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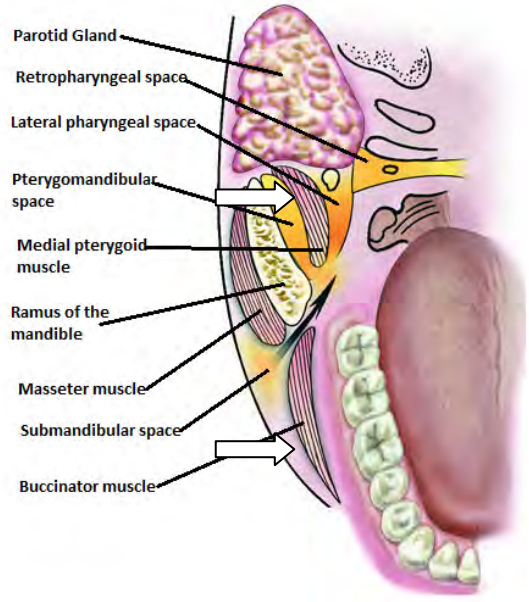
內文：

Abstract

1. The displaced third molar is a rare but potentially serious complication of extraction.
2. When the accident occurs, the general dentist should refer the patient to an oral and maxillofacial surgeon as soon as possible.
3. The surgeon should localise the fragment by appropriate imaging and should remove it by a technique suited to the situation.
4. Three cases: one in the maxillary sinus, one in the submandibular space and one in the pterygomandibular space.
5. A review of literature on the subject is examined and a treatment guideline is suggested for use when confronted with such accidents.



Introduction

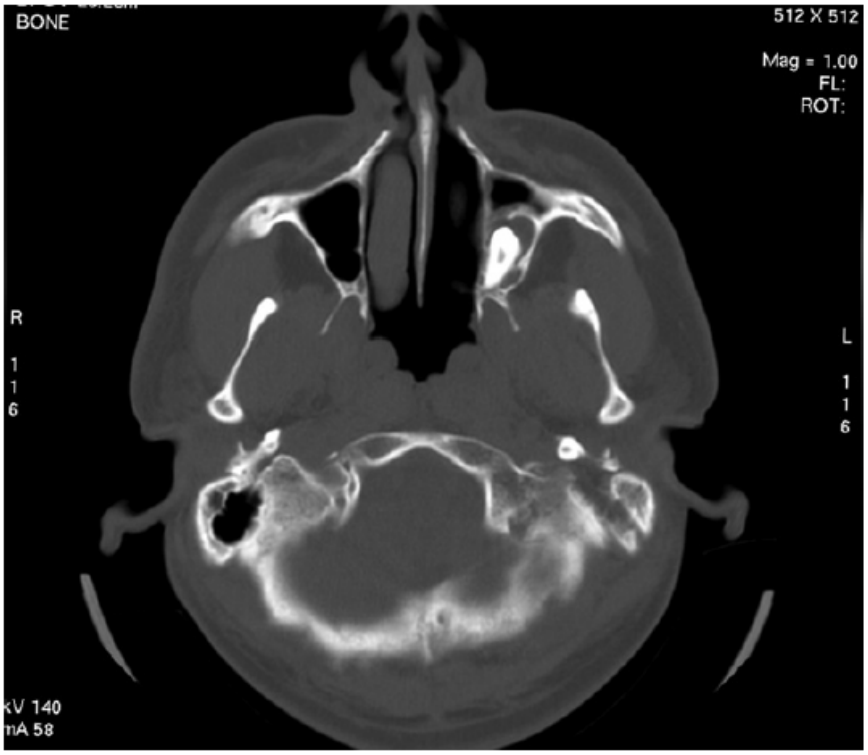
1. As expected with any surgical intervention, accidents may occur during exodontia, such as tooth displacement into the adjacent tissue spaces.
2. The most common sites of dislodgement: the maxillary sinus and the submandibular space.
3. Maxillary third molars have only a thin layer of bone posteriorly separating them from the infratemporal space and anteriorly separating them from the maxillary sinus.
4. The tooth can be displaced in a posterosuperior direction into the infratemporal space
5. Displacement of a maxillary third molar into the maxillary sinus also can occur.
6. Excessive apical force during the use of elevators and incorrect surgical technique are quoted as the most usual causes of these accidents.

