

## Case Report

### Infratemporal fossa abscess: a vague presentation with limited surgical approach

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Infratemporal fossa abscess is a rare condition and difficult to be diagnosed clinically as the symptom is vague. Radiological imaging is crucial to determine the focal infection. Drainage of the abscess is also challenging due to limited access. We report a case of a healthy middle-aged man who had toothache and was eventually diagnosed

to have infratemporal fossa abscess. This report aims to highlight the difficulties in diagnosing infratemporal fossa abscess. (Rawal Med J 201;43:363-365).

**Keywords:** Infratemporal fossa abscess, dental extraction, intraoral drainage.

## INTRODUCTION

Infratemporal fossa abscess is a rare condition and difficult to be diagnosed clinically as the symptom is vague and mimicking trigeminal neuralgia without obvious facial swelling. Appropriate radiological imaging is very crucial to determine the focal infection. Drainage of the abscess is also challenging due to limited access. We are reporting a case of a relatively healthy middle-aged man who had multiple visits to the dental clinic due to a toothache and was eventually diagnosed to have infratemporal fossa abscess. This report aims to highlight the difficulties in diagnosing infratemporal fossa abscess. We also review the different approaches as an option to drain out the abscess confined to this space.

## CASE REPORT

A 55-year-old gentleman with underlying well-controlled diabetes mellitus, ischemic heart disease and hypertension was referred to us with the chief complaint of left facial pain and swelling for one month. He initially had left upper posterior toothache associated with left facial swelling and redness with intermittent fever. He went to a private dental clinic resulting in 2 teeth extraction (left upper 1st and 2nd molar). However, the symptoms worsened as the pain and swelling increased, aggravated by mastication and associated with odynophagia. On examination, there was facial asymmetry with

minimal swelling of the left buccal region, firm in consistency, tender on palpation without any skin changes. Intraoral examination showed healed sockets of the previous extractions. The Stensen duct opening showed no sign of infection. Oropharynx, otologic and rhinoscopic examinations were unremarkable. Blood investigation showed increased total white count  $27.5 \times 10^9/L$  with a neutrophil predominance of 86%.

The patient was started intravenous cefuroxime 750mg and intravenous metronidazole 500mg on the day of admission. IV clindamycin was added on the 3rd day as the pain and swelling did not show any improvement.

**Fig. 1. CT of head showing multiple well-defined irregular lesions with peripheral enhancement.**



An axial, coronal and sagittal computed tomography (CT) scan of the neck with 3mm sections revealed multiple well-defined irregular lesions with peripheral enhancement (Fig. 1). The result was suggestive of an abscess collection in infratemporal fossa involving left masseter-temporalis muscle, left lateral and medial pterygoid muscle and left veli palatine muscle.

Incision and drainage were done with intraoral approach and pus were drained from 2 locules located at lateral to the mandible and medial to zygoma. Postoperatively, he was kept in the ward to complete intravenous antibiotic for ten days and subsequently discharged well.

## DISCUSSION

The infratemporal fossa is a limited space confined below the greater wing of sphenoid, lateral to the ramus of mandible, posterior to maxilla and medial to lateral pterygoid plate. It houses important structures such as masticatory muscle, maxillary artery, pterygoid venous plexus and mandibular nerve. Parapharyngeal space is located medial to this space so any infection can extend and narrow the laryngeal inlet.<sup>1</sup>

Several etiologies contribute to infection in this space such as third molar infection,<sup>2</sup> dental injection,<sup>3</sup> maxillary sinus wall fracture<sup>4</sup> and hematogenous spread.<sup>5</sup> The most challenging part is to diagnose this condition is that patient would have limited mouth opening without obvious facial and intraoral swelling. The facial pain is insidious and difficult to be differentiated from dental root infection. CT scan or magnetic resonance imaging is important to diagnose this condition and localize the space that is involved. However, it is not easy to differentiate between abscess and tumor.<sup>5</sup>

Three patterns of infratemporal fossa infection have been described, i.e. (1) localization within the fossa (2) ascending spread into temporal fossa and (3) inferior spread into parapharyngeal space, floor of mouth and other neck spaces despite the presence of fascia as a barrier.<sup>5</sup>

The general principle for abscess management which is incision and drainage need to be performed with antibiotic coverage. However,

space is hindered by narrow and limited access. Soydan et al described performing intraoral drainage despite the presence of trismus.<sup>6</sup> Another report describes the trans-parotid approach through modified Blair's incision,<sup>7</sup> and one case report highlighted the feasibility of endoscopic transmaxillary approach.<sup>8</sup> The preferred antibiotic in this type of cases is the one that has coverage for gram positive, gram negative and anaerobes such as cephalosporin combined with metronidazole.<sup>9</sup>

In summary, despite the rarity of infratemporal fossa abscess, the clinicians should bear in mind regarding this entity in their differential diagnoses of restricted mouth opening. Early diagnosis and management are crucial, as it can spread to other neck spaces and mediastinum in late presentation. Radiological localization of the space can help the surgeon to decide regarding approaches to drain the abscess collection.

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