CASE REPORT

Acute Temporal Tendinitis After Dental Extraction: A Valuable Lesson

Nor Azura Ahmad Tarmidzi[1], Mohamed Hisham Mohamed Jali[1], Faezah Rokhani[1], Mohamad Nazmi Nisar Ahmad[2]

[1] Department of Oral & Maxillofacial Surgery, Pathology and Medicine, Universiti Sains Islam Malaysia, Pandan Indah, 55100 Kuala Lumpur, Wilayah Persekutuan, Malaysia
[2] Dental Officer, Universiti Sains Islam Malaysia, Pandan Indah, 55100 Kuala Lumpur, Wilayah Persekutuan, Malaysia

ABSTRACT

Temporal tendinitis is a secondary myofascial orofacial pain disorder. To date, there is no exact figure on the prevalence of temporal tendinitis as it is concurrence with other temporomandibular joint disorder (TMD). Therefore it is usually underrecognised and undertreated because of the vagueness of its signs and symptoms. This situation usually results in delayed care or even unnecessary treatment. We report a case of unresolved unilateral facial pain and limited mouth opening in a 19-year-old male that occurred following a difficult dental extraction. This case initially presented with the classical signs of odontogenic infection. We describe its clinical and radiological findings and management.
Malaysian Journal of Medicine and Health Sciences (2025) 21(1):369-372. doi:10.47836/mjmhs.21.1.44

Keywords: Temporal tendinitis, Orofacial pain, Temporomandibular disorder, Difficult dental extraction, Ear pain

Corresponding Author:
Mohamed Hisham Mohd Jali, MOMS (Oral & Maxillofacial Surgery)
Email: drsham@usim.edu.my
Tel:+603-42892845

INTRODUCTION

Temporal tendinitis (TT) is considered as a secondary myofascial orofacial pain disorder in accordance with definition of the International Classification of Orofacial Pain (Table I) published in 2020 (1). Two of the main criteria for the diagnosis of a patient with TT are an underlying illness that is known to be a causative factor and confirmation of the location in the tendon by examination (1).

The diagnosis of TT is often overlooked given that the symptoms of temporomandibular disorder (TMD), such as temporal headaches, temporomandibular joint (TMJ) pain and limited mouth opening without clear signs of tendinitis, are closely identical to those of TT, such as swelling. Furthermore, the complex anatomy of the deep location of the temporal tendon, scarcity of reported cases and lack of the detailed description of TT in the literature lead to the underdiagnosis of this disorder (2).

Table I: International Classification of Orofacial Pain, 2020

Primary temporomandibular joint pain	Secondary temporomandibular joint pain
Acute primary temporomandibular joint pain	Temporomandibular joint pain attributed to arthritis
Chronic primary temporomandibular joint pain	Temporomandibular joint pain attributed to disc displacement
	Temporomandibular joint pain attributed to degenerative joint disease
	Temporomandibular joint pain attributed to subluxation

Direct or indirect injury to the temporal tendon is the most common cause of TT. However, direct trauma, such as falls, high-velocity movement or local anaesthesia, is more common than trauma caused by chronic excessive and repetitive mandibular function, such as mastication and bruxism (2). After the direct trauma, inflammation will take place causes temporal tendinitis and if remains unchanged or mismanaged, temporal tendinosis might develop. The forces from the continuous, repetitive movement of the jaw, in combination with the temporalis muscle capacity for flexibility contributes to the development of long-term alterations which manifest as TT or even tendinosis.

Clinically, other underlying existing problems can be perplexing to TT due to the low specificity and sensitivity of temporalis tendon palpation together with the variations in the location of the distal temporal tendon. This paper presents a rare acute case of suspected TT after a dental extraction.

CASE REPORT

Mr. I, a 19-year-old male, attended our dental polyclinic and requested the extraction of his root-treated tooth 36

due to fractured filling. He is medically fit and claims to smoke one pack of cigarettes per day. The extraction was difficult as the tooth 36 was very brittle and consistently fractured upon luxation leaving the root fragments inside a dense and hard socket bone. After almost 2 hours of attempts, the roots were finally removed by surgical mean. The patient was given analgesia and postoperative instructions to follow after the procedure. On postoperative day 3, the patient started to develop pain on the left side of his face and had limited mouth opening. He also claimed to experience on-and-off fever with ear pain during this period. His symptoms worsened until they disturbed his sleep and daily routines. He then sought treatment from a general medical practitioner but had minimal response to medications (paracetamol & erythromycin).

