J. Int Oral Health 2011

P- ISSN
0976 – 7428

E- ISSN
0976 – 1799

Journal of International Oral Health

Orthodontics

Short Communication

Received: Jan, 2011
Accepted: April, 2011

Bibliographic listing:
EBSCO Publishing
Database, Index
Copernicus, Genamics
Journalseek Database,
Proquest, Open J Gate.

Influence of third molars on anterior crowding – Revisited

Prasad K[*] Saqib Hassan†

*M.D.S, Reader, †Post Graduate Student, Department of orthodontics, Al Badar Dental College & Hospital, Gulbarga, Karnataka, India. Contact: docprasad18@yahoo.co.in

Abstract:
The factors responsible for anterior crowding could be tooth size and arch length discrepancy, presence of supernumerary tooth, Bolton's discrepancy or anterior pressure caused by the presence of third molars and mesial component of force. The third molar may not be the only etiological factors; as well the role of third molar in causing anterior crowding is still a controversial. One of the theories is that, the third molar which erupts will puts pressure in the anterior region, various studies supports and co-relates between third molars and incisor crowding and various other studies has also shown that the third molar has no role in causing the anterior crowding. The purpose of this article is to review and revisit the relationship of third molar and anterior crowding.
Keywords: Third molars, anterior crowding, mesial component of force.

Introduction:
The anterior crowding is one of the common problem encountered in the orthodontic practice, the relapse of anterior crowding following the completion of retention in orthodontically treated patients has provoked much speculation in the dental literature.[1] The role of third molars in causing anterior crowding is still a controversial.[2, 3] Large number of investigators had been published their views earlier, in detail, the role of developing third molar and its effect on anterior dentition. The debate still continues amongst many oral surgeons and orthodontics on this issue. The purpose of

this article is to revisit whether the 3rd molar has any influence on anterior crowding or not. Existence of two schools of thought on an issue will provoke many authors on further investigation. Similarly, influence of third molars on anterior crowding has two opinions. Here are some of the studies which favor the role of third molar on anterior crowding and some are not.

Studies favoring the role of 3rd molar in anterior crowding:

Nada M Al–Sayagh, Anas A Mohammad, Luqman M Ismail studied to evaluate whether the upper and lower third molars can contribute to the occurrence or aggravation of crowding. The results showed that the crowded group revealed a higher percentage of impacted third molar and a smaller percentage of erupted third molar particularly in the mandible and a smaller percentage of third molar agenesis than the normal group. The females had more impacted third molar in the upper and lower jaws for both crowded and normal groups. In normal group, no significant difference was found between upper and lower jaws except in females where the unilateral third molar agenesis was greater in the lower jaw. In crowded group, the lower jaw revealed a higher percentage of impacted third molar for all subjects and a smaller percentage of erupted third molar for females and a smaller third molar agenesis for the males as compared with upper jaw.[4]

Iwona Niedzielska measured the dental arches in order to assess the potential influence of third molars on lower incisor crowding. This study showed that the measurements of crowding and arch length and width had changed in lower and upper dental arches. The relationship existed between third molar and anterior crowding. This also helps in determine the indications for third molar removal.[5]

E. Tu fekci et al compared the opinions of Swedish orthodontists and American orthodontists regarding the association between third molar eruption and dental crowding. A survey was carried out on Swedish orthodontists asking their views on the force exerted by erupting third molars, its relationship to crowding, and their recommendations for prophylactic removal. Survey results were compared with those from a similar study conducted in the United States. The slight differences in responses to questions between Swedish and American orthodontists were observed. The results showed that both Swedish and American orthodontists believed that lower third molars were more likely than upper third molars to cause force (65% and 58% for Swedish and American orthodontists, respectively) and crowding (42% and 40%, respectively). Although only 18% of Swedish orthodontists generally or sometimes recommended prophylactic removal of mandibular third molars, 36% of American orthodontists generally or sometimes recommended removal.[6]

Schwarze studies found a significantly greater forward movement of first molars associated with increased lower arch crowding in the nonextraction group. [7]

Lindquist and Thilander extracted third molars unilaterally and found more stable space conditions (less increase in crowding) on the extraction side as compared with the nonextraction side in 70% of cases.[8]

Sidlauskas Antanas and Trakiniene Giedre did the study to re-evaluate correlation between third molars presence and lower dental arch crowding. The results were not statistically significant with third molar presence. Specific differences were recorded in the lower dental arch crowding between the groups with erupted, unerupted and agenesis of third molars. Although there was no significant co relation, some tendency for crowding in the anterior part of lower dental arch was expressed more in the groups with the presence of third molars, than with agenesis.[9]

Vega compared cases with and without third molars and found that more crowding developed in the group with third molars present.[10]

Margaret E.Richardson has studied longitudinally for 5 years and showed that there is definitive co-relation existing crowding with age because of mesial drifting force acting increases with age.[11-13]

