

Impacted Fish Bone in Buccal Space Associated with an Abscess: Role of Point-of-care Ultrasonography in Dental Emergencies

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Abstract

Fish bone impaction in buccal space abscess is an uncommon dental scenario. A case of young adult with partially edentulous state contributing to this emergency is presented. The history, clinical imaging findings, surgical procedure, and checklist for clinical assessment are briefly described. The point-of-care ultrasonography (POCUS) was used in our case to identify, locate, and perform an ultrasonography-guided removal of impacted fish bone in consolidated abscess of the buccal space. The role of POCUS in cases of dental swellings or uncommon emergencies is emphasized in clinical settings.

Keywords: Buccal space abscess, color Doppler ultrasound, fish bone impaction, foreign body, point-of-care ultrasonography

INTRODUCTION

A foreign body in the oral cavity or upper gastrointestinal tract occurs as an accidental consequence along with food being chewed or ingested. In nearly 90% of cases, the foreign body passes all the length of the gastrointestinal tract naturally. It has been reported that in 10%–20% of cases, a noninvasive intervention is necessary, while surgery is required in <1% of cases.^[1] The most commonly ingested foreign body is a fish bone and considered an emergency when swallowed into the esophagus or further into the intestines.^[1] The foreign body entering orally, if not simply excreted by system, may lodge/persist (impaction), cause perforation, bleeding, and ulcers, and may also cause peritonitis leading to death in exceptional cases.^[2] The possibility of such complications is considered with fish bones and must be located and confirmed by imaging. Although radiography can be used, the preferable option is the computed tomography (CT).^[3] The impacted fish bones of the upper digestive tract are reported to occur in palatine tonsils, base of the tongue, valleculae, and the pyriform sinus.^[4] Dentures, age extremities (children and old aged),

fast eating, and mental retardation are predisposing factors of such incidents.^[4] The most common reason for fish bone swallowing being presented in reason for fish bone swallowing was “loss of perception to identify the hard structure”.^[4] We present a case with lost lower molar teeth (partial edentulism) that had led to the lodgment of fish bone into the adjacent buccal mucosa during rapid chewing. The nonenhanced high-resolution CT scans are considered the gold standard for imaging fish bone impactions in the upper gastrointestinal tract;^[1,5] however, considering the palpable swelling and accessibility of suspected anatomical site, an ultrasonography was attempted.

CASE REPORT

A 21-year-old male presented with a complaint of a right facial swelling for 2 weeks. He had trauma history to his inner part of the cheek due to a suspected prick by fish thorn/bone. The

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Received: 03-02-2020 Revised: 13-02-2020 Accepted: 04-03-2020 Available Online: 14-07-2020

Access this article online

Quick Response Code:



Website:
www.jmuonline.org

DOI:
10.4103/JMU.JMU_18_20

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How to cite this article: Rayudu NK, Palla S, Vaaka PH, Rao DP. Impacted fish bone in buccal space associated with an abscess: Role of point-of-care ultrasonography in dental emergencies. *J Med Ultrasound* 2021;29:53-6.

swelling was also noted to occur after the manipulation of the suspected site with a toothpick. The patient complained of “foreign body sensation” in his mouth along with a gradually progressing swelling causing difficulty in mouth opening. The medical and psychiatric histories were noncontributory. Dental history revealed loss of the lower right first molar tooth, a denial to replacement of lost teeth, and associated abnormal chewing habits since then. The extraoral examination revealed a gross swelling of size 4 cm × 5 cm on the right middle third of his face with ill-defined borders and a smooth surface. On palpation, the swelling showed Local rise in temperature extreme tenderness, and had a soft consistency. Intraoral examination showed a gross swelling of approximately 2 cm × 3 cm on his right buccal mucosa with similar borders and surface, as shown by extraoral examination. The swelling was extremely tender with a firm consistency. No foreign body was palpable even on bidigital palpation. The provisional diagnosis of a buccal space abscess with differential diagnoses of antibioma, sialadenitis of the parotid, and impacted fish bone was considered.