7. In the case of a mandibular third molar, the thinness of the lingual cortical bone predisposes to displacement in a lingual direction.
8. In the case of a mandibular third molar, the thinness of the lingual cortical bone predisposes to displacement in a lingual direction.
9. Distolingual angulation of the tooth and excessive or uncontrolled force upon luxation are other causes

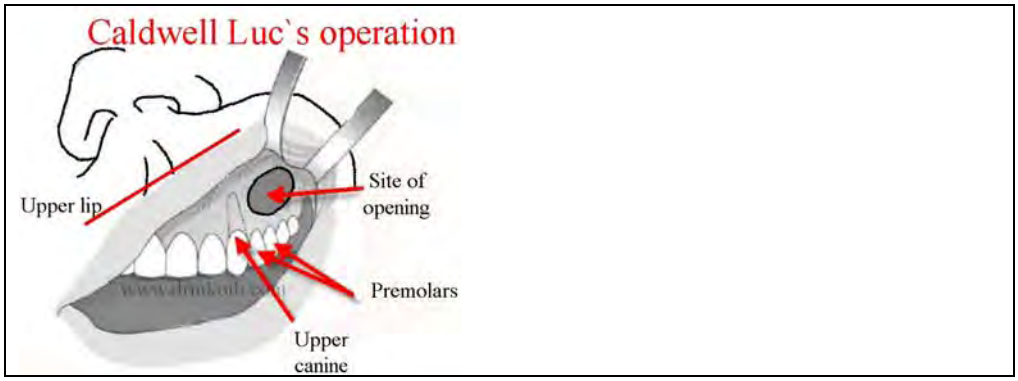
Case report

Case 1 (maxillary sinus)

- A 28-year-old female
- To our unit 8 days after an accident at a local dental clinic during an attempted maxillary third molar extraction.
- The left upper third molar tooth was lost
- Mild pain and heaviness in the left maxillary sinus area and the left maxillary sinus was tender on palpation.
- There were no signs or a symptom of oroantral fistula.
- Medical history was non-contributory.
- Computed tomography (CT) scan localised the tooth in the left maxillary sinus close to the posterior medial wall.



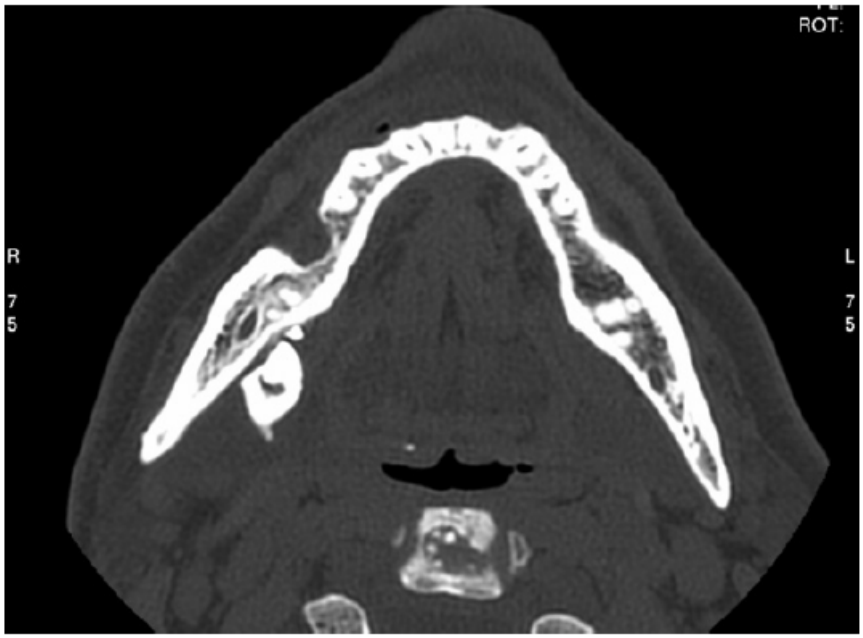
- Under general anaesthesia, the maxillary sinus was exposed through a Caldwell-Luc approach.

