

Wisdom teeth: back to basics part 1

A shift away from the status quo has led to confusion among general dental practitioners about best practice for wisdom tooth referrals.

Learning outcomes:

- to review common pathologies that can present with mandibular third molars (Md3Ms);
- to equip the general dentist with the necessary tools to conduct a comprehensive wisdom tooth assessment; and,
- to support decision-making around specialist referral for Md3M surgery.

Introduction

There exists an abundance of published literature highlighting the problems associated with the retention of asymptomatic, partially erupted third molars, in particular the mandibular mesioangular third molar. The issues surrounding rigid adherence to the 2000 UK National Institute for Health and Care Excellence (NICE) guidance are well documented, and it is no surprise that its place in modern oral surgery practice has been called into question.

This shift away from the old status quo has led to confusion among general dental practitioners (GDPs) about the appropriate timing of wisdom tooth referrals, and indeed whether to refer patients in the first place.

Third molar impaction

An impacted tooth is defined as “a tooth that is all the way or partially below the gum line and is not able to erupt properly,”¹ and is in essence one that fails to assume a functional position within the dental arch. Impaction is recognised by

the World Health Organization (WHO) as a disease entity in its own right within the ICD-11 Classification of Diseases (DA07.8).¹ Mandibular third molars (Md3Ms) are the last teeth in the series to erupt into the oral cavity, typically between 18 and 24 years of age,² and are the most commonly impacted of all teeth. Winter's classification of third molar impaction is commonly used by clinicians as a descriptive tool based on the radiographic inclination of the Md3M (Figure 1).

The prevalence of third molar impaction in the 20–30 year age group is as high as 72.7%.² A mesioangular orientation is observed most frequently in impacted Md3Ms,² reflecting their developmental process. The diseases most commonly associated with impacted Md3Ms include:

- pericoronitis;
- caries;
- periodontitis; and,
- distal cervical caries (DCC) of the second molar.

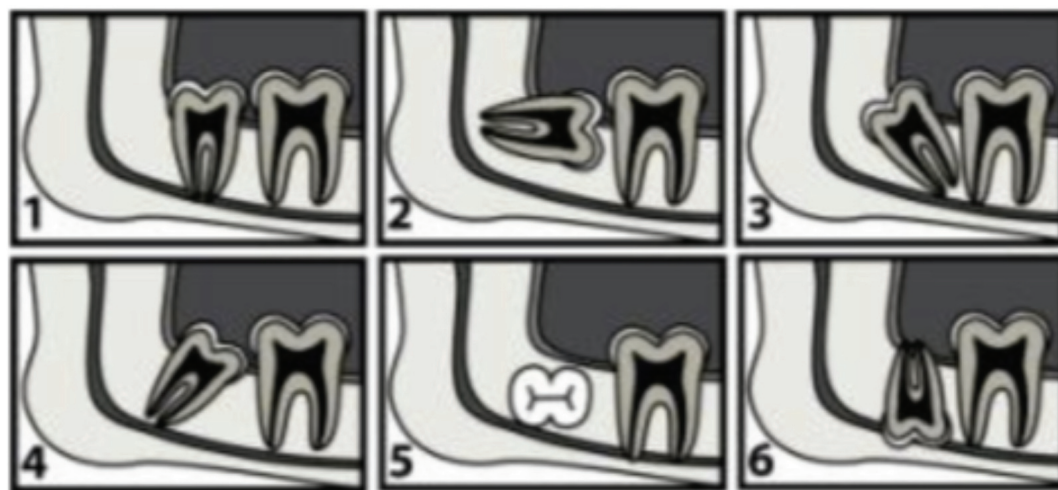


FIGURE 1: Winter's classification of mandibular third molar impaction. Third molars are classified according to their inclination relative to the long axis of the adjacent second molar: 1. Vertical; 2. Horizontal; 3. Distoangular; 4. Mesioangular; 5. Transverse; and, 6. Inverse.⁴

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Pericoronitis

Pericoronitis is the single most common indication for lower third molar removal.^{2,4} There are currently no internationally agreed diagnostic criteria for pericoronitis, but it is typically diagnosed where there is clinical evidence of swelling of the soft tissues around an impacted tooth, with or without a history of food packing and purulent discharge from the associated soft tissues.⁵ Although most cases of Md3M-related pericoronitis will respond well to conservative management, there is a risk that more virulent infections could spread throughout the fascial spaces of the neck, with potentially life-threatening consequences.

Caries

Caries is the second most common indication for lower third molar removal, and is seen more commonly in older patients, where the tooth has been in communication with the oral cavity for a period of time.² Unfavourable tooth orientation and difficult tooth access are frequent barriers to restorative intervention in such instances.

