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Approach to a Sewing Needle in the Parapharyngeal Space: A Case Report

ABSTRACT

Objective: To describe a unique situation of a sewing needle lodged in the parapharyngeal space and elucidate the problems encountered in its successful removal.

Methods:

Design: Case Report
Setting: Tertiary Private Hospital
Patient: One

Result: A 24-year-old male tailor accidentally swallowed a sewing needle that pierced the oropharyngeal wall and was wedged in the parapharyngeal space. After a thorough physical examination, 70 degree rod endoscopy, radiography and doppler ultrasonography and intraoperative C-arm X-ray for intraoperative localization and as a guide for extraction all yielded less than optimal guidance. Although an intra-oral approach was initially taken, the transcervical approach provided the best access.

Conclusion: Removal of a sharp foreign body in the parapharyngeal space should be considered a surgical emergency owing to its close proximity to vital structures and the potential for serious complications. Identifying the exact location may require a variety of imaging modalities, and foreign body extraction may entail multiple surgical approaches.

Keywords: Foreign body; sewing needle; parapharyngeal space; surgical emergency

Although common in the pediatric population, aero-digestive foreign bodies are infrequent in adults. Commonly encountered pharyngeal foreign bodies are coins, batteries, fishbones, chicken bones, buttons, dentures, pins and earrings.¹ Foreign bodies in the parapharyngeal space are mainly dental needles, suture needles, broken implants, a third molar and broken toothbrush.¹⁻³ A sewing needle piercing the pharyngeal wall to lodge in the parapharyngeal space is a very uncommon foreign body.³⁻⁵ There have been instances of needle and fishbone

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foreign bodies migrating into the posterior cervical space, lodging in deep neck spaces, posterior pharyngeal wall, hypopharynx, thyroid gland and even piercing the carotid reported in the literature.⁶⁻⁸ We report the case of a foreign body sewing needle embedded in the parapharyngeal space.

CASE REPORT

A 24-year-old male tailor was referred from a secondary care center to our tertiary care ENT emergency with complaints of accidental displacement of a sewing needle into his mouth while he was holding it between the lips. He complained of a pricking sensation in his right tonsillar fossa with odynophagia for 6 hours. There were no other symptoms such as pain associated with neck movements or any neck swellings. After a thorough examination, the oral cavity, oropharynx and neck were unremarkable. The foreign body was neither seen nor could it be palpated in the tonsillar fossa or base of the tongue. A 70-degree rod endoscopy of the oropharynx, hypopharynx and larynx did not reveal any foreign body.

A plain soft tissue neck X-ray showed a metallic sewing needle lying obliquely in the right parapharyngeal region opposite C1-C3 vertebra with its eye superiorly near the skull-base and the sharp end towards the tonsillar fossa. (Figure 1) Doppler ultrasonography of the neck revealed the needle lying close to the great vessels in the parapharyngeal space. (Figure 2)

Considering the symptoms, the nature of the foreign body and potential complications, an urgent removal was planned. Under general anesthesia, futile attempts were made to palpate the right tonsillar fossa and the base of the tongue. The anteroposterior image from the C-arm suggested that the sharp end could be embedded in the tonsillar fossa. (Figure 3) Therefore, right unilateral tonsillectomy was done, and the tonsillar fossa was explored to see and palpate the needle. However, nothing was palpated and the incision was extended over the retromolar trigone and anterior pillar to provide better exposure of the parapharyngeal space but the needle was not traced. Intraoperative C-arm guidance was also used to delineate the needle in the parapharyngeal space (Figure 3), but we could not locate the needle with accuracy since it did not provide a 3-dimensional picture.

Thereafter, a transcervical approach was undertaken through a horizontal neck crease incision. The anterior border of the sternocleidomastoid and posterior belly of the digastric were identified and soft tissue dissected to approach the parapharyngeal space. A curved mosquito forceps was used as a marker during the C-arm imaging to locate the site of the needle. (Figure 4) However, the needle still could not be located. Angular mandibulotomy was performed and the ramus of the mandible was retracted anteriorly for better exposure.

Once the ramus of the mandible was retracted anteriorly we were able to locate the needle medial to the styloid process at the skull-base. (Figure 5) The 4.2 cm needle was removed carefully without any vascular or neurological complications. (Figure 6) The mandibulotomy was fixed with mini plates and the wound closed in layers. The postoperative period was uneventful and the patient was discharged on the 4th postoperative day.

