

# Displacement of Maxillary Third Molar Into the Lateral Pharyngeal Space

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Iatrogenic tooth displacement is a rare complication during extraction of impacted molars, but displacement of a maxillary third molar into the maxillary sinus, infratemporal fossa, buccal space, pterygomandibular space, and lateral pharyngeal space has been reported. Currently, 6 published reports describe third molar displacement into the lateral pharyngeal space, only 1 of which involved the loss of a maxillary third molar into this area, which occurred after an attempted self-extraction by the patient. There have been no reported cases of iatrogenic displacement of the maxillary third molar during an extraction procedure. This article describes the recovery, under general anesthesia, of a maxillary third molar from the lateral pharyngeal space after an iatrogenic displacement.

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## Report of Case

A 34-year-old woman was referred to the Department of Oral Surgery, Kinki Central Hospital, Itami, Japan, complaining of discomfort during mouth opening since undergoing an unsuccessful surgical procedure to remove an impacted upper left third molar, performed under local anesthesia by a general practitioner. When the

tooth had been dislocated, the patient felt pain in the left pharyngeal area and left side of the neck that lasted for a few seconds. After this procedure, she was informed that the root apex had not been extracted, but that this would not impede wound healing. In fact, the whole tooth had been displaced. The next day, a diffuse subcutaneous hematoma of the neck developed and she was prescribed a 3-day course of antibiotic therapy from a medical clinic. This resolved the condition after a week, but left some residual intermittent discomfort during mouth opening and pain of the pharynx that occurred every few months. However, these symptoms were not sufficient to compel her to seek further treatment. Two years later, she attended a dental clinic regarding some gingival swelling and bleeding in the upper left quadrant. Being pregnant at the time, she was treated with only gingival irrigation, which resolved the swelling within a few days without any supporting radiographic investigation, thus precluding the discovery of the displaced tooth. After childbirth, the patient sought further dental advice regarding the symptom, and the subsequent comprehensive examination resulted in her being referred to our hospital.

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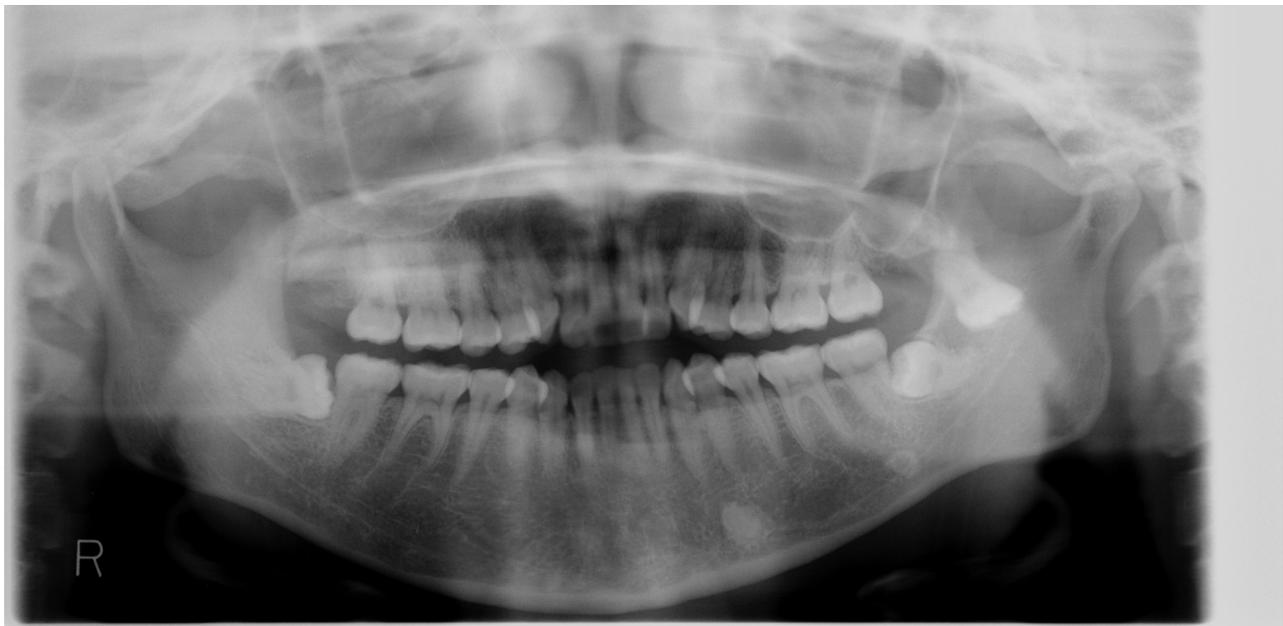
Figure 1 shows a panoramic radiograph with the tooth in question lying medial to the left mandibular ramus. The displaced upper left third molar was precisely localized to the lateral pharyngeal space by use of axial computed tomography (CT) (Fig 2). The potential for infection of the displaced tooth and the discomfort of perceiving a foreign body in the pharynx both constituted indications for surgical recovery of the displaced tooth, and the patient willingly consented to proceed with this treatment plan.

