

## CASE REPORT

**Mechanical Obstruction by Malposed Upper Third Molar: A Rare Cause of Trismus**Sarfaraz Khan<sup>1\*</sup>, Sheraz Bashir<sup>2</sup>, Ijaz Ahmed<sup>3</sup>**ABSTRACT**

Trismus is a multifactorial symptom which is most commonly presented after the removal of lower third molars. Upper third molar is a rare but true cause of trismus and must be included in the differential diagnosis. We present a rare case of trismus caused by the presence of malposed upper third molar, obstructing the forward movement of coronoid process of the mandible and restricting further mouth opening.

**Keywords:** *Third Molar, Trismus, Malposition, Pakistan.*

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**Introduction**

The word trismus, from the Greek 'trismos' refers to restricted jaw movement due to any etiology.<sup>1</sup> The term was originally used for prolonged tetanic spasm of the jaw muscles, causing restriction of the normal mouth opening.<sup>2</sup> Although there is no well-established criterion to define trismus; a maximum interincisal opening of 35 mm or less has been labeled as trismus by most researchers.<sup>3,4</sup>

Etiology of trismus includes oro-facial inflammation, infections, trauma, dental treatment, temporomandibular joint disorders, coronoid hyperplasia, congenital malformations, head and neck tumours, neurogenic causes and iatrogenic factors like drugs and radiotherapy etc.<sup>4,5</sup> Trismus may interfere with normal speech, chewing, swallowing, oral hygiene maintenance and access for dental treatment.<sup>5</sup> Treatment of trismus depends upon the cause and ranges from noninvasive and conservative options to invasive surgical procedures.<sup>6</sup>

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Trismus is a symptom rather than a disease and is commonly encountered by the dental practitioners especially following removal of lower third molar. Upper third molar (M3) is a rare cause of trismus and has not been frequently reported in the literature.<sup>7</sup> Presence of malposed upper M3 acts as mechanical obstruction to the forward movement of coronoid process of the mandible and thus restricts further mouth opening, leading to trismus. Various genetic and environmental factors determine the size, position and angulation of upper third molars.<sup>8</sup> We report a rare case of trismus due to presence of malposed upper M3, which in our knowledge, has not been reported earlier in Pakistan.

**Case Report**

A 24-year-old female patient reported to Military Dental Centre, Attock, Pakistan; complaining of difficulty in mouth opening for the last 2 years. The patient noticed a gradual decrease in mouth opening and reported to develop pain in right side of her face during attempts to achieve further mouth opening beyond a certain limit. She associated her inability to achieve full mouth opening with the presence of some bony obstacle/tooth in the back of her right upper jaw. She tried hot fomentation therapy using warm damp towel on right side of her face for few days but got no relief. Her medical history was unremarkable. She was not taking any medication regularly and denied allergy to any drug. She was neither a smoker nor a betel chewer. She had a positive history of occasional nocturnal

clenching of teeth. Her family history was not contributory. She was a happily married house wife. On clinical examination, she was a young female of average built and height with brachyfacial profile. She was looking anxious, with vitals within the normal range. She had limited mouth opening with maximum interincisal distance of 20mm and deflection of mandible towards the right on maximum mouth opening (Fig 1). Examination of temporomandibular joint was normal.

Intraoral examination revealed poor oral hygiene status with multiple carious teeth. There was generalized gingivitis with heavy calculus deposits. Right upper M3 was found to be out of arch, buccally placed and distally angulated. Buccal mucosa adjacent to the erupting upper right M3 was ulcerated and indented. On palpation of the buccal mucosa, the right coronoid process was palpable. On opening the mouth, the buccal mucosa was found to be trapped and compressed between upper M3 and the advancing coronoid process; acting as a mechanical obstruction and limiting its further advancement. Rest of the oral mucosa was appearing normal and devoid of any fibrosis on palpation. Tongue was normal in appearance and movement.

CT scan with 3D reconstruction, from vertex to lower border of the mandible, was advised during closed and open mouth positions, which confirmed the diagnosis (Fig 2 and 3).

Right upper M3 was extracted under local anesthesia with informed consent of the patient. Medications (NSAIDs) were given to the patient and she was advised to follow the post-extraction instructions like taking soft diet and mouth rinsing with lukewarm water for a couple of days.

On follow up visit, 3 days after the tooth extraction, her mouth opening (interincisal distance) was found to be 28 mm (Fig 4).

During her second follow up visit, two weeks later, the patient's maximum interincisal distance was recorded as 40 mm (Fig 5) and the adjacent mucosa was also healed. Afterwards, we lost track of the patient.

## Discussion

Normal maximum mouth opening i.e., interincisal distance of maxillary and mandibular teeth is

considered to vary between 40mm and 60 mm.<sup>9</sup> Whereas an interincisal distance of 35mm or less is generally regarded as trismus.<sup>3</sup>

Trismus is a multifactorial symptom and not a disease by itself. It is most commonly presented after removal of lower third molars. Oral submucous fibrosis is one of the leading causes of trismus in southern part of Pakistan as well as in other South Asian countries like India and Bangladesh.<sup>5</sup> Other causes include trauma, infections and tumours of the oro-facial region, dental treatment, temporomandibular joint disorders, coronoid hyperplasia and congenital malformations etc.<sup>4,5</sup>

In case of our patient, trismus developed because of the presence of malposed right upper M3 which is a rare cause of trismus and has not been frequently reported in the literature. Trismus results when upper M3 causes true mechanical obstruction to the forward movement of coronoid process of mandible during mouth opening. In our patient, true mechanical obstruction of coronoid process by malposed upper M3 was confirmed by CT scan recorded in open mouth position.

Position and angulation of upper M3 as well as anatomy of the coronoid process of the mandible play important role in the development of trismus. In our patient, the erupting right upper M3 was buccally placed and distally angulated. This disto-buccal malpositioning enabled the right upper M3 to physically obstruct the advancing right coronoid process of the mandible leading to trismus and rightward deflection of the mandible during attempt of further mouth opening.

Coronoid hyperplasia is also a rare but well-established cause of trismus in which the elongated coronoid process of the mandible impinges on the medial surface of zygoma when opening the mouth and thus restricts movement of the mandible.<sup>10</sup> In our patient, the coronoid processes were of normal size and did not impinge on the zygoma when opening the mouth (Fig 3).

Pain felt in adjacent buccal mucosa, on mouth opening may be considered as a confounding factor in this unusual case of trismus.

Management of trismus depends upon the underlying cause and is carried out by identifying and addressing the inciting etiology. While most cases of

trismus resolve gradually, following symptom-directed treatment; we observed very rapid improvement in mouth opening, following removal of the underlying cause. There was an increase of 8mm in mouth opening, within 3 days after removal of the tooth; while trismus was completely relieved, 17 days after removal of the tooth when we recorded her maximum interincisal distance (40 mm) during her second follow up visit.

This case report highlights the importance of considering all potential etiological factors when making a diagnosis, without missing the most obvious cause.

We could not follow up the patient for long as she did not visit our dental center again.

This case report describes a rare cause of trismus due to a malposed upper third molar, causing a true mechanical obstruction. This may be easily missed or misdiagnosed.

**Conclusion**

True mechanical obstruction by the presence of malposed upper third molars is a rare but obvious cause of trismus and must be considered when making a diagnosis to avoid unnecessary investigations, use of resources, and potential anxiety for the patient.



Fig 1: Initial Presentation



Fig 2: 3D CT in Closed Mouth Position



Fig 3: 3D CT in Open Mouth Position



Fig 4: First Follow up Visit



**Fig 5: Second Follow up Visit**

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