

## Complications of Third Molar Surgery-Review Article

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### ABSTRACT

This article addresses the incidence of specific complications. Surgical removal of third molars is often associated with postoperative pain, swelling, and trismus. Factors thought to influence the incidence of complications after third molar removal include age, gender, medical history, oral contraceptives, presence of pericoronitis, poor oral hygiene, smoking, type of impaction, relationship of third molar to the inferior alveolar nerve, surgical time, surgical technique, surgeon experience, use of perioperative antibiotics, use of topical antiseptics, use of intra-socket medications, and anesthetic technique. Complications that are discussed further include alveolar osteitis, postoperative infection, haemorrhage, oro-antral communication, damage to adjacent teeth, displaced teeth, and fractures.

**Key Words:** Third molar, impact, complications, maxilla and mandible

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### INTRODUCTION

Impacted wisdom teeth (also known as impacted third molars) is the failure of the wisdom teeth to erupt fully into the mouth because of blockage from another tooth and affects up to 72% of the population<sup>1</sup>. Wisdom teeth likely become impacted because of a mismatch between the size of the teeth and the size of the jaw. Impacted wisdom teeth are classified by their direction of the impaction, depth compared to the biting surface of adjacent teeth and the amount of the tooth crown that extends through bone or mucosa. By the age of eighteen, the average adult has 32 teeth; 16 teeth in the upper jaw and 16 teeth in the lower jaw. Unfortunately, the average adult mouth is only large enough to accommodate 28 teeth. It can be painful when 32 teeth try

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to fit in a mouth that holds only 28 teeth. Third molars generally erupt between the ages of 18 and 24 years, although there is wide variation in eruption dates. One or more third molars are absent in approximately 25% of adults<sup>2-5</sup> but they may still be present in the elderly, otherwise edentulous, patient.



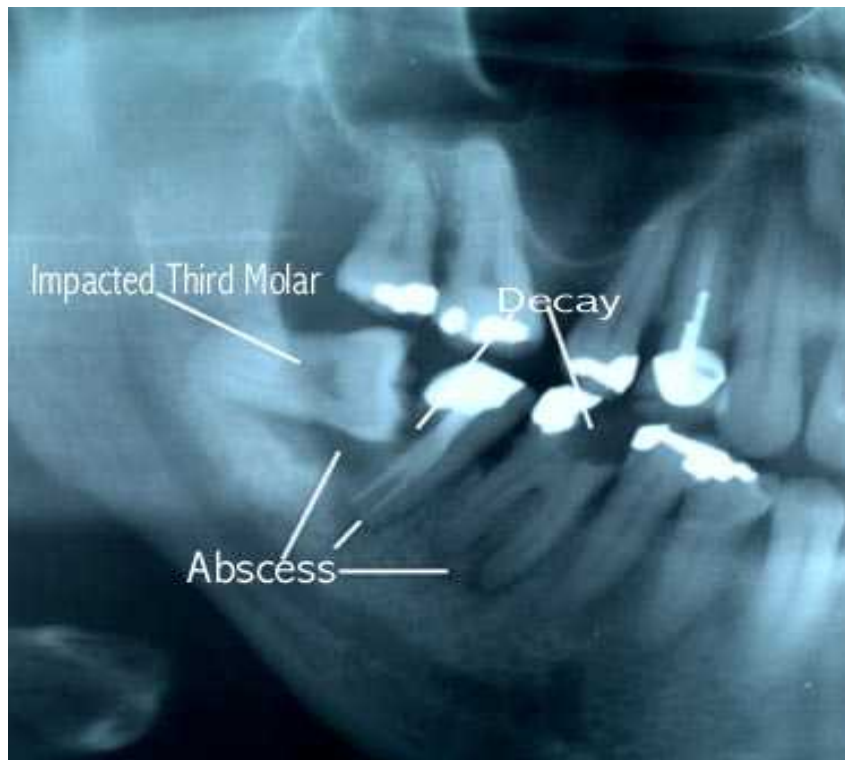
Classification: All teeth are classified as either developing, erupted (into the mouth), embedded (failure to erupt without blockage from another tooth) or impacted (failure to erupt due to blockage from another tooth). Wisdom teeth develop between the ages of 14 and 25, with 50% of root formation completed by age 16 and 95% of all teeth erupted by the age of 25. However, tooth movement can continue beyond the age of 25<sup>2</sup>.

Impacted wisdom teeth are classified by the direction and depth of impaction, the amount of available space for tooth eruption. And the amount soft tissue or bone (or both) that covers them. The classification structure allows clinicians to estimate the probabilities of impaction, infections and complications associated with wisdom teeth removal<sup>3</sup>. Wisdom teeth are also classified by the presence (or absence) of symptoms and disease.