The clinical examination of dentition showed loss of the right lower first molar tooth, and panoramic dental radiography demonstrated no odontogenic cause for the provisionally diagnosed buccal space abscess. The nature of the swelling was further studied by point-of-care ultrasonography (POCUS) and color Doppler ultrasonography (US) (Mindray DC8, Medisense Technologies, India, with high-frequency linear probe [7–14 MHz]). The probe was placed parallel to the skin in the middle third of the face from the mid-sagittal region toward the angle of the mandible over the desired swelling. The right parotid gland and Stensen’s duct were unremarkable. A well-defined hypoechoic mass (measuring approximately 26 mm × 25 mm × 11 mm, volume: 3.9 ml) with heterogeneous echogenicity and adjacent soft-tissue edema was found in the subcutaneous area. A linear echogenic structure (measuring 4.4 mm × 0.6 mm) with posterior shadowing was noted within the mass which probably represented a retained foreign body [Figure 1]. No flow was delineated inside the mass by color Doppler US [Figure 2]. A diagnosis of an impacted fish bone in the buccal space associated with an abscess was made. An extraoral stab incision (approximately 4–5 cm below the lower border of the right orbit and 7–8 cm above the lower border of the mandible on the skin of the face) was made under local anesthesia (2% lidocaine with 1:80,000 epinephrine). The explored pus was drained along with copious irrigation with povidone-iodine (5%), 0.9% normal saline, and 1% metronidazole solutions. The foreign body which was proved to be a fish bone was removed [Figure 3]. A sterile rubber drain was placed, and the patient was maintained on antibiotics for a week. The abscess was finally proved to be regressed by POCUS [Figure 4]. The patient was referred for prosthetic rehabilitation of lost molar tooth and counseled regarding abnormal chewing habits.

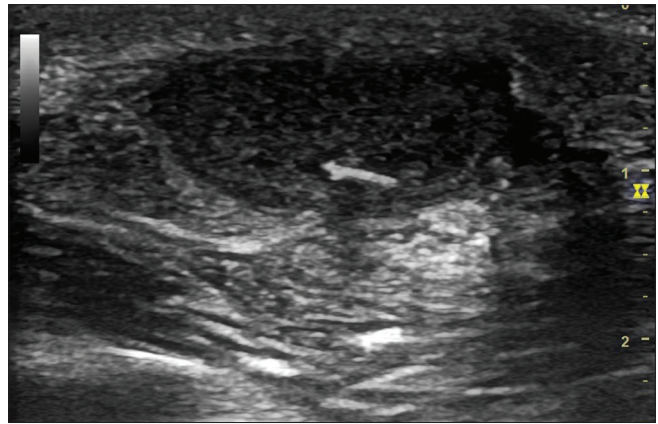


Figure 1: Point-of-care sonogram showing a heterogeneous hypoechoic mass (buccal space abscess) with a linear echogenicity (foreign body)

