

# Intraglandular Foreign Body - Unusual Aetiology of Submandibular Gland Sialadenitis

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## Citation

KC AK, Shrestha BL, Bhattarai A. Intraglandular Foreign Body -Unusual Aetiology of Submandibular Gland Sialadenitis. *Kathmandu Univ Med J.* 2023;82(2):245-7.

## ABSTRACT

Obstructive sialadenitis of submandibular gland is commonly due to sialoliths and strictures in the Wharton's duct. Other endogenous pathologies include mucous plugs and polyps. Foreign bodies of Wharton's duct and submandibular gland are rare. Retrograde migration of foreign bodies via ductal orifice, traversing the ductal system to its final intraglandular location is an even rare entity. These often present with painful swelling of the gland and at times with a purulent sialitis. Diagnostic modalities include plain radiography, ultrasonography, sialography, as well as computed tomography and magnetic resonance imaging. Treatment includes antibiotics, incision and drainage of abscess, and removal of foreign body either surgically (intra-oral approach or sialadenectomy) or more recently via sialoendoscopy. This is a case report of 30 years male with accidental cannulation of Wharton's duct with grass that eventually got lodged in the deep lobe of the gland, and was managed with sialadenectomy.

## KEY WORDS

*Foreign body, Submandibular gland, Wharton's duct*

## INTRODUCTION

Obstructive sialadenitis is the commonest non-neoplastic salivary gland disorder. Aetiologies include calculi, strictures and kinks of ductal system, mucous plugs, and rarely, foreign bodies, intraductal polyps, vascular malformation with phleboliths etc.<sup>1,2</sup> Foreign bodies' entry into the Wharton's duct is favoured due to its anatomical location in the floor of mouth under the tongue, with gravity helping to carry the materials down into it.<sup>3</sup> However, continuous salivary egress from the ducts to the oral cavity, lack of support to duct orifice from the papilla of caruncula sublingualis with ability to flap and twist in all directions, and small caliber of punctum often prevent fortuitous entry of foreign body into the Wharton's duct.<sup>4</sup> Modern sialoendoscopy has also defined the presence of a sphincter-like system in the first 3 cm of the Wharton's duct in about 90% of submandibular glands, that further prevents retrograde flow of foreign bodies from oral cavity into the ductal system.<sup>5</sup>

Many of the foreign bodies reported in literature are vegetative in origin.<sup>3</sup> Their decomposition is prevented by the inability of salivary enzymes (amylase, ptyalin) to dissolve cellulose, and constant flow of saliva and bactericidal effect of salivary lysozyme.

The ductal obstruction causes chronic inflammation and fibrosis of the involved gland, often presenting with a painful swelling that gets worse with eating. Infection and abscess formation may also occur. Deep neck abscesses have also been reported.<sup>6</sup> These foreign bodies may also serve as a nidus for calculus formation worsening the obstruction-infection cycle.<sup>7</sup>

Identification of the exact location of obstruction is the mainstay of effective treatment. Removal of foreign body from Wharton's duct requires opening the duct along

the floor of mouth, or more recently via sialoendoscopy.<sup>8</sup> However, intraglandular foreign body necessitates sialadenectomy via cervical incision.

## CASE REPORT

A 30 year old male presented to our Outpatient with the complaint of acute onset of painful swelling in the right submandibular region, exacerbated during eating. He attributed the onset of his symptoms to accidental entry of a grass blade into the right floor of mouth while chewing on a piece of grass. On examination, there was a 3x3 cm, tender swelling in right submandibular region, firm in consistency. Overlying skin did not show any signs of inflammation. Intraoral examination revealed erythema around the right Wharton's duct orifice. There was no penetrating injury in the floor of mouth. There was no swelling or palpable mass or calculi in the area of the duct. There was decreased salivary egress but no pus from the duct opening. He was afebrile, and remainder of physical examination was unremarkable. Occlusal film revealed no radio-opaque density. Ultrasonography revealed enlarged and heterogenous right submandibular gland with linear echogenic area of about 12.8x0.7 mm in deep part of the gland, possibly foreign body. Intravenous Clindamycin was started. Contrast enhanced Computed tomography of the neck was done the next day which revealed features suggestive of right submandibular sialadenitis without any evidence of foreign body in the gland or ductal system. In the ensuing three days, there was no change in the patient's condition. Right submandibular sialadenectomy was performed on the fourth day of admission under general anaesthesia. At surgery, the gland was firm and enlarged with intense periglandular inflammation. The duct was transected followed by removal of the entire gland and proximal duct (Fig. 1). On sectioning the gland, 2 cm long green foreign body which resembled a blade of grass was found in the deep lobe of the gland (Fig. 2). He had no postoperative complications and made an uneventful recovery.

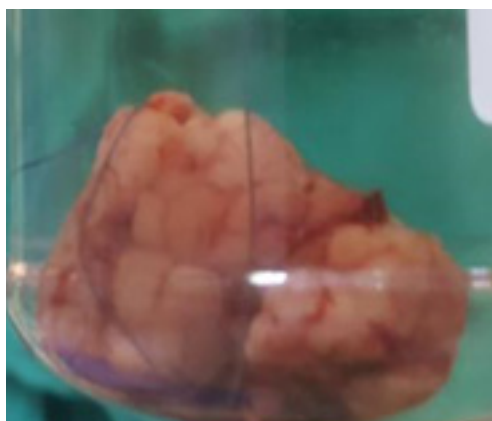


Figure 1. Enlarged Submandibular gland.



Figure 2. Blade of grass retrieved from deep lobe of the gland

## DISCUSSION

There are two hypotheses regarding the entry of foreign bodies in the submandibular ductal system. One is penetrating trauma to the floor of mouth, and the other is retrograde migration via accidental cannulation of Wharton's duct.<sup>9</sup> It is possible for a foreign body to enter the duct orifice and penetrate the duct system with relatively little trauma to the patient.

Clinical presentation is often with a chronic sialadenitis or in some cases a purulent sialitis. Literature report cases of associated deep neck abscesses. Foreign bodies acting as a nidus for calculus formation are also reported. Sialolithiasis occurs as a result of calcium salt deposition around a central nidus.

Imaging techniques like plain radiography, ultrasonography, computed tomography, magnetic resonance imaging can only provide indirect visualization of the gland.<sup>10</sup> Some of these modalities are expensive, time-consuming as well as expose patients to radiation. In our case, computed tomography fell short in the diagnosis.

Sialoendoscopy with recent progress in diagnostic and interventional techniques is certainly the future for intraluminal removal of foreign body.<sup>11,12</sup> However, it is not suitable for foreign bodies located in the more proximal part and secondary branches of the Wharton's duct.

Lack of sialoendoscopic facilities at our centre and failure to accurately localize the foreign body for safe removal by intra-oral approach, we opted the traditional submandibular approach via cervical skin incision. Due to its simplicity, safety and prevention of lingual and hypoglossal nerve injuries, it was preferred. Following the sialadenectomy, patient recovered well with no complications observed during a 1 year follow-up.

This case was reported due to the rarity of intraglandular foreign body, via Wharton's duct cannulation in the literature. Also, it shows the importance of considering the patient's story, no matter how implausible it seems.

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