DISCUSSION

Fishbone and chicken bone are the most commonly encountered pharyngeal foreign bodies in adults.^{2,9,10} A sharp metallic foreign body migrating into the parapharyngeal space has seldom been reported in the literature.^{3,6,10} To the best of our knowledge, based on a search of PubMed (MEDLINE; PubMed Central), Google Scholar, Scopus, and Index Medicus using the search terms "parapharyngeal space," "sewing needle," "needle," and "sharp foreign body," this is only the second case of a sewing needle migrating into the parapharyngeal space posing a threat to major vessels in the neck.

The parapharyngeal space is an inverted pyramidal-shaped space lateral to the constrictor muscles of the pharynx with its base at the skull-base and apex at the greater cornu of the hyoid bone. It is a potential space which is filled with loose connective tissue and neurovascular bundle. Its major contents are the carotid sheath and its contents, sympathetic chain, glossopharyngeal, hypoglossal, accessory nerves and a part of the maxillary artery.^{6,10} A foreign body in the parapharyngeal space can cause injury to these vital structures. A sharp foreign body can migrate into this space and further into other spaces. It is postulated that the contraction of the pharyngeal musculature and the movement of the viscera are responsible for the migration of sharp objects in these spaces.^{3,4,8,10,11} A foreign body lodged in the parapharyngeal space can lead to deep neck abscess, jugular vein thrombosis, internal carotid artery aneurysm, and fistula.^{8,9,12} A sharp foreign body can migrate through the pharynx into other surrounding spaces. Therefore, any sharp foreign body should be treated as a surgical emergency. Migration of foreign body through carotid and jugular vein and injury to the cranial nerves has been reported earlier in the literature.^{4,8}

Foreign body sensation in the throat, dysphagia, odynophagia, neck swelling and pain associated with neck movements are the frequently encountered symptoms.⁹ Dyspnea has been seen in cases with delayed presentations involving the hypopharynx and retropharyngeal area.⁹ A plain X-ray should be the first investigation ordered in such cases. Sometimes a small piece of chicken bone or fishbone and a radiolucent foreign body might be missed in a plain X-ray. Doppler ultrasound may help in identifying the relation of the vital structures in the neck to the foreign body as in the present case.



Figure 1. Lateral plain soft tissue neck X-ray showing the sewing needle opposite C1-3 vertebrae

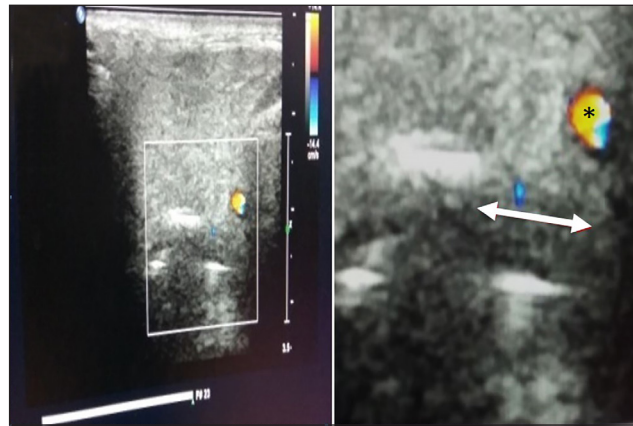


Figure 2. Doppler ultrasonogram showing the needle (2-head arrow) and its relation to great vessels (asterisk)

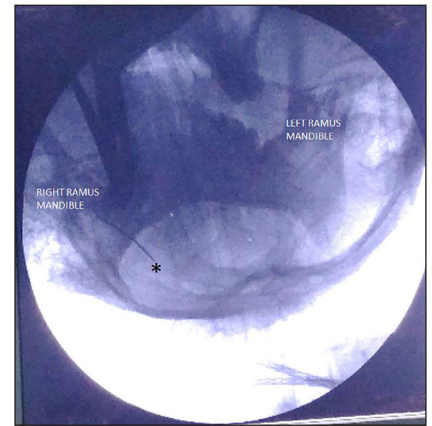


Figure 3. Intraoperative C-arm image (anteroposterior) showing needle with sharp end in right tonsil fossa (asterisk)