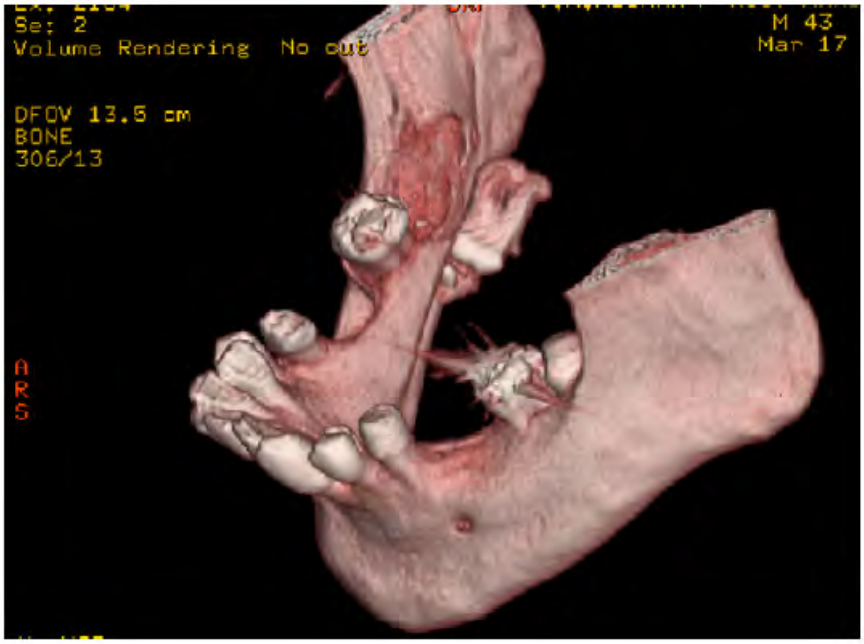


- The sinus was irrigated with sterile saline solution under pressure and the tooth was removed only by negative pressure of the suction pump.
- The wound was closed with polyglactin 910 (Sutures India Pvt. Ltd., Bangalore, India).
- ketoprofen(止痛) (200 mg/day), oxymetazoline(鼻內局部去充血)0.05% nasal drops and amoxicillin (1500 mg/day) were prescribed.
- The post-operative recovery was uneventful.

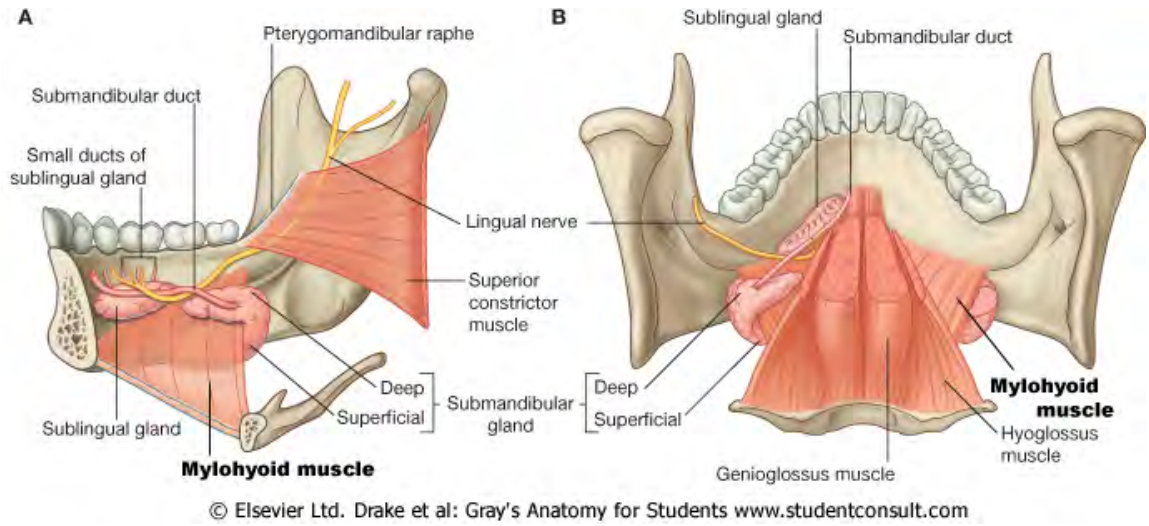
Case 2 (submandibular space)