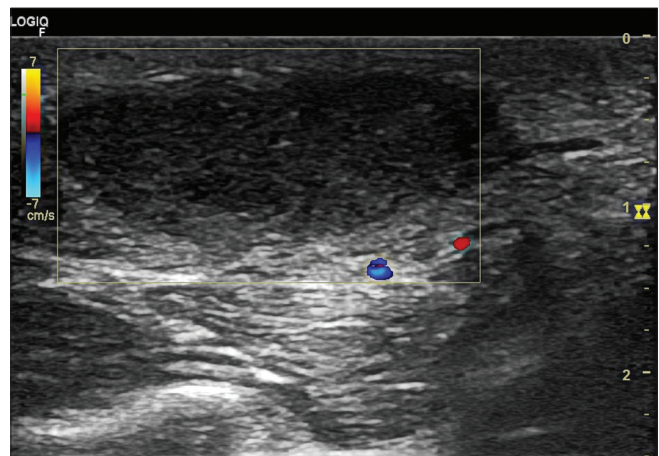


Figure 2: Color Doppler ultrasonograph shows no blood flow in the mass

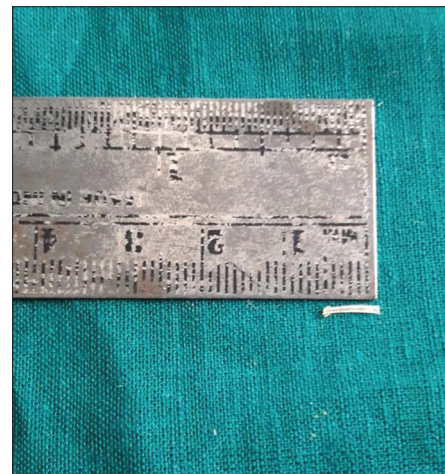


Figure 3: The photograph showing the fish bone which was removed under the point of care ultrasonography.

DISCUSSION

The POCUS is an adjunct to the physical examination in identifying the presence or absence of a limited number of specific findings. It has been reported to be useful in

identifying fish bones in the cervical esophagus when initial laryngoscopy failed to demonstrate foreign bodies;^[6] thus, it could be used as a guidance in surgical exploration, as shown in our case. The usefulness of this technique in oral soft tissues could be further validated in a case where a fish bone in granuloma below the tongue was removed after failed attempts of blind dissections.^[7] The fish bone impactions are reported with a high prevalence of 75.75% among the age group of 21–30 years as per an Indian study.^[8] The common presenting feature in case of fish bone impaction of the oral cavity is a granuloma^[7] or foreign body sensation with precise finger point localization.^[8] The age and presenting symptoms could be correlated to our case. The risk factors that contribute to fish bone impactions include age extremities, psychiatric disabilities,^[1,7] dentures,^[4] and living in coastal areas with predominant seafood-based diet.^[9] The partial edentulous state is a unique etiology, as seen in our case. Loss of lower molar teeth may be a contributing factor for fish bone (impaction as it leads to abnormal chewing habits).^[10]

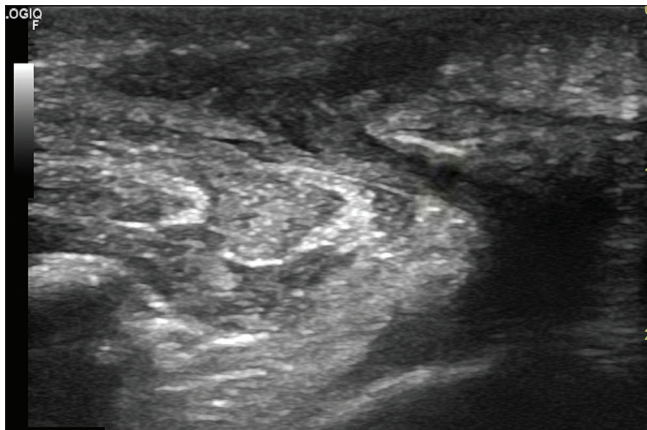


Figure 4: The ultrasonograph of the surgical site shows regression of the previous abscess after 1 week

The state of “edentulism” or failure to replace the lost teeth timely may lead to unilateral biting, altering of muscular activity, excessive supporting alveolar bone loss, and issues to fabricate removable dentures at later stage. Restoring caries tooth and setting ill-fitting dental prosthesis or crowns will also avoid abnormal masticatory habits. Thus, counseling and motivation of patients for need of tooth replacement is indicated after removal of foreign body to avoid repeated incidents. Mastication and abnormal chewing habits are reported to be considerably improved after dental corrections of crowns and replacement of lost lower molar teeth.^[10]

The common sites of lodgment of the fish bone were the tonsil/tonsillar pillar, vallecula, tongue base, and esophagus,^[8] whereas it was the buccal mucosal muscle plane in our case. The various surgical approaches for the fish bone impactions start with a direct removal after routine clinical examination (of accessible oral site), followed by extraction under video laryngeal telescopic guidance (for tongue base, vallecula, and hypopharynx) or finally endoscopy.^[8] The need of endoscopic methods is imperative when an object is identified in the esophagus or further in the gastrointestinal tract.^[8,9] The use of POCUS by us can be explained by two major factors. The first is failure to locate the object through ideal intraoral approach and second is poor patient cooperation due to difficulty in mouth opening.