Studies which are not favoring the role of 3rd molar in anterior crowding:

Shanley, in a small cross sectional study, compared lower incisor crowding and procumbency in three groups with bilaterally impacted, erupted, or congenitally absent third molars. He found no significant differences in any of the groups and concluded that mandibular third molars have little influence on crowding or procumbency of lower incisors.[14]

Kumiko Okazaki investigated the change in interproximal force (IPF) in mandibular anterior teeth during retention and the relationship between the irregularity index before orthodontic treatment and the IPF and the effect that an erupting third molar had on IPF was also examined. He observed that the total IPF increased during the 18 months, and there was a positive correlation between the irregularity index and total IPF 6 to 18 months after active treatment was completed. An erupting third molar did not have any affect on the total IPF. An increase in the total IPF may be due to relapse in mandibular anterior crowding. In conclusion, he stated orthodontists should pay special attention to potential relapse in the lower anterior teeth 6 months after active treatment in cases with severe anterior crowding before treatment.[15]

Steven J. Lindauer et al carried out a survey for the role of third molar in causing anterior crowding and to evaluate and compare the current opinions of orthodontists and oral and maxillofacial surgeons regarding the link between third molars and the development of anterior crowding. The results of the survey showed that a smaller percentage of orthodontists than surgeons believed that maxillary and mandibular third molars produce anterior forces during eruption. Similarly, orthodontists were less likely to think that maxillary and mandibular third molars cause anterior crowding. Surgeons were more likely to think that the third molars influences the anterior dentition and recommend prophylactic removal of mandibular third molars to prevent crowding.[16]

Conclusion:

Since there are different schools of thought, there is no conclusive evidence that the third molars as being the major etiological factor in causing anterior crowding. Still, there is a difference of opinion regarding the role of third molar presence as a causative factor for the anterior dentition crowding. This is an attempt made to highlight the views and conclusions of various authors on the role of third molar in causing anterior crowding or not, and in conclusion the results are controversial, so, the debate continues and further investigations like longitudinal and prospective studies are required to confirm whether third molar play a pivotal role in anterior crowding or not.

References:

1. Margaret E Richardson. The role of the third molar in the cause of late lower arch crowding: A review. Am J Orthod Dentofacial Orthop 1989; 95(1):79-83.
2. Samir E Bishara. Third molars: A review. Am J Orthod Dentofacial Orthop 1983; 83(2):131-137.
3. Samir E Bishara. Third molars: A dilemma! or is it? Am J Orthod Dentofacial Orthop 1999; 115(6):628-633.
4. Nada M Al–Sayagh, Anas A Mohammad, Luqman M Ismail. The relationship of the third molar to the anterior dental crowding. Al–Rafidain Dent J. 2004; 4(1):1-9.
5. Iwona Niedzielska. Third molar influence on dental arch crowding. Eur J Orthod 2005; 27: 518–523.
6. E Tu fekci, D Svensk, J Kallunki, J Huggare, SJ Lindauer, D M Laskinf. Opinions of American

and Swedish Orthodontists about the Role of Erupting Third Molars as a Cause of Dental Crowding. Angle Orthod. 2009; 79(6):1139–42.
7. Schwarze CW. The influence of third molar germectomy-a comparative long-term study. London: Transactions of the Third International Orthodontic Congress 1975; 551-62.
8. Lindquist B, Thilander B. Extraction of third molars in cases of anticipated crowding in the lower jaw. Am J Orthod Dentofacial Orthop 1982; 81:130-39.
9. Sidlauskas Antanas, Trakiniene Giedre. Effect of the lower third molars on the lower dental arch crowding. Stomatologija, Baltic Dental and Maxillofacial Journal 2006; 8(3):80-4.
10. Vega L. A longitudinal study of mandibular arch perimeter. Angle Orthod 1962; 32:189-92.
11. Margaret E Richardson. Late lower arch crowding in relation to primary crowding. Angle Orthod 1986; 52(4):300-306.
12. Margaret E Richardson. Late lower arch crowding, the role of facial morphology. Angle orthod 1986; 244-54.
13. Margaret E Richardson. Lower molar crowding in the early permanent dentition. Angle orthod 1985; 55(1):51-7.
14. Shanley LS. The influence of mandibular third molars on mandibular anterior teeth. Am J Orthod Dentofacial Orthop 1962; 48:786-87.
15. Kumiko Okazaki. Relationship between initial crowding and interproximal force during retention phase. Journal of Oral Science 2010; 52(2):197-201.
16. Steven J Lindauer, Daniel M Laskin, Eser Tufekçi, Russell S Taylor, Bryce J Cushing, AM Beste. Orthodontists' and surgeons' opinions on the role of third molars as a cause of dental crowding. Am J Orthod Dentofacial Orthop 2007; 132(1):43-48.

Source of Support: Nil

Conflict of Interest: No Financial Conflict