

## Short Case Report

# Complication of facial cellulitis: muscle hematoma after surgical treatment of complicated pericoronitis

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**Abstract – Observation:** A 24-year-old man was referred to the dental emergency department for the management of a left submandibular cellulitis. The origin was a mandibular third molar. Drainage of the cellulitis and avulsion of the tooth were performed under general anesthesia. The follow-up was marked by a secondary infection of peri-zygomatic hematoma requiring a second drainage procedure. **Discussion:** The origin of the hematoma was a tear of the insertions of the mandibular elevators secondary to the trismus. The patient underwent two back-to-back general anesthesia procedures with tight trismus making induction and intubation difficult. **Conclusion:** A two-stage treatment with initial drainage and delayed avulsion after improvement of trismus is discussed.

## Clinical observation

The patient was a 24-year-old active male smoker (5 pack-years) with no relevant medical history. He was referred by an oral surgeon for emergency management for persistent submandibular cellulitis that had been resistant to previous medical treatment. The patient gave a history of experiencing a left submandibular pain over a 1-week period and complained of trismus for 2 days.

One week before the referral, he consulted a practitioner and was prescribed amoxicillin for 7 days at a dose of 2 g/day in combination with nonsteroidal anti-inflammatory agents (250 mg doses of niflumic acid) administered systematically three times/day. Treatment was substituted 1 week later with a combination of amoxicillin/clavulanic acid 3 g/day with a steroidal anti-inflammatory agent (betamethasone 4 mg/day).

Approximately 8 days after the initial visit, the patient consulted a second practitioner, who prescribed prednisolone of 60 mg/day the day before he was referred to our department. The patient then consulted a third practitioner, who urgently referred him to our service.

At presentation, the patient showed signs of systemic infection. The clinical examination at arrival revealed a painful left submandibular swelling, severe trismus with a narrow 8-mm residual mouth opening, and presence of odynophagia without any dyspnea or dysphonia. An orthopantomogram

revealed that tooth no. 38 was noncarious and impacted (Fig. 1). A provisional diagnosis of suppurative pericoronitis of the left third mandibular molar complicated by parapharyngeal cellulitis and trismus was made.

Emergency contrast computed tomography (CT) was performed to confirm and refine the diagnosis. It revealed an abscess measuring 26 mm × 44.5 mm × 50 mm in a posterolingual position on the left mandible and a satellite edema of the oropharynx, resulting in a mass effect at the supraglottic junction (Fig. 2).

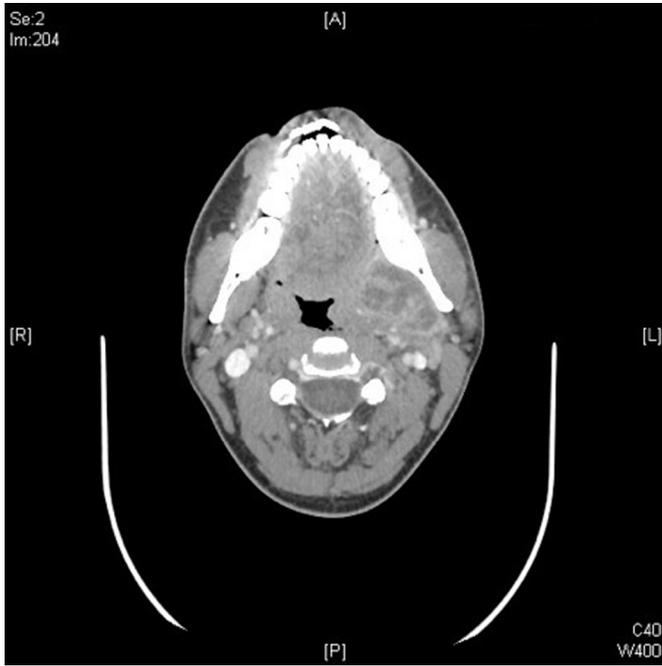
The initial clinical examination suggested an inflammatory reaction. In the emergency department, the patient underwent abscess drainage and avulsion of the causal tooth under general anesthesia, after which a Delbert-type drainage flap was put in place. All the anti-inflammatory agents were discontinued and only the amoxicillin/clavulanic acid combination was maintained at a dosage of 3 g/day, together with level-I and level-II analgesics.

The postoperative period was marked by a significant, soft, left hemifacial swelling that was not present before the operation (Figs. 3 and 4).