To summarize, the data that must be clearly obtained are from history, presenting symptoms, age of the patient, medical and psychiatric history, detailed dental history, chewing habits, clinical findings of swelling or inflammation at the suspected location of the fish bone impaction, and finally, the imaging findings for correlating [Table 1]. The US imaging or CT scans can be used for the detection of foreign bodies and impacted fish bones as needed, subject to accessibility and patient cooperation.

Table 1: Clinical assessment checklist for a patient with suspected oral fish bone impaction

Level of examination	Notable points
Chief complaints	Acute swelling, difficulty in opening mouth, odynophagia, and dysphagia
History/presenting symptoms	Association with fever, a feeling of foreign body sensation, and swelling that is reported to occur after chewing or biting a familiar food (fish/seafood) or after medaling with an object such as toothpick
Age and sex of the patient	Children and older age groups (age extremities) Female sex
Eating and chewing habits	Seafood-based diet (coastal or river belt population) or fish lovers Fast chewers, those who are habituated in taking big bites Unilateral chewing habits due to dental illness
Medical and psychiatric history	Medical history of psychiatric disorders associated with abnormal chewing, mastication, and weakness of muscles of mastication
Dental history	Missing teeth, period of edentulous state, and history of using removable dentures Unilateral chewing habits associated with ill-fitting restorations or crowns and symptomatic caries tooth
Clinical findings	Locations suspected for fish bone impaction Inspected findings of swelling being acute inflammatory Palpable swelling with tenderness or a direct foreign body
Imaging findings	Ultrasonography/CT findings consistent with findings of abscess with traceable foreign body

CT: Computed tomography

CONCLUSION

The buccal mucosa is an uncommon site to have a fish bone impaction resulting in an abscess. A prompt detection and localization of impacted fish bone in the oral cavity or upper gastrointestinal tract is critical in emergency. The POCUS was found to be a useful imaging modality in detecting fish bone and abscess as well as in follow-up assessment of lesion after treatment.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Kim JP, Kwon OJ, Shim HS, Kim RB, Kim JH, Woo SH. Analysis of clinical feature and management of fish bone ingestion of upper gastrointestinal tract. *Clin Exp Otorhinolaryngol* 2015;8:261-7.
2. Devanesan J, Pisani A, Sharma P, Kazarian KK, Mersheimer WL. Metallic foreign bodies in the stomach. *Arch Surg* 1977;112:664-5.
3. Lue AJ, Fang WD, Manolidis S. Use of plain radiography and computed tomography to identify fish bone foreign bodies. *Otolaryngol Head Neck Surg* 2000;123:435-8.
4. Bathla G, Teo LL, Dhanda S. Pictorial essay: Complications of a swallowed fish bone. *Indian J Radiol Imaging* 2011;21:63-8.
5. Woo SH, Kim KH. Proposal for methods of diagnosis of fish bone foreign body in the Esophagus. *Laryngoscope* 2015;125:2472-5.
6. Kameda T. Detection of a fish bone in the cervical esophagus using point-of-care ultrasound. *Crit Ultrasound J* 2015;7:A22.
7. Kanon D, Skinner P, Kennedy WA, Cirilli AR. Ultrasound-assisted removal of a fishbone stuck in a tongue in the emergency department. *J Emerg Med* 2017;52:e175-7.
8. Swain S, Pani S, Sahu M. Management of fish bone impaction in throat – Our experiences in a tertiary care hospital of Eastern India. *Egypt J Ear Nose Throat Allied Sci* 2017;18:27-30.
9. Kim HU. Orosophageal fish bone foreign body. *Clin Endosc* 2016;49:318-26.
10. Gonçalves TM, Campos CH, Gonçalves GM, de Moraes M, Rodrigues Garcia RC. Mastication improvement after partial implant-supported prosthesis use. *J Dent Res* 2013;92:189-94S.