The procedure was performed with the patient under general anesthesia, with a Dingman gag in place to maintain a wide operative field. An incision was made over the glossopalatine arch (Fig 3) and the submucosal tissue dissected bluntly. A fibrous capsule that had formed around the tooth was dissected (Fig 4), and the tooth was removed with Kocher forceps. The wound was closed with absorbable sutures. The postoperative course was uneventful, and the patient has remained asymptomatic during the follow-up period.

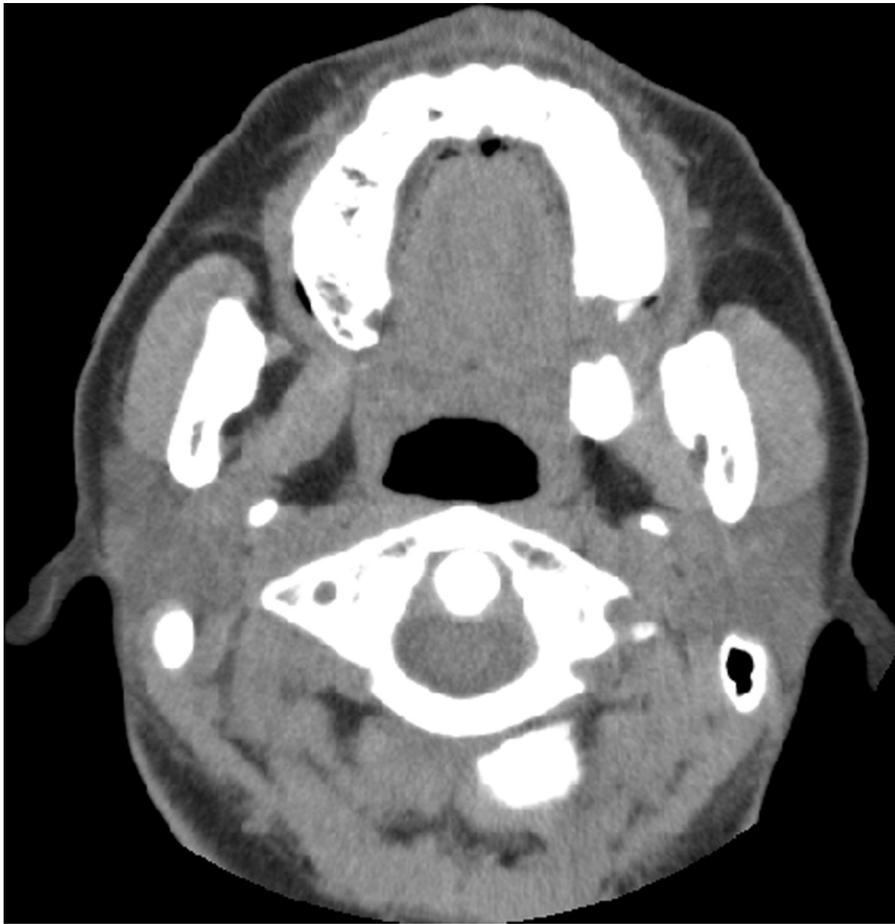
## Discussion

Iatrogenic tooth displacement is a rare complication during extraction of an impacted tooth. To our knowledge, there are currently only 6 English-language reports describing the displacement of the third molar into the lateral pharyngeal space,<sup>18-23</sup> only 1 of which covers the displacement of a maxillary third molar.<sup>18</sup> This occurred as a consequence of an attempted self-extraction. Therefore this is the first report of an iatrogenically displaced maxillary third molar.