- A 38-year-old male
- Referred to our unit 4 h after a local dentist ‘lost’ a right lower third molar tooth during an attempted surgical removal.
- The patient’s treatment record mentioned that the application of a dental elevator to elevate the tooth led to lingual cortical plate fracture and slipping of the tooth medial to the socket.
- Medical history was non-contributory.
- There were no clinical symptoms of dysaesthesia of the lip or tongue.
- Clinical examination revealed a fractured lingual plate attached to the lingual mucosa in the third molar socket area. The tooth could not be located on palpation.
- A CT scan show that the tooth in the right submandibular space





- The patient was prepared for surgery under general anaesthesia.
- A lingual mucoperiosteal flap was raised in the 48 region after making an incision from the medial aspect of anterior border of the mandibular ramus and extending to the lingual gingival sulcus of the mandibular right first premolar tooth.
- The fractured lingual cortical plate was allowed to remain attached to the lingual mucoperiosteal flap.
- Blunt dissection was carried out medial to the third molar socket to reach the mylohyoid muscle.
- A sharp incision was made through the mylohyoid muscle at a distance of 5 mm from its attachment to the mylohyoid ridge to make suturing easier at the completion of the procedure.



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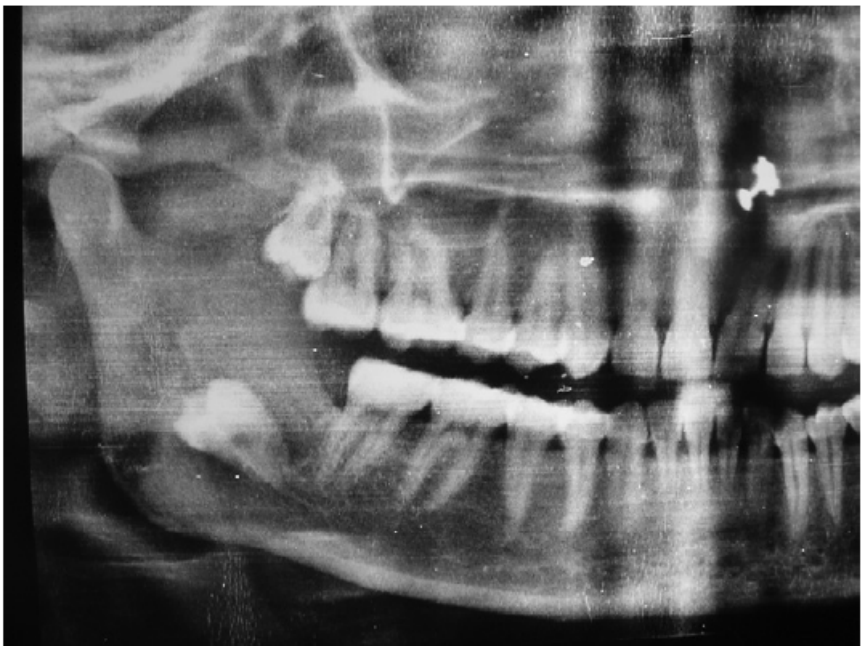
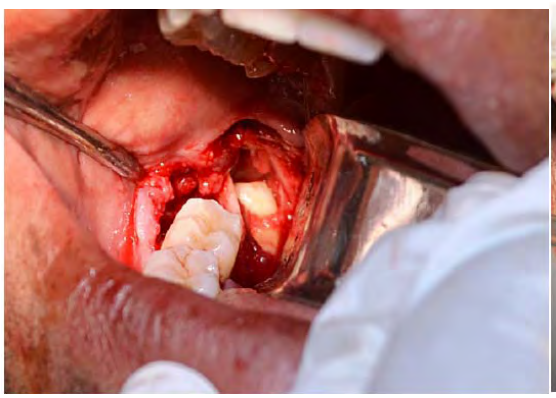
- The tooth was located inferior to the muscle.
- Finger pressure from the fingers on the nonoperating hand was used to elevate the tooth into the wound.
- The tooth was grasped and delivered using a curved haemostat.
- Primary closure was achieved with polyglactin 910 for the muscle and mucoperiosteal flap.
- Amoxicillin 1500 mg/day and ketoprofen 200 mg/day were prescribed.
- The post-operative recovery was uneventful.