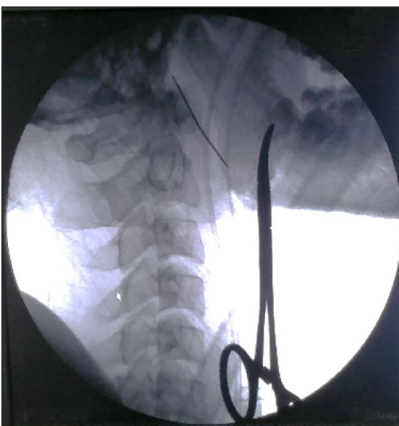


Figure 4. Intraoperative C-arm image (lateral) with curved mosquito forceps marker

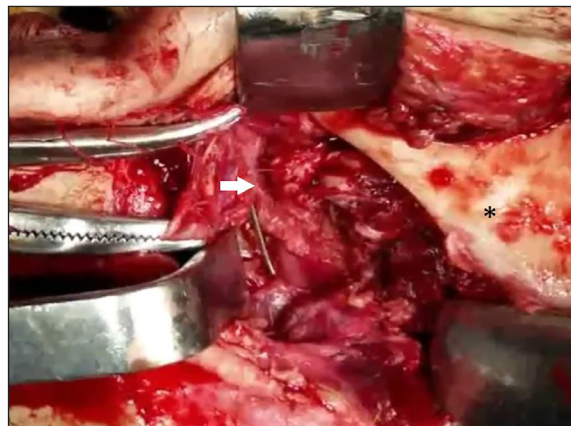


Figure 5. Needle in parapharyngeal space, medial to tip of styloid process (arrow); ramus of mandible retracted anteriorly (asterisk); posterior belly of digastric reflected posteriorly (lower retractor)

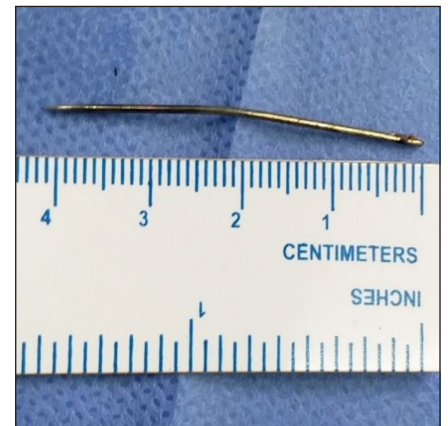


Figure 6. Needle after extraction, measuring 4.2cm

The parapharyngeal space can be reached externally through transcervical, submandibular and transparotid approaches.^{10,13} In the present case, we removed the needle through a transcervical approach with angular mandibulotomy since we were unable to locate the needle using a transoral approach. The external approach provided good exposure compared to the transoral approach. The external approach also provided better control over the surgical field in the event of any vascular injuries. Angular mandibulotomy and anterior retraction of the mandibular ramus provided better exposure of the parapharyngeal space. The external approach has been recommended as the method of choice for removal of large foreign bodies of the parapharyngeal space by Burduk, providing good exposure to the neurovascular structures in the space.¹²

Although an intra-operative C-arm could be used for guidance to localize the site of the foreign body, it was not much help to us in

this case, perhaps also because we seldom use the C-arm in ENT at our center. Further paraphernalia associated with its use was also very cumbersome. There is no consensus regarding the usage of C-arm guidance for such cases in the literature.³ While a preoperative CT scan may help in localizing the site, approximating the size and its relation to the adjacent structures in a radiolucent foreign body,¹² significant scatter artifacts are a limitation of CT for metallic objects. In retrospect, an intraoperative X-ray with application of markers to determine the relative position and distances of the foreign body in the surgical field may have been simpler and more helpful.

Sharp foreign bodies embedded in the parapharyngeal space are extremely rare. This report highlights the difficulties faced by the surgeons in managing such a case in a setting with limited resources. Hopefully, readers will be able to easily identify these and plan well to manage such cases. Even though this report may not add any new



knowledge to what is already known, it demonstrates how these cases could be handled (or handled differently) in a setting with limited resources.

