

## Follicular Tissue Associated with Impacted Lower Third Molars: Revisited

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### **ABSTRACT**

Debate concerning the indication for removal of impacted third molars has been ongoing issue in the literature for many years. Justification for and against prophylactic removal of asymptomatic impacted third molars has led the growing confusion in the mind of the dental practitioners. The follicles around these teeth has the potential to develop pathological lesions. This paper presents the incidences of pathological finding in cases treated for removal of third molars as a follicular tissue and a case report of a cyst developing in asymptomatic follicular tissue in a 57-year-old man.

### **KEYWORDS**

Lower third molars; Follicular tissue; Odontogenic cyst

### **INTRODUCTION**

There has been much discussion in the literature regarding the prevalence of the third molar pathology and extraction [1]. Asymptomatic third molars have led investigators to recommend retention of third molars to be followed by the dentists at regular check-ups. Future intervention is planned when they become symptomatic and/or any lesion is identified. Few published articles, however, have taken into account the possibility of early or occult disease that could be eliminated by intervention prior to symptom development. It has been recognized, correctly, that the absence of symptoms does not necessarily equate to the absence of disease. Just as no dentist would fail to treat a carious lesion because it is asymptomatic, the surgeon should recognize that the presence (and sometimes likelihood) of asymptomatic disease may necessitate extraction of retained third

molars at an age when morbidity is likely to be less and recovery is faster.

In March 2000 the National Institute for Health and Care Excellence (NICE) issued guidance on the extraction of wisdom teeth. This guidance stressed the discontinuation of prophylactic surgical removal of pathology-free impacted third molars.

The NICE guidance recommends third molar surgery to patients with pathology, including unrestorable caries, untreatable pulpal or periapical pathology, cellulitis, abscess and osteomyelitis, resorption of the tooth or adjacent teeth, diseases of the follicle including cysts or tumours, teeth impeding surgery, teeth in the field of tumour resection. Recurrent or fulminating episodes of pericoronitis indicate surgery [2].

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Mercier and Precious [3] published a comprehensive review on the risks and benefits of removal of third molars. From 149 publications referred in their article, they concluded that the best general approach to adopt by the surgeon, who is consulted for removal of the unerupted mandibular third molars in growing individuals, is the clinical judgment to remove some teeth before age of 14 and others before the age of 22, when chances of natural eruption are minimal.

The follicle around these teeth (which present radiographically as a radiolucent area) has the potential to develop pathological lesions [4,5]. However, there is no internationally acceptable consensus on clinical criteria to differentiate normal and potentially pathological follicular tissue based on radiographic findings around third molars. Previous literature suggests that pericoronal radiolucency of <2.5 mm in width is non-pathologic although there is limited scientific data attesting the validity of this assumption. Alattar et al. [6], discussing these radiographic studies of enlarged pericoronal tissues, postulated that the few incidences considered to be a dentigerous cyst probably represented an enlarged follicular sac.

The mandibular third molars are the most commonly impacted teeth in the oral cavity accounting for 20% of jaw cysts, usually dentigerous/follicular cysts [6].

During the pre-penicillin era, prophylactic removal of third molars was justified because of the morbidity associated with pathologies related to these teeth [2]. In the recent times, prophylactic surgery has been justified on the basis that third molars have no role in the mouth, and the need to minimize the risk of development of cysts, tumors etc.

This paper presents a case report of a cyst developing in a asymptomatic follicular tissue in a 57-year-old man and examines the literature regarding the relationship between third molars and cyst/tumor development.

## **CASE REPORT**

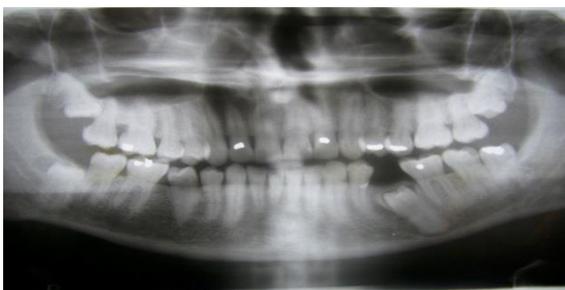
A 57-year-old man was referred to the Oral and maxillofacial surgeon at HCF Dental Centre, Sydney, as an internal referral for assessment of a cystic lesion in the right mandible. Medically he suffered from mild asthma and occasionally used Salbutamol. He attended regularly for his dental check-ups. In HCF clinic there was a protocol of taking bitewings radiographs every 6 months and orthopantomogram OPG every 2 years for patients visiting for regular check-ups until and unless required otherwise.

