



## Pterygoid Hamulus Bursitis: A Rare Case Report

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### Abstract

*Craniofacial pain disorders are frustrating to the doctor and the patient. Diagnosis is often difficult because the anatomy of the head and neck region is complex, grossly and neurologically. Frequently, several pain syndromes exhibit similar symptoms. One such disorder is bursitis of the pterygoid hamulus. This type of bursitis may produce symptoms of soft palatal, ear, and throat pain, maxillary pain, and difficulty and pain on swallowing. This disorder is often misdiagnosed as otitis media. Treatment may be conservative or surgical. This article discusses the anatomy, symptoms, diagnosis, and treatment of bursitis of the hamular process along with a case report.*

**Key words:** Bursitis, pterygoid hamulus, referred pain, temporomandibular disorders.

### Introduction

Salins in 1989 explained the inflammation of the bursa that covers the tendon of the tensor veli palati external perystaphylinus muscle as hamular bursitis.

Hamular bursitis is a pathological entity that when it is present is primarily responsible for referred craniofacial pain, many times disguised as TMD disorders, impacted teeth, trigeminal and glossopharyngeal neuralgia, stylo-hyoid ligament calcification, stylo-mandibular ligament

inflammation, tumors, cysts, herpes simplex, infection and otitis media. This pathology has a multiple etiology and is formed over the hamular process of the medial pterygoid plate in the sphenoid bone.

There is a the close anatomical and physiological relation between the Eustachian tube, the tensor veli palati muscle, and the pterygoid hamulus correlates the local and referred symptomatology of this pathology.<sup>(1)</sup>

## Anatomy

The sphenoid bone is a midline bony structure lying anterior to the basilar portion of the occipital bone, protected on either side by the temporal bones. The sphenoid has a central body, paired greater and lesser wings spreading laterally from it, and two pterygoid processes descending from the junctions of the body and the greater wings. The pterygoid plates arise laterally and medially from the inferior surface of the side of the body and from the root of the greater wings and pass vertically downwards. The lateral and medial pterygoid plates diverge inferiorly and between them is formed an ovoid fossa, the pterygoid or scaphoid fossa. This area contains the medial pterygoid and tensor veli palatini muscles.

The medial pterygoid plate is narrower and longer than the lateral plate. Originating from the body and greater wing of the sphenoid, the medial pterygoid plate descends in an inferior and slightly lateral direction. The lower end of the posterior border of the medial plate appears to be continued as a slender, curved or hook-like process termed the pterygoid hamulus (Figure 1).



Fig. 1. Pterygoid Hamulus (Arrow).

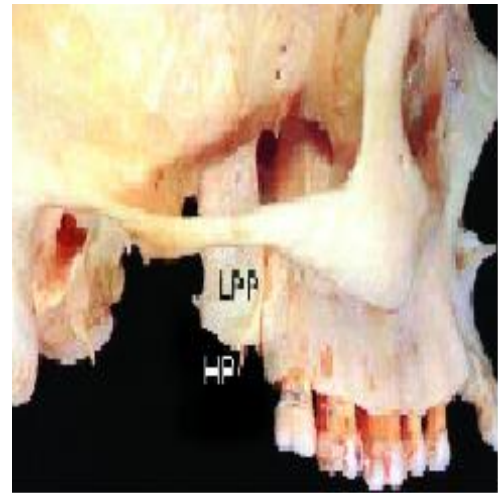


Fig 2. skull demonstrating pterygoid hamulus, viewed from the lateral. LPP. Lateral pterygoid plate; HP. Hamular process of the medial pterygoid plate of the sphenoid bone. (courtesy - Shankland, W.E)

The hamulus and the edge of the medial pterygoid plate immediately superior to the hamulus give rise to the origin of the superior constrictor muscle of the pharynx; below the hamulus these fibers merge with those of the buccinator muscle to form the pterygomandibular raphe.<sup>(2)</sup> This raphe connects the hamulus to the mylohyoid line of the mandible at, or near, the most posterior molar tooth.<sup>(3)</sup> In addition, the palatopharyngeus muscle originates from the hamular process, as well as from the border of the hard palate, the lower surface of the palatal aponeurosis, and from fibers of the levator veli palatini muscle.<sup>(4)</sup> The tensor veli palatini muscle, originating from the scaphoid fossa, the spine of the palatal aponeurosis, and the lateral wall of the cartilaginous auditory tube, winds its tendon around the hamular process in a groove and inserts into the soft palate and the transverse bony ridge on the posterior border of the horizontal plate of the palatine bone or the

palatal aponeurosis. As the tendon of the tensor veli palatini winds around the hamulus, a synovial bursa is situated between the tendon and the bone. Synovial bursae exist where moving structures are in tight apposition, especially where tendons are deflected around bone.<sup>(5)</sup> In the case of this bursa, its primary function is to reduce friction due to movement of the tendon of the tensor veli palatini muscle around the pterygoid hamulus. The tendinous band of the muscle passes through the bursa, which is actually a closed synovial tendon sheath.