Periodontitis

It is estimated that periodontitis accounts for 5% of all Md3M extractions.² In one retrospective analysis, it was found that periodontal disease accounted for the removal of 13% of horizontally impacted Md3Ms and 9% of vertical, non-impacted Md3Ms.²

Distal cervical caries of the second molar

DCC in the mandibular second molar is believed to be uniquely related to the mesioangular Md3M, and has been widely reported in the literature in recent years.^{2,6-8} DCC arises at the cemento-enamel junction of the second molar and is considered a variant of root surface caries (**Figure 2**).

In many cases, DCC is diagnosed at an advanced stage, by which point the second molar is often deemed unrestorable. This contentious issue has been a topic of much research, and there is a strong argument in favour of prophylactic removal of mesioangular third molars to prevent those problems associated with their retention long term.⁷

Other

Cystic change affects around 2-3% of impacted third molars.⁹ Dentigerous cysts are typically associated with unerupted teeth, and account for 20% of all odontogenic cysts.¹⁰ These cysts arise from separation of the reduced enamel epithelium once amelogenesis is complete, and are believed to affect Md3Ms almost 10 times more frequently than their maxillary counterparts.¹¹

Inflammatory resorption is another phenomenon that may affect the crowns of impacted third molars. This tends to be observed in older age groups (>50 years) and results from the activity of multinucleate giant cells.¹² Destroyed tooth tissue is replaced by bone, resulting in ankylosis. Surgical removal of affected teeth can be extremely challenging.

Both cystic and resorptive change are often incidental findings with no presenting signs or symptoms; it is therefore prudent to monitor unerupted teeth radiographically on a regular basis to ensure that any pathology is picked up at an early stage.

Guidelines

As there are no robust clinical guidelines for third molar surgery in Ireland,



FIGURE 2: Radiograph of distal cervical caries in the LL7 associated with mesioangular LL8.

clinicians have traditionally turned to our neighbours in the UK and USA, and guidance extrapolated from international recommendations where appropriate.

National Institute for Health and Care Excellence (UK)

In March 2000, NICE published its 'Guidance on the extraction of wisdom teeth' document (TA1).¹³ NICE recommends removal of third molars only where a clear clinical indication exists. Since the introduction of these guidelines, there has been considerable debate in situations where a malpositioned, partially erupted Md3M poses a risk to the neighbouring tooth. Particular interest surrounds the enigmatic mesioangular impaction,⁷ which has been shown in numerous studies to lead to an increased incidence of DCC in the adjacent second molar tooth,² with late detection posing serious restorative challenges.

Studies have shown a trend towards third molar surgery later in life, with an increase in the mean age of patients from 25 years at the time of surgery in 2000 to 32 years in 2010.² Increased age at the time of surgery is associated with increased surgical morbidity.⁴

In light of the inherent issues posed by the 2000 guidance that are reported in the literature, NICE has acknowledged that the guidelines contained in the TA1 document are "controversial".¹⁴ Clinicians are urged to exercise their judgement in the context of patients' best interests. NICE guidance remains under review at the time of publication.

American Association of Oral and Maxillofacial Surgeons (USA)

The 2024 clinical paper produced by the American Association of Oral and Maxillofacial Surgeons (AAOMS) proposes that "third molars should be removed in the younger-age patient because there is less transitory or permanent morbidity", and that "a final determination must be based on an agreement between the surgeon and the patient".¹⁵ In this document, the AAOMS acknowledges the potential for future disease development related to disease-free third molars. It highlights the importance of the surgeon's role in determining the risk of future disease development in cases of asymptomatic impacted Md3Ms, and endorses the role of the surgeon in contributing to the decision-making process in the patient's best interests.

Faculty of Dental Surgery Guidelines (UK)

A guideline development group in the UK collectively reviewed the pre-existing faculty guidelines on management of Md3Ms¹¹ “because evidence suggests increasing patient harm due to retention of Md3Ms”. The consensus document ‘Parameters of care for patients undergoing mandibular third molar surgery’ recommends a shift “from a solely therapeutic approach to a mixed range of interventions for patients with mandibular third molars based on a holistic and informed approach agreed with the patient”.¹¹ Particular emphasis is placed on patient education regarding the risks of retention, as well as surgical removal of malpositioned Md3Ms, with special recognition of the evidence supporting prophylactic removal of the mesioangular Md3M.

Wisdom tooth assessment

Routine evaluation of third molar development in the adolescent population should be undertaken by the GDP as part of the general dental health assessment. This will allow any active disease, and indeed the potential for disease, to be identified at an early stage and managed appropriately.