On examination, there were no clinical findings of pain or swelling on the right mandible and the patient did not complaint of any alteration in sensation of lip. The right lower third molar was impacted without any signs of pericoronal infection or discharge. OPG (11/2008) showed a well-defined radiolucency associated with impacted right lower right third molar (48). Radiolucency was about 3 cm in diameter extending to ascending ramus of the mandible (Figure 1), other findings were impacted right and left upper third molars (18 and 28) and left lower second premolar (35).



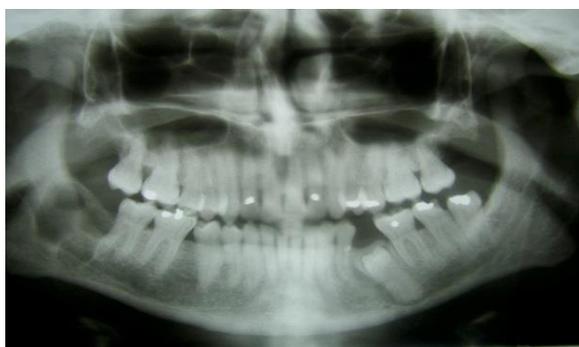
**Figure 1:** Orthopantomogram (11/2009) showing well defined radiolucency associated with impacted right lower third molar.

OPG done on 11/2006 and (on previous OPG) showed bony impacted 48 having a distal coronal radiolucency consistent with follicular tissue (Figure 2). Impacted 48 was deep and crossing the inferior alveolar canal at its bifurcation. The patient has been referred to Oral and Maxillofacial surgeon in the past at which time it was decided to leave and observe.

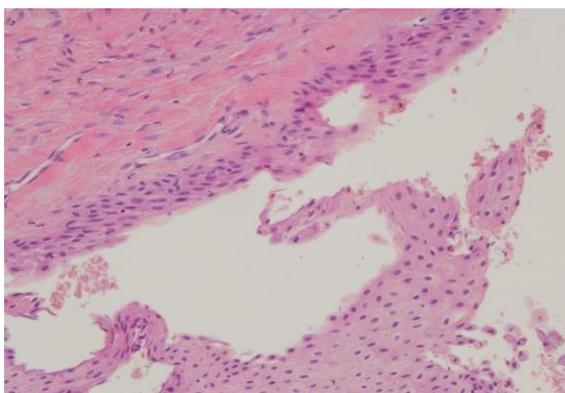


**Figure 2:** Orthopantomogram (11/2006) showing follicular radiolucency associated with impacted right lower third molar.

He was advised surgical removal of 48 and enucleation of the associated cyst and also removal of impacted 18, 28 and 35 under general anesthesia. Cone beam CT of mandible was requested to assess the relation of the inferior alveolar nerve to impacted 48 and extension of cyst. Patient consented for removal of 48 and associated cyst and impacted 18 and 28 but elected to leave impacted 35.



**Figure 3:** Post-operative orthopantomogram (6 days) after removal of right lower third molar and enucleation of associated cyst and removal of upper right and left third molars.



**Figure 4:** Photomicrograph showing part of cyst wall lined by non-keratinised squamous epithelium and underlined fibrous connective tissue.

Surgery was uneventful (Figure 3) and histopathological examination revealed cyst lined by non-keratinising

squamous epithelium and adjacent fibrous connective tissue was consistent with dentigerous cyst (Figure 4). Patient recovered well and completed healing.

## **DISCUSSION**

Although there is general agreement by dentists and specialists that the presence of disease associated with third molars is an indication for their removal, prophylactic removal still remains controversial. There is currently little scientific evidence to support routine removal of impacted third molars for prevention of disease. Most oral and maxillofacial surgeons and other dental practitioners make clinical judgments on an outpatient basis rather than submit pericoronal tissues for histological diagnosis when unerupted third molars are removed thus losing a potential source of pathosis without examination.