One review found that 11% of teeth will have evidence of disease and are symptomatic, 0.6% will be symptomatic but have no disease, 51% will be asymptomatic but have disease present and 37% will be asymptomatic and have no disease<sup>4</sup>.

Impacted wisdom teeth are often described by the direction of their impaction (forward tilting, or mesioangular being the most common), the depth of impaction and the age of the patient as well as other factors such as pre-existing infection or the presence of pathology. Of these predictors, age correlates best with extraction difficulty and complications during wisdom teeth removal<sup>5</sup>. Rather than the orientation of the impaction<sup>6</sup>.

Complications Associated With Treatment:



As noted earlier, removal of third molars is a common surgical procedure and. As with all surgical procedures .There is a risk of operative and postoperative complications .The rate of complications and their severity varies, but the management of common and more serious complications is described below.

Common complications:

- (a) Haemorrhage: Haemorrhage must be controlled at the time of surgery. Soft tissue bleeding may require haemostatic agents, bipolar diathermy and/or sutures. Occasionally a small amount of bone wax is necessary to control bleeding from bone, but this must be used with caution. Haematoma formation out with the socket can occur and may require drainage.
- (b) Ecchymosis: Patients should be informed that bruising is common and self-limiting and will usually resolve within two weeks of surgery.
- (c) Infection: Infection of the soft tissues may result in secondary haemorrhage, cellulites or rarely, abscess formation<sup>7</sup>. Where signs of systemic involvement are present (pyrexia, regional lymphadenopathy) antibiotics should always be prescribed. Alveolar osteitis (dry socket) may

occur in 20% of patients, particularly in those who smoke<sup>8</sup>. Irrigation with saline (chlorhexidine 0.2%) and/or placement of an obtundent, such as proprietary iodoform based medication, usually reduces the pain<sup>9</sup>. Rarely, osteomyelitis may occur which requires long term antibiotic therapy and further surgery in a hospital environment.

(d) Retention of root fragment: When a retained root fragment gives rise to symptoms it should be removed<sup>10</sup>. Any infection should be controlled prior to surgical exploration.

(e) Displacement of tooth: A lower third molar or tooth fragment may be displaced into the lingual tissues, whilst an upper third molar may pass into the infratemporal fossa. Appropriate instruments should be in place prior to elevation to help minimise the occurrence of displacement. Where this occurs, every effort should be made at the time of surgery to recover the displaced tooth, but referral to a specialist centre may be required.

(f) Wound dehiscence: Where wound dehiscence occurs without the development of pain and infection, patients should be advised to continue wound toilet, e.g. hot salty mouthwashes and socket syringing.

(g) Damage to adjacent teeth: Patients should be told about damage to adjacent teeth at the time of surgery or if under sedation or general anaesthetic, when they are fully conscious. The consequences of this damage should be explained to the patient and recorded in the patient's notes. If repair is required, then the operator should arrange appropriate management.

(h) Periodontal health: The periodontium distal to the mandibular second molar may be affected by removal of an impacted third molar. Early removal of mesio-angular horizontal impacted third molars is associated with better periodontal health<sup>11</sup>.

Serious Complications: The following complications carry significant risk of morbidity and may require immediate referral. The patient should be informed, and a record entered in the patient's notes.

(a) Fracture of the mandible: Fractures should be noted at the time of surgery and repaired if necessary. If the operator is unable to do this, he/she must arrange immediate referral.

(b) Fracture of the maxilla: Tuberosity fractures may occur and should be treated at the time of surgery. If the operator is unable to do this he/she must arrange an immediate referral.

(c) Oro-antral communication: Oro-antral communication is probably a more frequent occurrence than is realised and thus probably often heals spontaneously. Any such defect identified at the time of surgery should be repaired, usually with a buccal advancement flap. Antibiotic therapy is advisable and the patient should avoid nose blowing<sup>12</sup>.

(d) Retained foreign body: Any broken instrument should be removed at the time of the operation. If not retrievable, the patient should be told and this recorded in the notes.

(e) Nerve damage: Complete transaction of the lingual or inferior dental nerves requires immediate nerve repair by an experienced surgeon. Where there is partial damage, gentle debridement and the maintenance of good apposition of the ends is normally undertaken. The patient should be informed of the situation.

One recent study has shown that significant improvement in nerve function can be achieved by specialist surgical investigation and repair<sup>13</sup>.

## CONCLUSION

In order to influence the cooperation and compliance of patients it is crucial to counsel each patient regarding the expected course of the procedure possible complications. Thus this article is an overview of complications of third molar surgery.

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