Thirteen days after the extraction, the patient returned to our dental outpatient clinic with soft diffuse extraoral swelling on the left side of his face associated with the opening of his mouth being severely limited to approximately 5 mm (Figure 1a). He reported no history of dysphagia and dyspnoea. During extraoral palpation, the patient felt tender at the left submandibular lymph node, left TMJ, left temporalis and left masseter muscle. The patient reported a pain score of 8 out of 10. Intraoral examination revealed that the floor of socket of tooth 36 filled with thin slough tissue and the surrounding gingiva had no signs of inflammation. It was not associated with any swelling intraoral and had no pus discharge. Orthopantomography (Figure 2) and cone beam computed tomography did not reveal any relevant findings, such as the presence of a fracture or foreign body. We then decided to treat this case as an infection-related case due to the history of fever and lymphadenopathy. We made the provisional diagnosis of trismus of facial muscle secondary to the infection of socket 36. The socket was irrigated with chlorhexidine 0.12% solution. The patient was prescribed an oral analgesic (etoricoxib 90mg), antibiotics (metronidazole 400mg), antispasmodic (eperison hydrochloride 50mg), a steroid (prednisolone 5mg) and an antiseptic mouthwash (chlorhexidine gluconate 0.12%) for one week. He was also taught jaw exercise therapy to improve mouth opening and prevent muscle fibrosis.

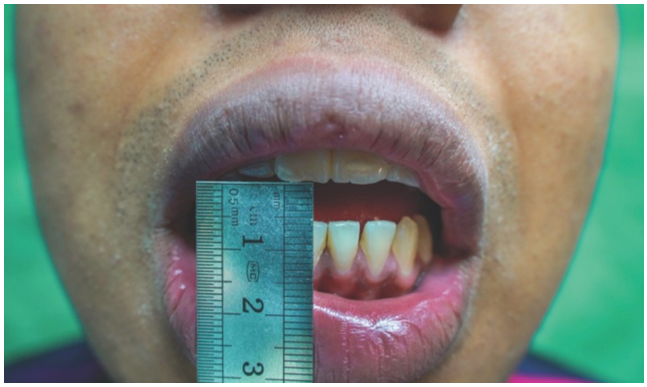

Figure 1a: Limited mouth opening during the first presentation after extraction.

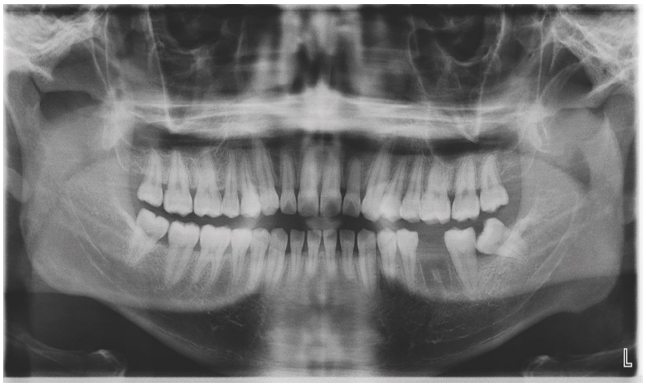

Figure 2: Orthopanthomogram of the patient showing the absence of a retained root at socket 36 and the lack of obvious pathology related to the temporomandibular joint.

During review 1 week later, the patient showed a marked reduction in swelling. He had no fever, odynophagia or dysphagia. However, the mouth opening at this visit had not improved from that at the previous visit. Socket 36 was healing well as evidenced by its coverage by healthy gingiva. The case was then referred to an oral medicine specialist for a second opinion in view of the unresolved limitation of mouth opening. Therefore, functional analysis examination was carried out, which tests the muscles of mastication and TMJ based on their isometric contractions rather than by palpation. The examination revealed no pain and spasm in the medial and lateral pterygoid muscles and only slight pain in the left intracapsular TMJ. Further palpation revealed mild tenderness at the anterior portion of the left temporalis and severe unbearable pain with a pain score of 10/10 at the intraoral tendon attachment at the coronoid process (Figure 3).