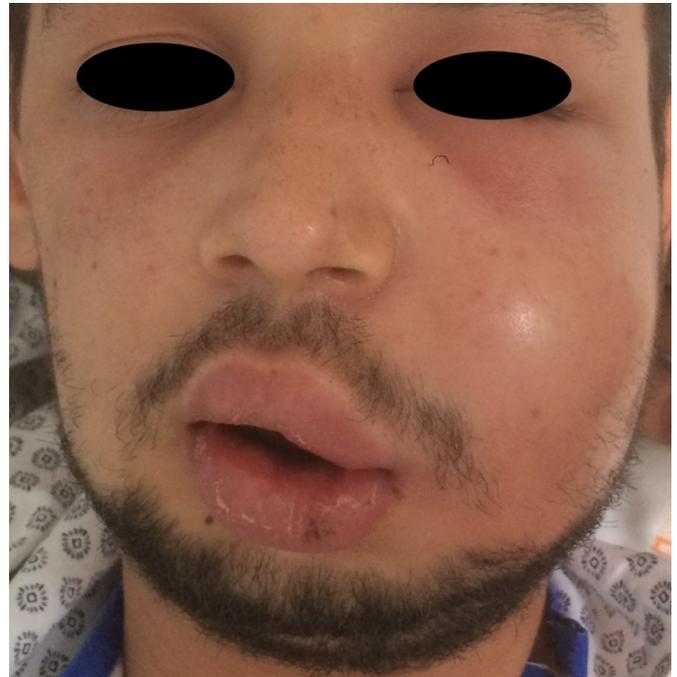
A fresh CT scan was performed due to the lack of postoperative improvement, along with the presence of large swelling below the zygomatic arch and the persistent signs of inflammation.

An infected hematoma, left zygomatic abscess, with peripheral enhancement, measuring 44 mm × 48 mm × 66 mm was observed, indicating a poorly localized abscess with widespread infiltration of satellite muscles (Fig. 5).

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**Fig. 1.** Axial CT scan with contrast administration taken on the day of admission.



**Fig. 3.** Clinical findings on postoperative day 3 after the first procedure.



**Fig. 2.** Clinical aspect at D1 of first procedure.



**Fig. 4.** Coronal CT scan with contrast administration on postoperative day 4 after the first procedure.

After observing the zygomatic swelling, anticoagulation via a preventative dose of low-molecular-weight heparin was prescribed, considering the risk of thrombophlebitis of the facial vein.

The initial mandibular posterolingual abscess had completely regressed. A second surgery under general anesthesia was performed to drain the abscess, resulting in the drainage of bloodstained pus. Further evaluation

revealed that this abscess had not become continuous with the original abscess. Moreover, original abscess site had already begun healing. The source of the second abscess fluid collection was situated in the distal vestibular root of the maxillary premolars, within the soft tissue of the cheek. After drainage, a Delbert-type drainage flap was put in place (Fig. 4).



**Fig. 5.** Initial orthopantomogram.

There were no postoperative complications after the second surgery, but the trismus slowly decreased. The mouth opening improved to 15 mm by day 5 after the second operation but it did not resolve completely.

Clinical follow-up on day 9 after the second surgical intervention revealed an improvement in mouth opening to 20 mm, and physical therapy with self-rehabilitation was prescribed. Physical examination during rehabilitation revealed a tender muscular cord involving the medial pterygoid muscle.

In conclusion, the patient was hospitalized for a total of 11 days for pericoronitis of 38 with an abscess that was initially ameliorated by anti-inflammatory agents; however, thereafter, the case was complicated by a superinfection of the postoperative hematoma within the mandibular elevators (Fig. 5).

## Discussion

Odontogenic facial cellulitis is a bacterial infection of the facial tissues that can pose a significant risk to the patient [1]. Such cases are frequently encountered in odontology and oral surgery departments. Several common and rare causes exist for this condition. In the present case, an unusual complication was observed in the postoperative phase [2,3].

The origin of the left perimaxillary hematoma that appeared in early postoperative care should be specified. No sites other than 38 were explored during the first operation. The only plausible assumption is that of torn muscular insertions of the affected mandibular elevators, causing widespread bloody infiltration of the muscles, which was secondarily infected to form the septic hematoma [4]. Indeed, the tight trismus did

not decrease after the induction of anesthesia, but the mouth opening was insufficient for the alveolectomy. Hence, the mouth had to be forced open for the extraction of the impacted tooth 38. The appearance of perimaxillary edema on postoperative day 1 indicates the infection of the affected soft tissue, especially in light of the obvious reduction in perimandibular and submandibular edema on the left side.

Our experience with this case forces the reevaluation of treatment in cases where cellulitis complicated by trismus.

Indeed, the avulsion of a third impacted mandibular molar often requires a sufficient vestibular and distal alveolectomy with coronal and/or inter-radicular separation, which only involves a certain degree of buccal opening for a certain period of time. This discussion brings to the fore the appeal of avulsing the affected tooth at a separate time from when the emergency surgery is performed.

With regard to the case presented here, the patient underwent two intubations while being awake under very difficult conditions as evidenced by the induction durations: durations between the start of anesthesia and intubation being 46 and 52 min for the first and second surgeries, respectively. Such maneuvers are associated with significant morbidity/mortality. The current knowledge allows us to predict to a certain degree, the aesthetic/functional sequelae and the possibility of a subsequent adjuvant surgical procedure with the type of strap muscle release.

**Conflicts of interests:** The authors declare that they have no conflicts of interest in relation to this article.

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