

Prophylactic Removal of the Third Molars: Justified or Not

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Abstract:

The third molars (wisdom teeth) often develops in abnormal positions and most of the times they unable to erupt properly. The third molars removal is the most common performed procedure in oral surgery. The impacted third molar teeth can be associated with local pathological changes, such as gum and alveolar bone disease, inflammation of the gums around the tooth, damage to the adjacent teeth, root resorption, and the development of cysts and tumors. The prophylactic removal of asymptomatic impacted third molar teeth is defined as the surgical removal in the absence of local pathology. In most of the countries, prophylactic surgical removal of the third molars is common practice either impacted or fully erupted. We cannot reliably predict whether impacted third molars will develop any pathological changes. Surgical removal of the wisdom teeth should be justified, and there is need to determine whether this practice is supported by evidences.

Key Words: Pathological changes, prophylactic removal, third molars, wisdom teeth

Introduction

Impacted third molars or wisdom teeth are the most common developmental conditions affecting humans. Impacted tooth can be partially or fully impacted, and it is defined in relation to placement in various angles such as mesioangular, distoangular, vertical or horizontal.¹

The National Institute for Clinical Excellence (NICE) guidance on third molar teeth describes the various complications which may occur from the extraction of third molar teeth but does not describe its benefits.¹ Literature has been published since a long time, to study this finding, but NICE guidelines has not changed. There are no specific guidelines to suggest prophylactic removal of third molars to avoid production of complications in future. Current the UK clinical guidelines for

treatment of third molars are against the prophylactic removal of clinically asymptomatic healthy impacted teeth.¹

Removal of the unerupted or impacted third molars is the one of the most common surgical treatment in dental surgery. However, it is most controversial topic, especially when these teeth are asymptomatic.²

Some of the dental practitioners strongly believe that the impacted third molars have no definite role in the oral cavity except to be involved in the pathosis, hence these teeth are recommended to be surgical removal even in the absence of any pathology.²

Whereas, other clinicians believe that the incidence of pathologies related to the impacted or unerupted third molars are very low and insignificant and thus routine removal of asymptomatic impacted or unerupted third molars is questionable and therefore, not a good clinical practice.²

Evaluation of the recent published reviews has concluded that there is less reliable evidence to support the prophylactic removal of the third molars. Previous studies also concluded that patients long term benefit is more likely to be maximized if only pathology associated impacted third molars are removed.³

The Lamarckian evolution, the loss of an organ in evolution purely as a result of disuse, has not agreed nowadays. The belief that third molar teeth are vestigial organs that lack a specific function in the human body (as it was also previously believed for the appendix), is less common today, but still evident. It is also common thought of the general public.⁴

With the development of society, the living environment of the community has also changed with increasing consumption of soft food. Therefore, the size of jaws in people is decreasing, which has resulted in an increasing frequency of impacted third molars behind the second molars. Hence, the causes of impacted third molars include inadequate space to accommodate the erupting teeth.⁵

The "asymptomatic" third molar

"Asymptomatic" the third molar should infer that the patient has not experienced pain or discomfort related to the third molar.^{6,7}

Patient may have no "complaint," that is, be "asymptomatic," but there may be clinical or radiographic signs of pathological changes associated with a third molar.⁶

Therefore, “asymptomatic” does not mean to be “risk-free.” This may only be used to describe the condition of the third molar erupted in functional occlusion without any signs of periodontal pathosis or remained deeply embedded without any pathosis or eruptive movement for an extended period of time.⁶

Purpose of “Prophylactic Removal”

1. Prevent the exacerbation or late development of mandibular incisor crowding arguably attributed due to the eruptive forces of the third molars^{6,8,9}
2. Avoid the risks of development of pathological changes or sequelae due to presence of impacted or partially erupted third molars.⁶

The more common, mandibular third molars are scheduled for extraction for the above reasons. This is likely to be accompanied by the simultaneous sacrifice of maxillary third molars for the prophylactic benefit of avoiding sequelae resulting from the unopposed supra-eruption of the opposing tooth.⁶

Costs and risks

Third-molar surgery or the removal of the impacted third molars is a multibillion-dollar industry generating significant income for the dental practitioners, particularly oral and maxillofacial surgeons. It is driven by myths and misinformation that have been exposed before but that continue to be propagated by the profession.¹⁰

If the practitioner is satisfied that a particular third molar is totally asymptomatic, then its removal can be questioned from the point of view of getting direct or indirect costs.^{6,11-13} The accounting of such health risks or financial costs has raised questions to be asked about the continuing wholesale “slaughter” of third molars.⁶