Our experience suggests that all cases with a history of foreign body ingestion should be examined thoroughly with a high index of suspicion and anteroposterior and lateral soft tissue neck X-ray views with markers be initially obtained. Management of a sharp foreign body should be considered a surgical emergency owing to its close proximity to vital structures and the potential for serious complications. Identifying the exact location may require a variety of imaging modalities, and foreign body extraction may entail multiple surgical approaches.

REFERENCES

1. Arora S, Sharma JK, Pippal SK, Sethi Y, Yadav A, Brajpuria S. An unusual foreign body (sewing needle tip) in the tonsils. *Braz J Otorhinolaryngol*. Nov-Dec 2009;75(6):908. DOI: 10.1016/s1808-8694(15)30558-9; PubMed PMID: 20209296.
2. Goswami S. The head of a broken toothbrush in the parapharyngeal space: A rare case report. *J Indian Soc Periodontol*. Jan-Feb 2016;20(1):79-81. DOI: 10.4103/0972-124X.164763; PubMed PMID: 27041844; PubMed Central PMCID: PMC4795142.
3. Okumura Y, Hidaka H, Seiji K, Nomura K, Takata Y, Suzuki T, et al. Unique migration of a dental needle into the parapharyngeal space: successful removal by an intraoral approach and simulation for tracking visibility in X-ray fluoroscopy. *Ann Otol Rhinol Laryngol*. 2015 Feb;124(2):162-7. DOI: 10.1177/0003489414547106; PubMed PMID: 25139135.
4. Joshi AA, Bradoo RA. A foreign body in the pharynx migrating through the internal jugular vein. *Am J Otolaryngol*. Mar-Apr 2003;24(2):89-91. DOI: 10.1053/ajot.2003.20; PubMed PMID: 12649822.
5. Yi G, Bai Z, Shi J. [A case of foreign bodies in parapharyngeal space]. *Zhonghua Er Bi Yan Hou Tou Jing Wai Ke Za Zhi*. 2007 Dec;42(12):938. PubMed PMID: 18335754.
6. Ho AS, Morzaria S, Damrose EJ. Management of intraoral needle migration into the posterior cervical space. *Auris Nasus Larynx*. 2011 Dec;38(6):747-9. DOI: 10.1016/j.anl.2011.01.003; PubMed PMID: 21324618.
7. Borisov AA, Loba MM. [Removal of a sewing needle from the soft tissues of the posterior wall of the pharynx]. *Zh Ushn Nos Gorl Bolezn*. Nov-Dec 1975;(6):86-7. PubMed PMID: 1227148.
8. Johari HH, Khaw B-L, Yusof Z, Mohamad I. Migrating fish bone piercing the common carotid artery, thyroid gland and causing deep neck abscess. *World J Clin Cases*. 2016 Nov 16;4(11):375-9. DOI: 10.12998/wjcc.v4.i11.375; PubMed PMID: 27900327; PubMed Central PMCID: PMC5112358.
9. Unadkat SN, Talwar R, Tolley N. The eye in the neck: removal of a sewing needle from the posterior pharyngeal wall. *Case Rep Med*. 2010;2010:608343. DOI: 10.1155/2010/608343; PubMed PMID: 21209816; PubMed Central PMCID: PMC3014824.
10. Aydogan B, Soylu L, Tuncer U, Akçali A. Parapharyngeal foreign body. *Otolaryngol Head Neck Surg*. 2001 Oct;125(4):424-5. DOI: 10.1067/mhn.2001.115763; PubMed PMID: 11593189.
11. Osinubi OA, Osiname AI, Pal A, Lonsdale RJ, Butcher C. Foreign body in the throat migrating through the common carotid artery. *J Laryngol Otol*. 1996 Aug;110(8):793-5. DOI: 10.1017/s0022215100134991; PubMed PMID: 8869621.
12. Burduk PK. Parapharyngeal space foreign body. *Eur Arch Otorhinolaryngol*. 2006 Aug;263(8):772-4. DOI: 10.1007/s00405-006-0068-0; PubMed PMID: 16786366.
13. Gao J, Zhang B, Zheng D, Luo X. [Surgical treatment experience of different approaches in eight cases with parapharyngeal space foreign bodies]. *Lin Chung Er Bi Yan Hou Tou Jing Wai Ke Za Zhi*. 2015 Nov;29(21):1903-5. PubMed PMID: 26930916.