There are several symptoms of inflammation of the bursa of the hamular process which include:

- Pain in the hamular region of the palate
- Palatal pain
- Ipsilateral throat pain
- Ipsilateral maxillary pain
- Difficulty and pain with swallowing
- Ear pain
- Localized erythema over the hamular region

Hamular process palpation is made by oral access, manually<sup>(6)</sup> or with a blunt instrument in a careful manner reaching the posterior and medial zone of the maxillary tuberosity. The reported pain is frequently localized to the ear zone, but it must be asked if a local or referred pattern is present during the examination. If the palpation procedure response is intense, it must be considered a hamular bursitis cause. Lidocaine infiltration in the hamular process zone helps in the diagnosis. Sometimes the erythematic presentation in the zone and the elongation of the process is evident.

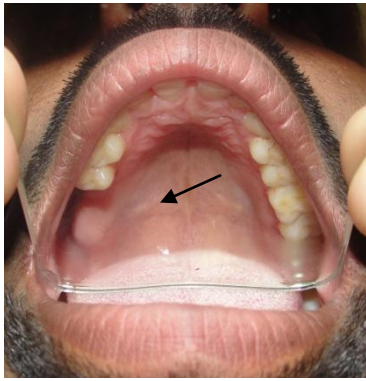
The therapeutic phase can be surgical or conservative (infiltrations). For palliative or conservative treatment, remove the trauma or irritation (e.g., adjustment of the maxillary denture's posterior border) and inject synthetic cortisone or Sarapin<sup>®</sup> (High Chemical) into the hamulus region. In addition, place the patient on anti-inflammatory medications and re-evaluate in 10 to 14 days. Repeat the therapeutic injections if necessary.

### Case report

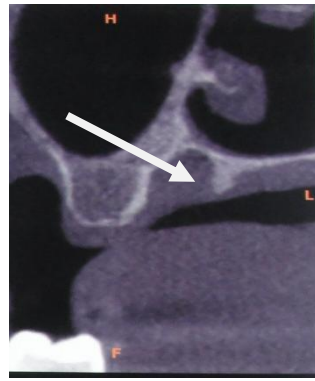
A 35 year old man with anterior throat pain with pricking sensation and mild ear pain on left side reported to our clinic. From the otolaryngology exam there wasn't any ear, nose or throat pathology found. During swallowing and chewing the patient expressed pain. Moreover, palatal burning sensation with associated mild headache was also reported. To the left hamular process palpation, the pain was triggered locally and referred to the left otic zones.

On clinical examination, a palpable mass on left side soft palate, medial and posterior to the maxillary tuberosity was noted. The overlying palatal mucosa was normal(Fig. 3)On palpation the mass was hard and rigid and was associated with tenderness of overlying mucosa

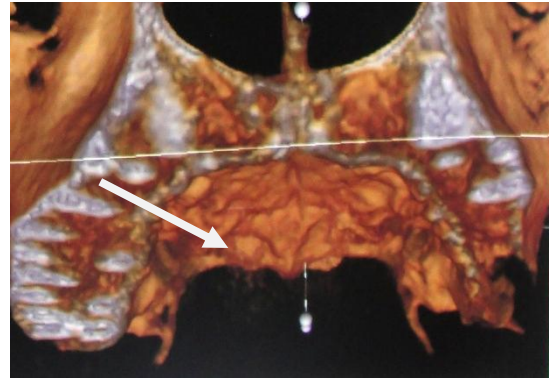
CBCT of the maxillary arch was performed and the diagnosis of pterygoid hamular bursitis was established as hamulus on left side protruded more medially than the right side.( Fig. 4 and 5)



**Fig. 3** – Intraoral vie



**Fig. 4,5** - CBCT of the maxillary arch



**Fig.6**- Incision



**Fig. 7** –Resected specimen



**Fig. 8** - Closure

Treatment in the form of surgical exposure and resection of the hamulus, avoiding carefully the interruption of the tensor veli palati function over this osseous hook, for resolution of patient's complaints, was executed. the resected specimen was sickle shaped and was retrieved from its base in two pieces (Fig. 6,7 and 8). The wound was closed primarily and healed uneventfully in future follow up and the radiating pain disappeared on the 5<sup>th</sup> post operative day.

### Discussion

Anterior Throat pain is one of the most difficult to diagnose because of its varied origins that could be vascular, muscular, ligamental or osseous<sup>(7)</sup> . The hamular zone deserves special clinical

attention especially in the differential diagnosis of the wide variety of cranio-cervical pains.

The pain in this zone is so intense that it can be confused as neuropathic pain. The opportune treatment in this zone avoids the central excitatory effect and neuro-plasticity that will make more complex the localization of the pathology origin due to the major sensitization and territory expressed during pain episodes.

The radiological support as images can be useful for the findings of osteophytes or hamulus that generate inflammation. This structure can be seen also in tomography slices if necessary.

The surgical approach is rare due to the successful results of a conservative management. If osteophytes, prominent hamular process or bursa

fibrosis are present the surgical approach will be indicated.<sup>(8)</sup>

### Conclusion

Pain on the soft palate and pharynx can originate in several associated structures. Therefore, diagnosis of patients who complain of discomfort in these areas may be difficult and complicated. Pterygoid hamulus bursitis is a rare disease showing various symptoms in the palatal and pharyngeal regions. As such, it can be one of the reported causes of pain in these areas. Treatment of hamular bursitis is either conservative or surgical. If the etiologic factor of bursitis is osteophytic formation on the hamulus or hypertrophy of the bursa, resection of the hamulus is usually the preferred surgical treatment.

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