One of the views for the early removal of third molars without pathology is that the cost to patients is greater when surgical removal of the third molar is carried out in adults as compared to children in their teens. However, the alternative view, also relates to the fact that the extraction of third molars without proper reason involves unnecessary more expenditure to all the parties involved and meaningless time off work and also sometimes risk of post-operative complications.¹⁴

Pathological Changes Associated and the Reasons Justifying the Extraction of the Third Molars

It showed that impacted third molars in adolescents are more likely to develop pathological changes, while impacted or unerupted third molars in adult age are less likely to undergo pathological changes.³

According to the American Association of Oral and Maxillofacial Surgeons, “if there is not sufficient anatomical space for normal

eruption, then extraction of such teeth at an early age is a valid and scientific management based on medical necessity.”¹⁰

Failure of the third molars to erupt fully is most common due to impaction of these teeth against the second molars. This happens when the second molars are in the path of eruption of the adjacent third molar teeth and may act as a physical barrier, thus preventing further eruption.⁷

Follicular enlargement or cystic changes involving impacted third molars is another important concern, because if such changes develop, the management of the pathological lesion becomes more difficult. The prevalence of increased pericoronal space of more than 4 mm in impacted third molars is approximately 1% and for patients older than 50 years this figure is 6.7%. Therefore, the risk of cystic changes associated with unerupted or impacted third molars should be considered as sufficient indication for removal of asymptomatic impacted teeth.¹⁵

The common indication for third molar surgery is pericoronitis, comprising up to 58% cases, which is followed by idiopathic pain that was not attributable to orthodontic reasons, infection, third or second molar caries, periodontal disease and associated pathology.¹⁶⁻¹⁸

Third molars very often develop in inappropriate positions, and they may not be able to erupt properly. Third molars, due to their posterior location in the mouth, are more difficult to clean. Due to their wrinkled, fissured occlusal surface makes these teeth prone to developing decay than other teeth.⁵

Mandibular third molars often erupt more distally near the vertical mandibular ramus with compromised gingival health, so dentists often suggest that these teeth be removed to prevent future problems. In some people, third molars may be abnormal in size, dwarfed or may not develop at all.⁵

The other reason for third molar surgery are periodontal defects in the distal aspect of the second molar, crowding of the lower incisors, removal for orthodontic, prosthodontic or restorative reasons, caries of the adjacent second molar, ulceration of the cheek or tongue mucosa and pain.^{17,18}

There is no safe way to accurately predict which asymptomatic impacted third molars can be expected to eventually develop pathology.¹⁸

There is no evidence of widespread third-molar pathology and infection or of emergency medical necessity for the justification of the surgery. In fact, 50% of maxillary third molars classified as impactions are actually normal developing teeth and most of these will erupt with minimal discomfort if not removed prematurely. While, only 12% of truly impacted teeth are presented with pathological diseases like as cysts and damage to adjacent teeth.¹⁰

Complications and Risks following Surgery

Pain, trismus, and swelling are the most common complications following third molar surgery. These complications are most common associated with the longer surgical procedure and deeper impactions. However, these are self-limiting complications that often completely resolve in few days.¹⁶

Alveolar osteitis, a disabling and very painful inflammatory condition, has been mostly associated with older age, use of oral contraceptives and traumatic and difficult extraction. Furthermore, serious post-operative socket infections can occur.¹⁹

Prophylactic Removal: Is it Justified?

Two reviews from North America also comments on this topic. One acknowledged a lack of reliable evidence to support the prophylactic extraction of impacted third molars and the other concluded that "routine prophylactic third molar extraction is unjustifiable."¹⁵

It is sometimes recommended that non-functional wisdom teeth are best removed in teenagers and young adults. This is sound preventive dentistry.²⁰

There is variation among general dental surgeons in their management of asymptomatic impacted third molar teeth.⁷

There are both personal and economic costs associated with the removal of asymptomatic third molar teeth. Proper decision-making, with adherence to specific indications for its removal, may decrease the number of surgical procedures by more than 60%. It has also been suggested that careful monitoring of asymptomatic third molar teeth may be a suitable strategy. The decision-making process, about prophylactic removal verses the retention of asymptomatic impacted third molar teeth, should be based on the best available evidence and must be combined with clinical experience. The key element of judgment in cases of prophylactic surgical removal should first be a patient's safety risk-benefit analysis to avoid possible iatrogenic injuries. In addition, patients' perspectives, values, and attitudes should also play a prominent role.⁷

Conclusion

The probability of pathological changes caused by impacted third molars seems to be exaggerated. Furthermore, the surgery requiring for the removal of the third molars is not risk-free. Prophylactic removal of the third molars may or may not be beneficial, and the decision should be based on the associated risks and benefits of its removal as well as the sequelae of their retention in the mouth. The patient must be told about all of the possible options and must be involved in the decision.

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