Depending on the direction of force application, the maxillary third molar can migrate superiorly to the maxillary sinus,<sup>1-5</sup> posteriorly to the infratemporal fossa,<sup>5-15</sup> posterolaterally to the buccal space,<sup>16</sup> postero-inferiorly to the pterygomandibular space,<sup>17</sup> or posteromedially into the lateral pharyngeal space. In our case excessive local forces had caused this latter type of posteromedial translation of the tooth. Improper manipulation because of a lack of experience and inadequate clinical and radiographic examination are important factors that can lead to accidental tooth displacement.<sup>20</sup> Accurate radiographic localization of the tooth is a prerequisite of both the initial extraction and the postdisplacement recovery, and a CT scan is especially useful in this respect in pinpointing the exact location of the tooth in relation to surrounding soft tissue structures. Indeed, conventional radiographic views, such as panoramic, posteroanterior, and lateral skull views, proved inadequate in this case. The CT scan showed the tooth lying medial to the medial pterygoid muscle and lateral to the superior constrictor muscle of the pharynx, so extraction through the glossopalatine arch appeared to be the most convenient and atraumatic option. However, as with any oral surgery, preoperative planning must take into account the risk of injury to anatomic structures such as the lingual nerve. The carotid artery and cranial nerves pass through the posterior part of the lateral pharyngeal space, mandating great care when one is removing a tooth resting in a deep posterior position to avoid damage to these structures. In addition, infectious processes in the lateral pharyngeal space may have