Prophylactic removal of impacted third molars has been based the surgeons arguments on the likelihood of cyst and tumor development if these teeth are retained. Literature review shows that incidence of cyst and tumor development from impacted third molars is apparently low [7,8]. The decision whether to remove a mandibular third molar is probably one of the most frequent treatment decision faced by the dental profession. Well-defined guidelines have been established for the removal of pathologically symptomatic impacted third molars; however, in a large percentage of cases, asymptomatic third molars are removed for various reasons, including prevention of crowding of the dentition, resorption of adjacent teeth, and development of pathologic conditions such as infection, cysts and tumors [9].

Dentigerous cyst constituted the majority of the observed pathological changes, keratocyst and ameloblastoma were the second most frequent pathological changes detected. Hyperplastic squamous epithelium, sulphur granules and foreign body granuloma comprised the rest reported in literature. Leitner et al. [10] reported

malignant low grade fibrosarcoma in a follicular tissue of normal impacted third molar [11,12].

The age distribution of dentigerous cysts in this study is similar to that reported by Baykul et al. [5] and Rakprasitkul [13] showed peak incidence in the third of life. Most of studies showed that about half of all dentigerous cysts occur in second and third decades. All studies showed a remarkable, progressive decrease in the incidence of dentigerous cysts in patients in fourth decade onwards [15-17].

The cases diagnosed consistent with dentigerous cyst in this study showed dental follicular tissue lined with stratified squamous epithelium. This epithelium lining interpreted to be diagnostic of dentigerous cyst [10,18]. Some investigators have speculated that radiographically normal dental follicles demonstrating stratified squamous epithelium can be considered to be pathologic (incipient dentigerous cyst), but this is a speculative notion, because normal dental follicles can be lined by stratified squamous epithelium (Table 1).

The data from this study cannot justify the removal of all asymptomatic impacted wisdom teeth but suggest that there is a risk of pathologic changes in the pericoronal tissues associated with unerupted third molars particularly as patient ages.

It can be concluded from the above studies that the incidence of dentigerous cysts developing around third molars is relatively low. Radiographic, studies have suggested that routine removal of third molars for prevention of disease may not be always necessary. So far, no guidelines have been established to predict, in an individual case, whether cyst development is likely [19-21].

Pericoronal changes in third molars seem to be unpredictable and guidelines cannot be established

[13,22]. This can be confirmed by the case presented in this study as well as cases presented in literature. Asymptomatic third molar was left in place at time of every recalls and yet patient developed large dentigerous cyst [23,24]. The development of cyst took place in within two years difference of orthopantomogram taken and reported. This illustrates the need of further research to calculate the risks when third molars are in place. With increased age the morbidity associated with infection, general anaesthesia and surgery is likely to increase [25,26]. These factors need to be considered when patients are advised about the advantages and disadvantages of third molar removal.

## **CONCLUSION**

Debate concerning the indications for removal of impacted third molars has been ongoing issue in the literature, despite the availability of enough information for surgeons to make informed and clinical decisions in recommending retention or extraction for their patients. Patients who elect to be observed on regular basis, should undergo clinical and radiographic examination (perhaps as frequently as every two years) for early detection of the disease, because the prevalence of third molar abnormality (especially asymptomatic) appears to be much higher than previously thought. Younger patients unable or unwilling to have regular surveillance may be advised to consider removal of teeth at an age when surgical morbidity is likely to be less and recovery is faster.