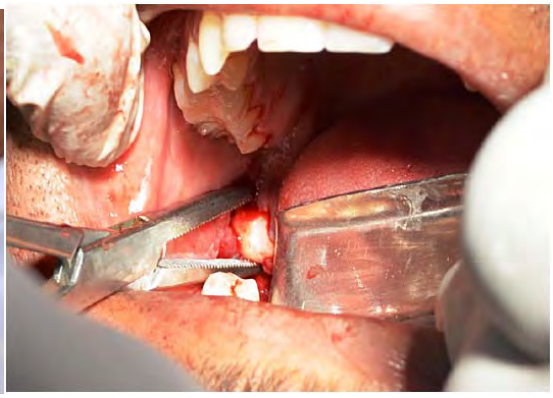
Case 3 (pterygomandibular space)

- A 28-year-old female
- A complaint of severe pain, difficulty in swallowing and speech.
- Traumatic surgical extraction of her lower right third molar a month ago at a local dental clinic.
- She did not recollect having seen the extracted tooth. She was not informed about any mishap during the procedure.
- Clinical examination revealed an edematous and inflamed lower right third molar area.
- The opposing upper third molar was found to be traumatising the retro molar area.



- On palpation the tooth could be felt on the medial aspect of the mandibular ramus posteroinferior to the third molar socket.
- The patient had an Orthopantomograph which showed the tooth displaced into the right pterygomandibular space.
- As the tooth was palpable we did not seek a CT scan evaluation.
- Amoxicillin 1500 mg/day, serratiopeptidase 30 mg/day and ketoprofen 200 mg/day.
- Four days later the symptoms subsided and a surgical procedure was planned under local anesthesia.
- An extended lingual mucoperiosteal flap extending from the ramus to the first molar region was raised and blunt dissection carried out with a curved haemostat while maintaining finger pressure on the tooth with the index finger of the non-operating hand.
- The tooth was grasped with a haemostat and delivered. Closure was achieved with polyglycolic acid 910 sutures.
- Postoperative recovery was uneventful.





Discussion

- Accidental displacement is a rarely reported complication during the surgical removal of impacted third molars.
- Unfortunately, there is no sure way of predicting such a transoperative

accident, even following a thorough review of past medical history and clinical radiographic examination.

- No single method of retrieval is applicable to all circumstances.
- Some authors prefer to postpone the surgery for several weeks to allow fibrosis to occur and thereby stabilise the tooth in a firm position5. A third molar has been reported to have been asymptomatic for 2 years following displacement into the sublingual space.
- However, the risk of infection, foreign body reaction or migration of the displaced tooth/fragment increases with time.
- We prefer as early an attempt at retrieval as possible.
- Radiographic assessment
  - Maxillary third molar: Panoramic, occipitomental and lateral views
  - Mandibular third molar: posteroanterior, occlusal, submentovertex and panoramic views.
- Situation in the maxillary third molar
- Situation in the mandibular third molar

