hyperdontia in boys. The concept of hyperfunction of dental lamina assumes that after a normal number of teeth buds supernumerary teeth appear. Dental lamina that did not undergo the process . The local factors such as inflammatory processes, scarring, pressure and injuries may be the causes of dental lamina hyperfunction. ⁷⁻¹⁰

CASE INTERPRETATION

Detection of Supernumerary fourth molars found by chance when there are complaints in patients in private clinic in city of Tasikmalaya on one women, age 20 years old. In this case, for interpretation we were helped by Drg. Fahmi Oscandar, M.Kes. SpRKG from Departement of Oral Maxillofacial Radiology, Faculty of Dentistry, Padjadjaran University, Bandung, Indonesia.



Fourth Molars in Right Maxillary and Mandible

PANORAMIC RADIOGRAPHS INTERPRETATION	
Data Interpretation	
Area 1 (Dental Teeth)	
Missing teeth / Agenesis	-
impaction	18 position vertical, 38 horizontal, 48 vertical position, supernumerary teeth in the distal 18 vertical position, supernumerary teeth in the distal 48 horizontal positions, 25 labioversion position in region 24.
Crown condition	Radiolucent of enamel until pulp chamber 16, radiolucent of enamel until near the pulp chamber 36;
conditions roots	18 have 3 root , dilaseration toward the distal at half root, 2 root in 38, straight, apical part superimposed with the mandibular canal; 2 root of 48, straight, root superimposed with mandibular canal; supernumerary teeth 18 distal roots not fully formed; single root in 25, straight.
Alveolar condition Crest-furcation	3 mm horizontal decline in the region 15-17, 34-37, 46-47
Periapical conditions	Diffuse radiolucent 16
Area 2 (maxillary)	
Area 3 (mandible)	
Area 4	
Shape: Condyle-Fossa	condyle head shape, right and left is ovoid
Eminence	
Located of Condyle	on the glenoid fossa
Area 5 (Ramus)	
within normal limits	
Impression	
Abnormalities in the region of 1 and 4	
Suspect radiodiagnosis	16 Periapical abscess 36 reversible pulpitis Impaction type B is characterized by a vertical 18 toward the mesial root dilaseration Class IIA impaction horizontal 38 Class IIIC impaction vertical 48 Fourth molar vertical impaction in the distal part 18 Fourth molar horizontal impaction in the distal part 48 25 labioversi in region 24

CONCLUSION

From the results of the above interpretation we had some data to create narrative and conclusions as below. The conclusion that we made just concentrated discusses fourth molar only. Most of supernumerary cases are retained, so that the diagnosis is through routine radiographs. The early diagnosis and treatment are important to prevent problems, such as crowding, eruption failure, tooth displacement, damaging to alveolar bone grafts and implants, associated pathologies, gingivitis, abscesses, and odontogenic cysts and tumors. Treatment should be tailored according to each case. For the patient of this case report, surgical treatment was referred to the surgical surgery , so that both the third and fourth molars did not interfere in tooth movement. All characteristics were favorable for surgical intervention because patient did not exhibit contributory diseases.

The authors recommend: The presence of fourth molars as well as the risks and benefits of extraction versus observation should be discussed with the patients and an individualized treatment plan should be fabricated.

The authors comment that the fourth molars have a possibility of being displaced in

the infratemporal fossa or the maxillary sinus during surgery and note that this is more likely to occur if the bone distal to the fourth molars is thin. (Note these are known complications of wisdom teeth removal as discussed on the complications page (<http://www.teethremoval.com/complications.html>) The authors of course recommend that each patient should have a panoramic x-ray and/or computerized tomography performed.

The authors also say it is even possible to remove a third molar (wisdom tooth) and leave the fourth molar in place which may allow the fourth molar to migrate down and after some time (a few years) a safer extraction can be performed.

Of course the risks of leaving a fourth molar are similar as leaving a third molar (wisdom tooth) for observation (http://www.teethremoval.com/risks_of_keeping_wisdom_teeth.html) Below I have added the panoramic radiographs that are in the journal article and I have added some labels for the fourth molars. Looking at these x-rays removing a fourth molar appears to be even more risky than removing a third molar (wisdom tooth), so hopefully you are fortunate enough to not have a fourth molar.

REFERENCES

1. Parolia and M. Kundabala, "Bilateral Maxillary paramolars and endodontic therapy: a rare case report," *Journal of Dentistry Tehran University Medical Sciences*, vol. 7, no. 2, pp. 107–111, 2010
2. Koo S, et al. Bilateral maxillary fourth molars and a supernumerary tooth in maxillary canine region a case report. *SADJ*. 2002;57:372–74
3. Kokten G, Balcioglu H, Buyukertan M. Supernumerary fourth and fifth molars: a report of two cases. *J Contemp Dent Pract*. 2003;4(4):67-76.
4. Grimanis G, Kyriakides A, Spyropoulos N. A survey on supernumerary molars. *Quintessence international* (Berlin, Germany: 1985). 1991;22(12):989-95
5. G. Nayak, S. Shetty, S. Inderpreet, and D. Pitalia, "Paramolars—a supernumerary molar: a case report and over view," *Dental Research Journal*, vol. 9, pp. 797–803, 2012
6. N. B. Nagaveni, K. V. Umashankar, N. B. Radhika, P. B. Reddy, and S. Manjunath, "Maxillary paramolars report of a case and literature review," *Archives of Orofacial Sciences*, vol. 5, no. 1, pp. 24–28, 2010
7. Białkowska-Głowacka J. et al.: Rzadkie przypadki występowania zębów trzonowych czwartych w szczęce. *Mag. Stomatol.*, 12, 3, 34-35, 2002.
8. Lewandowski B., Lech M.: Zatrzonowcowe zęby zatrzymane przyczyną zębopochodnych okołowierzchołkowych stanów zapalnych. *Stomatol. Współcz.*, 13, 2, 26-30, 2006.
9. Zadurska M. et al.: Nadliczbowość zębów – na podstawie piśmiennictwa. *Czas. Stomat.*, 58, 4, 265-272, 2005.
10. Zappa J., Cieślik T.: Zatrzymane czwarte zęby trzonowe w żuchwie i szczęce – opis przypadku. *Dent. Forum*, 34, 1, 91-94, 2006. Kokten G, Balcioglu H, Buyukertan M. Supernumerary fourth and fifth molars: a report of two cases. *J Contemp Dent Pract*.

2003;4(4):67-76.

11. Grimanis GA, et al. A survey on supernumerary molars. *Quintessence international*. 1991;22:989-995