A comprehensive history forms the basis of the wisdom tooth assessment. Complaints including pain, soft tissue swelling, food trapping, antibiotic history, and difficulty maintaining oral hygiene should be documented. **Table 1** outlines a structured approach to the examination of wisdom teeth, and should be broadly adhered to where possible.

Table 1: What to document during a wisdom tooth assessment.

Clinical examination

- Degree of eruption:
 - partially erupted;
 - fully erupted;
 - unerupted; or,
 - overerupted.
- Operculum health
- Crown:
 - inclination;
 - restorations; and,
 - caries.
- Periodontal status:
 - oral hygiene;
 - food trapping; and,
 - pocketing.
- Adjacent tooth
- Opposing tooth/teeth
- Occlusion

Radiographic examination

- Winter's classification
- Pell and Gregory classification
- Crown:
 - size;
 - shape; and,
 - disease.
- Roots:
 - number;
 - length; and,
 - morphology.
- Alveolar bone support
- Pericoronal status:
 - bone resorption;
 - follicular enlargement; and,
 - cystic change.
- Anatomical structures:
 - inferior alveolar canal; and,
 - maxillary sinus, tuberosity.

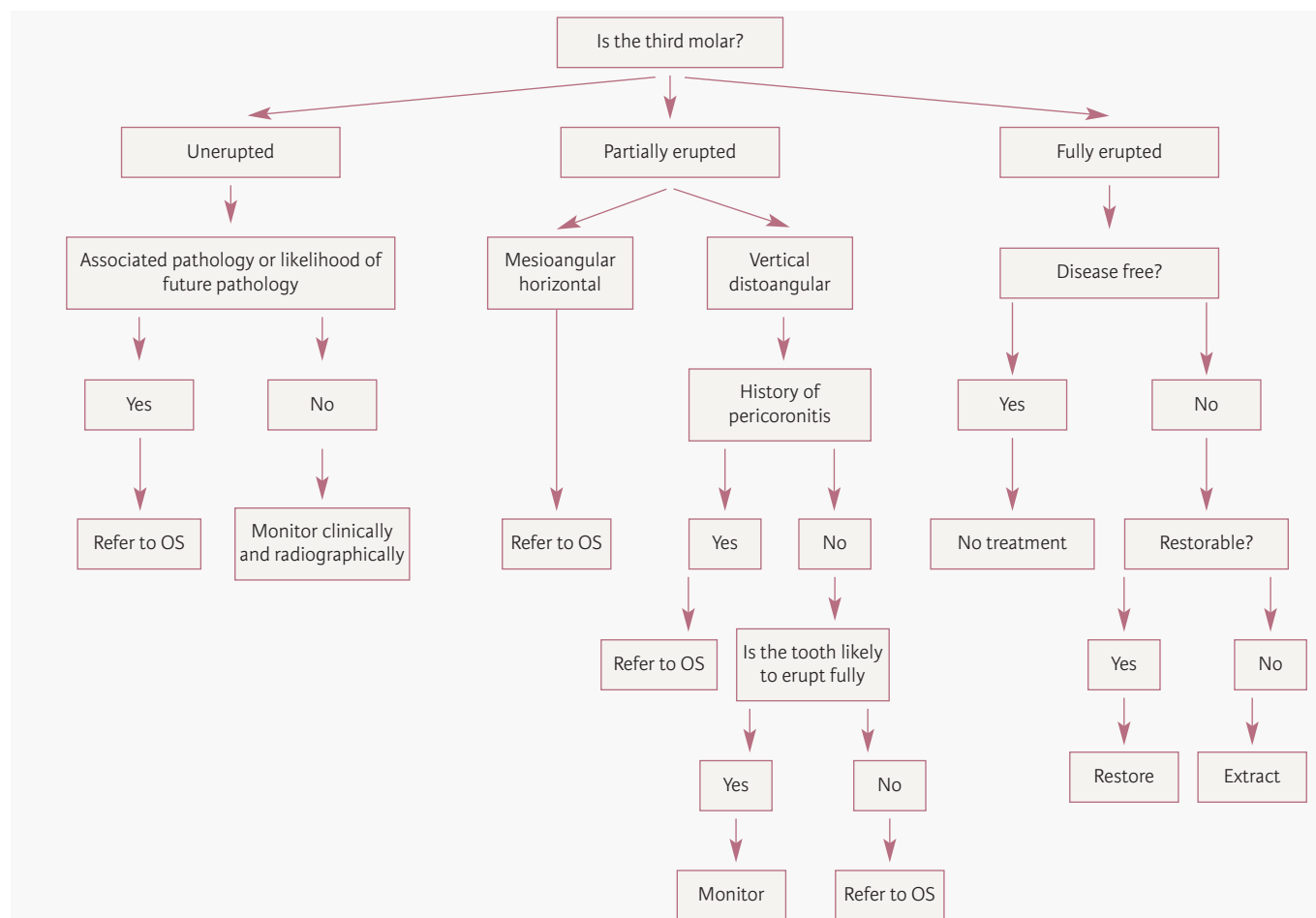


FIGURE 3: Decision flowchart for assessing Md3.