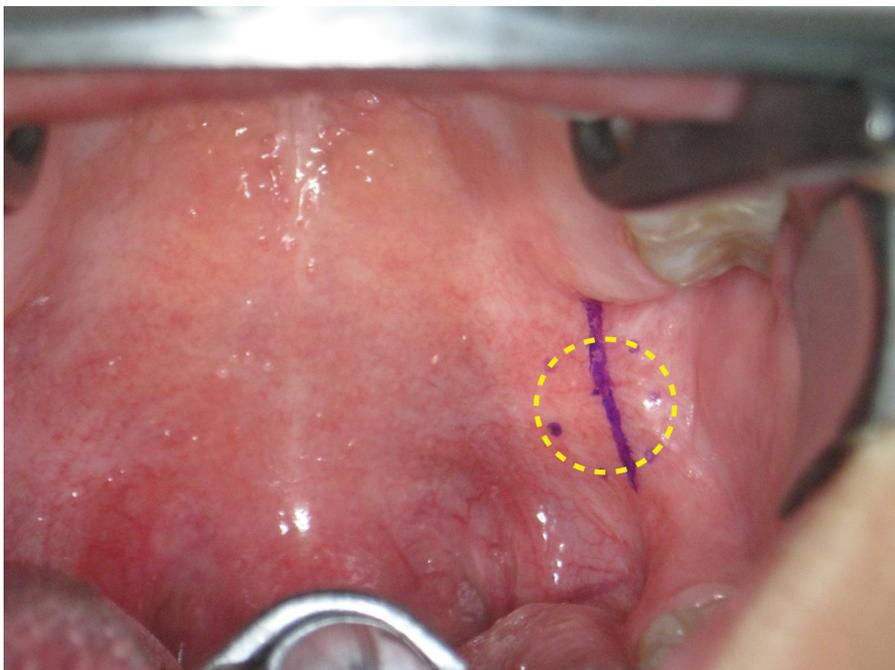


**FIGURE 1.** Panoramic radiograph showing displaced upper left third molar medial to mandibular ramus.



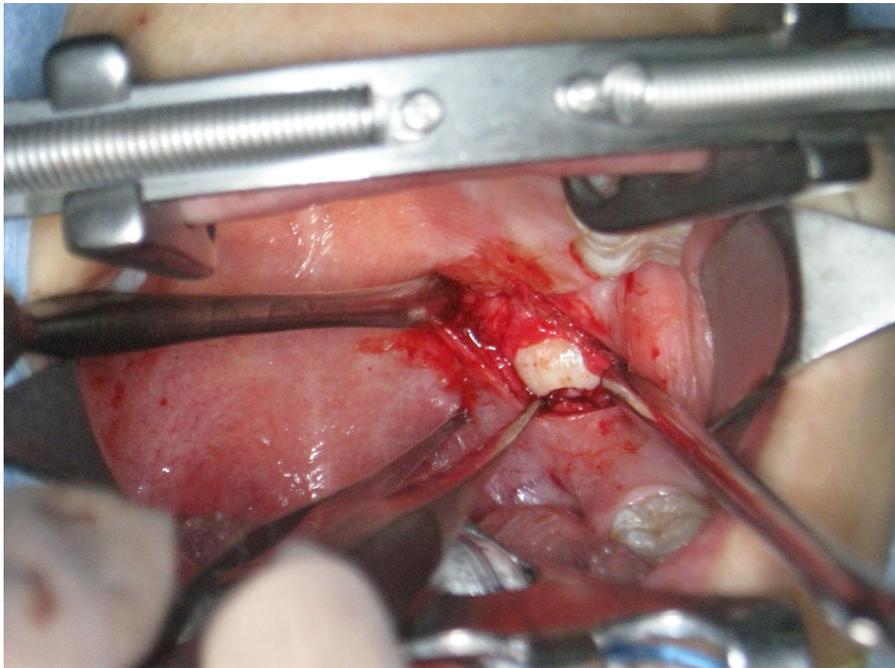
**FIGURE 2.** Axial CT scan showing upper left third molar in lateral pharyngeal space.

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**FIGURE 3.** Incision over glossopalatine arch. The dotted line shows the bulge created by the underlying tooth crown.

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**FIGURE 4.** The tooth crown is visible after dissection of the surrounding fibrous capsule.

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serious complications, including thrombosis of the internal jugular vein, erosion of the carotid artery and its ramifications, and interference with cranial nerves IX through XII.<sup>20,22</sup> We successfully used a Dingman gag in this procedure to maintain a wide operative field, even though it is normally used in soft palate operations such as those to repair cleft palate.

There are reports of ectopically displaced teeth left in situ for long periods without precipitating any pathologic symptoms<sup>20,24</sup> due to the encapsulation of the displaced tooth by fibrous tissue. It is possible that late-onset symptoms such as those seen in our patient could occur if the tooth was initially displaced into another soft tissue space (eg, the infratemporal space) before migrating into the lateral pharyngeal space either spontaneously or in response to functional pressure from adjacent structures (eg, the coronoid process of the mandible). However, in this case the rapid onset and intermittency of the trismus and pharyngeal pain are suggestive of the tooth being displaced directly into the lateral pharyngeal space, where subsequent capsulization by fibrous tissue rendered it predominantly non-pathologic.

The primary indications for removal of a displaced tooth are infection, pain, trismus, and dysphagia, with psychological distress to the patient being a relative indication.<sup>18</sup> In this case surgery was indicated by the distress caused to the patient by the discomfort

during mouth opening and intermittent pharyngeal pain. However, in these chronic cases of ectopic tooth displacement, the surgeon must weigh the benefits of this elective surgery against its risks. As such, we decided to continue only after concluding that the benefit of tooth recovery was greater than the risk of infection.

We have described, for the first time, a case study of the surgical recovery of a maxillary third molar tooth displaced iatrogenically into the lateral pharyngeal space. We hope that this account of our experience is instructive for other clinicians encountering this scenario in their practice.

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