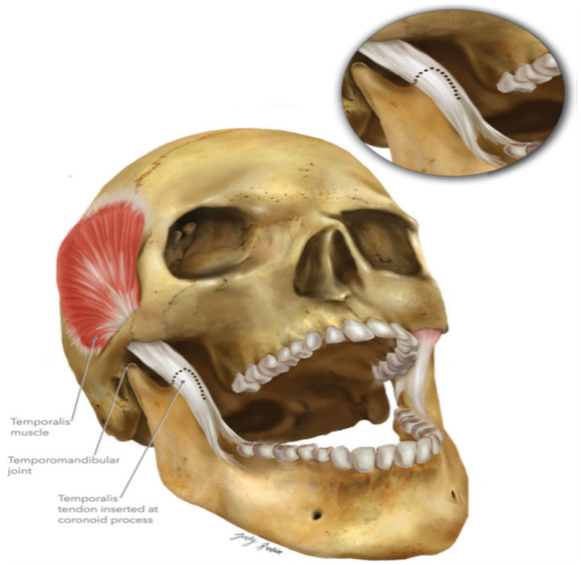

Figure 3: Distal temporal tendon attachment at the coronoid process of the mandible.

A diagnosis of acute TT was made in consideration of the clinical presentation of the patient and the functional analysis performed. An intraoral local anaesthesia (mepivacaine 2% 2.2 ml with 1:100000 adrenaline)

infiltration was administered at the tendon insertion area. It immediately decreased pain presentation by almost 95% according to the patient. This procedure immediately confirmed our diagnosis. The patient's mouth opening also improved immediately to 8 mm. Before discharge, the patient was taught TMJ active stretching exercises and instructed to apply a warm pack on the temporal area. The stretching exercise will prevent the further stiffness of the TMJ by inserting wooden sticks in between upper and lower jaw. Medications were continued as prescribed before.

Three weeks later, the pain at the left temporalis and its tendon insertion area had completely resolved. Mouth opening had remarkably improved from 8 mm to 36 mm (Figure 1b). To date, the patient's problem has not recurred. The patient is scheduled for review in another 3 months.

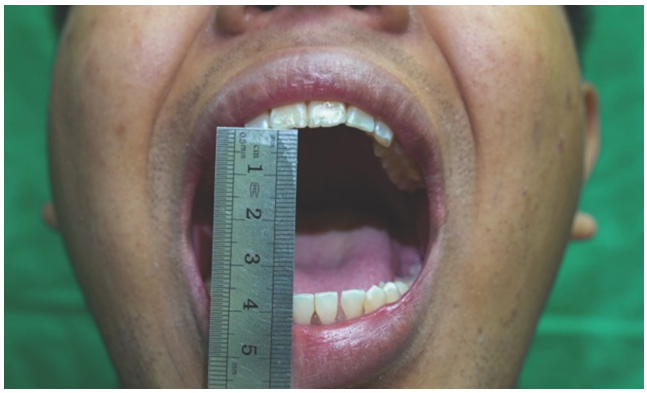

Figure 1b: Patient's mouth opening upon review

DISCUSSION

Tendons are a type of connective tissue that can transmit muscle force to the bone due to their elastic nature and ability to withstand high tensile forces during movement. TT is relatively rare and is unfamiliar to many clinicians because previously published literature on this condition is limited in numbers than that on other tendinopathies (2).

Temporalis tendinitis is a condition characterised by discomfort experienced in the teeth and adjacent anatomical structures (1). Patients may present with complaints, signs and symptoms related to maxillary or mandibular molar, TMJ, eye and ear diseases, as in this case (3).
Tendinitis in our patient was most probably induced by a prolonged extraction procedure. Injury to the tendon precipitated by the forced movement of the mandible was suspected to have occurred during the protracted dental extraction procedure. The onset of symptoms, which resulted after one isolated overloading event, can be considered acute. The temporal muscle and tendon movement went beyond their physiological limit during the extraction of the mandibular molar in the absence of the proper stabilisation of the mandible.

The differentiation between acute muscle strain and chronic disease at the temporalis tendon insertion is important. Treatments for these conditions differ. Hence, it is imperative to implement a proactive approach in diagnosing chronic face discomfort in order to mitigate the potential adverse consequences. TT is also recognised to potentially be accompanied by a diminished range of motion in the lower jaw.
This particular issue could potentially be misinterpreted as an athrogenous disorder, such as disc displacement without reduction, which necessitates a distinct approach to its therapy.

The accurate identification and management of orofacial pain necessitates a comprehensive understanding of TT as a potential differential diagnosis, as well as a thorough comprehension of the intricate anatomy within this localised area. The most practical diagnostic test for TT is the administration of local anaesthetic, specifically 2% lidocaine, near the insertion of the temporal tendon at the coronoid process because this patient experienced immediate relief after the injection and showed improvement in mouth opening and movement range. Although ultrasound-guided injections to the temporal tendon have been documented to improve the accuracy of local anaesthesia administration, we still found that a blind technique utilizing anatomical landmarks remains efficacious and convenient.