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## **CONFLICT OF INTEREST & FINANCIAL DISCLOSURE**

None

## **REFERENCES**

1. Adelsperger J, Campbell J, Coates D, et al. (2000) Early soft tissue pathosis associated with impacted third molars without pericoronal radiolucency. *Oral Surgery, Oral Medicine, Oral Pathology oral radiology, and endodontics* 89(4): 402-406.
2. National Institute for Clinical Excellence. Guidance on the Extraction of Wisdom Teeth. London: NICE.
3. Adeyemo W (2006) Do pathologies associated with impacted lower third molars justify prophylactic removal? A critical review of the literature. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics* 102(4): 448-452.
4. Baumgart C, Lauxen I, Filho M, et al. (2007) Epidermal growth factor receptor distribution in pericoronal follicles: relationship with origin of odontogenic cysts and tumors. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics* 103(2): 240-245.
5. Baykul T, Saglam AA, Aydin U, et al. (2005) Incidence of cystic changes in radiologically normal impacted lower third molar follicles. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics* 99(5): 542-545.
6. Alattar M, Baughman RA, Collett WA (1980) A survey of panoramic radiographs for evaluation of normal and pathologic findings. *Oral Surgery, Oral Medicine, Oral Pathology* 50(5): 472-478.
7. Bernick S (1949) Dentigerous cysts of the jaw. *Oral Surgery, Oral Medicine, Oral Pathology* 2(7): 914-921.
8. Bruce RA, Frederickson GC, Small GS (1980) Age of patients and morbidity associated with mandibular third molar surgery. *Journal of the American Dental Association* 101(2): 240-245.
9. Curran AE, Damm DD, Drummond JF (2002) Pathologically significant pericoronal lesions in adults: Histopathologic evaluation. *Journal of Oral Maxillofacial Surgery* 60(6): 613-617.
10. Leitner C, Hoffmann J, Krober S, et al. (2007) Low grade malignant fibrosarcoma of the dental follicle of an unerupted third molar without any clinical evidence of any follicular I Li- lesion. *Journal of Cranio-Maxillofacial Surgery* 35(1): 48-51.
11. Daley TD, Wysocki GP (1995) The small dentigerous cyst; A diagnostic dilemma. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics* 79(1): 77-81.
12. Eliasson S, Heimdahl A (1989) Pathological changes related to long term impaction of third 9 , molars: a radiographic study. *International Journal of Oral and Maxillofacial Surgery* 18(4): 210-212.
13. Rakprasitkul K (2001) Pathologic changes in the pericoronal tissues of unerupted third molars. *Quintessence International* 32(8): 633-638.
14. Girod SC, Gerlach KL, Krueger G (1993) Cysts associated with long-standing impacted third molars. *International Journal of Oral and Maxillofacial Surgery* 22(2): 110-112.
15. Glosser JW, Campbell JH (1999) Pathologic change in soft tissue associated with radiographically normal third molar impactions. *The British Journals of Oral & Maxillofacial Surgery* 37(4): 259-260.
16. Knutsson K, Brehmer B, Lysell L, et al. (1996) Pathoses associated with mandibular third molars subjected to removal. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics* 82(1): 10-17.
17. Mercier P, Precious D (1992) Risks and benefits of removal of impacted third molars. A critical review of the literature. *International Journal of Oral & Maxillofacial Surgery* 21(1):17-27.

18. Mesgarzadeh A, Esmailzadeh M, Shahamfar M (2008) Pathosis associated with radiographically normal follicular tissue in third molar impactions: A clinicopathological study. *Indian Journal of Dental Research* 19(3): 208-212.
19. (1980) National Institute of Health consensus development conference for removal of third molars. *Journal of Oral Surgery* 38(3): 235-236.
20. Nordenram A, Hultin M, Kiellman O, et al. (1987) Indications for surgical removal of the mandibular third molars. Study of 2,630 cases. *Swedish Dental Journal* 11(1-2): 23-29.
21. Osborn TP, Fredrickson GC, Small TA, et al. (1985) A prospective study of complications related to mandibular third molar surgery. *Journal of Oral & Maxillofacial Surgery* 43(10): 767-768.
22. Severin I, von Wowern N (1990) A radiographic four-year follow-up study of asymptomatic mandibular third molars in young adults. *International Dental Journal* 40(1): 24-30.
23. Shear M (1983) *Cysts of oral regions* (2<sup>nd</sup> Edn.). Bristol, England: John Wright PSG 56-75.
24. Van-der Linden W, Cleaton-jones P, Lownie M (1995) Diseases and lesions associated with impacted molars Review of 1001 cases. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics* 79(2): 142-145.
25. Yildirium G, Hanife A, Mihmanli A, et al. (2008) Pathologic changes in soft tissues associated with asymptomatic impacted third molars. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics* 106(1): 14-18.
26. Slater LJ (2008) Comments on "Pathologic changes in soft tissues associated with asymptomatic impacted third molars". *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics* 107(1): 5.