Table 1 Review of recent reports of accidental displacement of third molars

Authors	Year of publication	Clinical details	Complications
Ozyuvaci H, Firat D, Tanyel C[17]	2003	Mandibular third molar displaced into the submandibular space. Surgical removal was accomplished intraoral.	None
De Biase A *et al.*[18]	2005	Mandibular left lower third molar root displaced into the medial soft tissue space. Surgical removal was accomplished intraoral.	None
Sverzut CE *et al.*[19]	2005	Maxillary right third molar displaced into the maxillary sinus. Surgical removal accomplished intraoral via the Caldwell-Luc approach.	None
Medeiros N, Gaffrée G[20]	2008	Mandibular left third molar displaced into the lateral pharyngeal space. Surgical removal accomplished intraoral.	None
Olusanya AA, Akadiri OA, Akinmoladun VI[21]	2008	Mandibular third molar displaced into the submandibular space. Surgical removal accomplished intraoral.	None
Kocaelli H, Balcioglu HA, Erdem TL[22]	2011	Maxillary third molar displaced into the buccal space. Surgical removal accomplished intraoral.	None
Selvi F *et al.*[23]	2011	Maxillary left third molar displaced into the infratemporal space. Surgical removal accomplished intraoral.	None
Shahakbari R, Mortazavi H, Eshghpour M[24]	2011	Mandibular third molar displaced into the infratemporal space. Surgical removal accomplished intraoral.	None
Aznar-Arasa L, Figueiredo R, Gay-Escoda C[25]	2012	Mandibular third molar roots displaced into the sublingual space (report of six cases). Three of these were removed via an intraoral approach following complication at the surgical site while two remained symptom free. One was removed within the same surgical procedure.	Infection and swelling (one case), lingual and inferior alveolar nerve transitory impairment (two cases)
Iwai T *et al.*[26]	2012	Maxillary third molar displaced into the maxillary sinus removed via the tooth socket using an endoscope.	None

Table 2 Treatment suggestions in case of accidental displacement of third molars

1. Patient should be promptly informed about the accident and the possible treatment options should be fully discussed.
2. In the event, the professional is not experienced and skilled enough to perform the retrieval surgery, and/or the patient is not in physical and/or psychological conditions to support the surgical intervention within the same session, surgery is postponed to a next date when the patient feels more comfortable. Referral to a skilful oral-maxillofacial surgeon is the conduct of choice. In the meantime, between the first and second interventions, the patient must be under antibiotic, analgesic and anti-inflammatory medication.
3. Where there has been a delay in the referral, one should note any existing nerve injury or infection, and record this carefully.
4. The maxillofacial surgeon should localise the tooth/root radiographically in at least two planes or ideally with a computed tomography (CT) scan or cone beam CT and at the earliest plan the proper surgical approach necessary to retrieve the fragment.
5. In case the fragment is small (1/3rd of the root length or less) and has no symptoms/complications associated with it, the maxillofacial surgeon may choose to leave it in place.

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Conclusion

- Accidental displacement is a rarely reported complication during the surgical removal of impacted third molars.
- The displaced third molar is a rare but potentially serious complication of extraction.
- Dental professionals can be faced with medical-legal problems following such complications.
- It is thus of paramount importance to keep all case records, including signed informed consent, radiographs and other items.
- Inform the patient immediately about any intraoperative accident that occurred during exodontia and discuss which conduct will be followed to solve the unexpected situation.
- Timely intervention and referral to a maxillofacial surgeon could prevent further complications.

題號	題目
1	下列關於拔牙時所造成牙根斷裂的敘述，何者錯誤？ (A) 細小之牙根斷片經由傷口掉入健康之上顎竇內，不需強行取出 (B) 如有較大之牙根掉入上顎竇，可經由拔牙齒槽（socket）施行 Caldwell-Luc 手術取出 (C) 拔除下顎智齒容易因舌側骨板破裂而發生牙根掉入 submandibular space (D) 掉入 infratemporal space 的牙根，如不能當次取出，最好間隔 4 到 6 週再進行手術
答案(B)	出處：當代口腔顎面外科學 3e, P.310-311
題號	題目
2	若阻生智齒拔除後三天腫脹仍持續增加，最有可能的原因是： (A) 術後組織水腫 (B) 術後細胞激素（cytokine）釋放所引發的正常發炎反應 (C) 有殘留齒根或牙濾泡（dental follicle） (D) 感染
答案(D)	出處：當代口腔顎面外科學 3e, P.289