A comprehensive knowledge of anatomy is crucial in order to accurately discern the appropriate palpation technique and injection landmarks. In our patient, prior to the local anaesthesia injection, the tendon location was confirmed via bidigital pincer grasp palpation technique in conjunction with intraoral single digit palpation. The landmark was the mesiobuccal cusp of upper left second molar and the needle was directed laterally towards the coronoid process (2).

The efficacy of anesthetic blockades may be attributed to their ability to disrupt the pain cycle, so inducing a temporary reduction in peripheral input and contributing to the attenuation of pain sensitization.

Another possibility of the aetiology of the severe restriction of mouth opening is the haematoma of the mastication muscle resulting from the accidental penetration of the inferior alveolar artery and vein (4). In a previously reported case, the patient developed soreness of the involved muscle followed by progressive trismus and pain during a forcible attempt to open the jaw (4). Such a condition might worsen when the patient is on an anticoagulant (4). The myotoxic effects of local anaesthetic and myonecrosis resulting from intramuscular injection are another possible cause of the limitation of mouth opening after inferior alveolar nerve blockage as reported in the literature (5). Inflammatory pain usually peaks on the third or fourth

postoperative day, and most cases occur after numerous applications of a local anaesthetic to the patient. Such a case presents muscle tenderness and pain intensification with stretching and relief by shortening, which did not occur in our case.

After his diagnosis was established, the patient was advised to go on a soft diet for at least 1 month. The patient also received jaw physiotherapy which includes active and passive stretching with strengthening exercise targeting the affected muscles to treat the trismus and to prevent further muscle fibrosis, which may exacerbate the limitation of mouth opening.

The administration of nonsteroidal anti-inflammatory medications, oral corticosteroids, and muscle relaxant aims to reduce pain and inflammation and is commonly used in the treatment of acute tendinitis.

While the treatment approaches for chronic and acute tendon injuries may vary, it is important to note that exercise-based rehabilitation is recommended and can be complemented by medicine in both cases. It is worth noting that the mechanical characteristics of recovered tendons do not fully recover to match those of natural uninjured tendons, primarily due to the development of scar tissue.

Tendons also show lower efficient healing capability than skeletal muscles because of their low metabolic rate.

CONCLUSION

TT may often be underdiagnosed because its clinical presentation is similar to the presentation of other orofacial conditions, such as odontogenic pain, TMJ arthralgia and sinusitis. It can also occur in conjunction with another TMDs or orofacial pain, making its identification challenging. Many dental practitioners are unfamiliar with the diagnosis of TT given the scarcity of the literature on TT. This unfamiliarity later results in delayed care or even unnecessary treatment. Nevertheless, by recognising the following distintive TT criterias: pain of tendon origin that is affected by the function of the jaw and restricted mouth opening associated with mandibular movement may help us to come into a definitive diagnosis. Indeed, our case is a valuable lesson for us to consider the diagnosis of TT whenever addressing orofacial pain.

ACKNOWLEDGEMENT

The authors would like to thank the Dean and Department of Oral & Maxillofacial Surgery, Pathology and Medicine, Faculty of Dentistry, Universiti Sains Islam Malaysia for the permission to publish this paper.

REFERENCES

1. Orofacial Pain Classification Committee. International classification of orofacial pain, (ICOP). Cephalalgia. 2020;40(2):129-221. doi:org/10.1177/033310241989382
2. Bressler, H.B., Markus, M., Bressler, R.P., Friedman, S.N. and Friedman, L., 2020. Temporal tendinosis: A cause of chronic orofacial pain. Current Pain and Headache Reports, 24(5), pp.1-9. doi:org/10.1007/s11916-020-00851-1
3. Duffin PS, Smith A, Hawkins JM. Nonodontogenic odontalgia referred from the temporal tendon: a case report. Journal of endodontics. 2020 Oct 1;46(10):1530-4. doi:org/10.1016/j.joen.2020.06.006
4. Singh A, Singh S, Pandey S. Intramuscular Hematoma As A Cause For Trismus Following Inferior Alveolar Nerve Block:-A Special Consideration For Patients On Antiplatelet Therapy. doi: 10.9790/0853-1805142630
5. Smolka W, Knoesel T, Mueller-Lisse U. Local anaesthetic-induced myotoxicity as a cause of severe trismus after inferior alveolar nerve block. Quintessence international. 2018 May 1;49(5). doi: 10.3290/j.qi.a40051