Once the examination is complete, how does the clinician decide whether a referral to oral surgery is indicated? The following considerations will help to inform this decision:

- is the tooth fully erupted and functional?;
- is the tooth disease free?;
- is the orientation of the tooth favourable with respect to oral hygiene?; and,
- if partially erupted, is the tooth likely to erupt further and assume a functional position within the arch?

If the answer to any of the above questions is 'no', intervention will almost certainly be required. The type of intervention will depend on a number of factors, such as the restorability of the tooth, functional importance, type of impaction, age of the patient, underlying medical conditions, and patient preference. A decision flowchart is presented in **Figure 3**.

It is important to consider the negative impact that retention of partially erupted mesioangular and horizontal M₃M_s will invariably have on the neighbouring teeth. In the case of the former, we know that DCC is a risk to the second molar, even in otherwise healthy, disease-free mouths. With the latter, loss of alveolar bone support along the distal root of the second molar is a common finding that results in severely compromised periodontal health (**Figure 4**).

Specialist referral

For patients requiring specialist referral, it is essential that all basic information is included in the referral letter to support clinical triage and subsequent assessment. **Table 2** outlines the recommended information for specialist referral. It is important to include all relevant information, including any previous interventions and appropriate imaging. If a cone beam computed tomography (CBCT) scan is available, both the scan and accompanying report should be attached to the referral. When referring patients for conscious sedation, it is prudent to first consider the suitability of the patient for sedation before referral. Factors in the medical history such as sleep apnoea, obesity, pregnancy, drug abuse, and extremes of age can make conscious sedation an unsuitable treatment modality.

Conclusion

Routine third molar assessment should form part of a patient's general dental health check in the relevant age group, and timely specialist referral should be arranged where indicated, following consultation with the patient. Ignoring asymptomatic partially erupted wisdom teeth is no longer acceptable practice. To leave the partially erupted mesioangular, horizontal upper or lower third molar

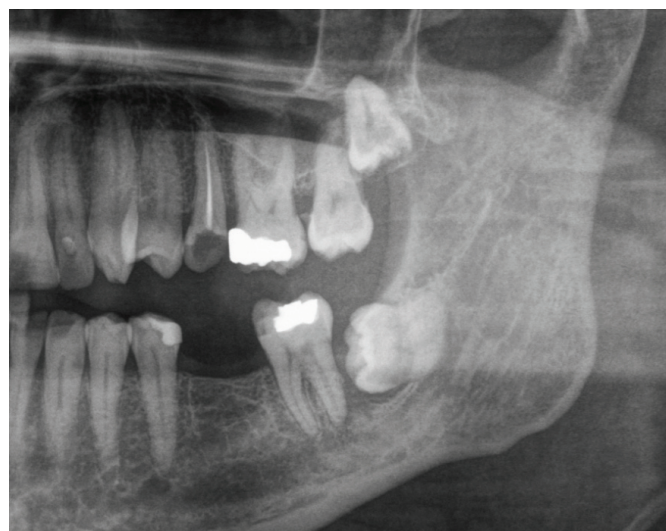


FIGURE 4: Radiograph showing severe alveolar bone loss along the distal aspect of LL7 as a direct result of LL8 impaction.

Table 2: Recommended information to include in an oral surgery referral.

Referral information:

- patient details, including name, date of birth and contact number;
- details of referring clinician;
- details of GP;
- reason for referral (including history of presenting complaint);
- full medical history, including medication list and allergy status;
- full social history, including smoking and alcohol status;
- height, weight and BMI (particularly if requesting conscious sedation);
- MDAS or equivalent anxiety score (particularly if requesting conscious sedation);
- inclusion of relevant radiographs; and,
- inclusion of CBCT with associated radiographic report if applicable.

in situ is to leave a patient open to significant preventable disease in the adjacent second molar. In an era where prevention is better than cure, timely patient education and referral are the mainstay of best clinical practice.

The second part of this series will discuss complications of wisdom tooth surgery and management of common third molar problems that may present to the GDP.

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