Case Report
Migratory fish bone: Mini-invasive Image guided treatment

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A B S T R A C T

Although the frequency of ingested foreign bodies is high, penetration and migration is a rare and dangerous condition, with possible lethal complications. We report an infrequently case of migratory fish bone in the neck, treated with mini-invasive image guided surgery.

Keywords: Computer-assisted surgery; Fishes; Foreign bodies; Interventional radiology; Neck injuries

Introduction

Although the frequency of ingested foreign bodies is high, penetration and migration is a rare and dangerous condition, with possible lethal complications. The rates of complications increase in those cases when the foreign body was delayed more than 24 hours.

We will show an infrequently case of migratory fish bone in the neck, treated with mini-invasive image guided surgery.

The patient had been evaluated with ultrasonography (Fig. 1). It showed us a hyperechogenic image crossing the right sternocleidomastoid muscle and leaving it in its superficial face towards the subcutaneous cellular tissue. All this calcic structure was surrounded by a small hypoechoic halo. The superficial end of the foreign body was lodged just 3 mm below the skin (Fig. 2). The total length of the fishbone was 34 mm (Fig. 3).

With the diagnostic of foreign body, our team decided to remove it. The planning was an image guided less invasive procedure with local anaesthesia, but in a surgery room with the anaesthesiologist and all the instruments needed for an exploratory neck surgery.

The patient underwent surgery at all times awake under local anaesthesia. The procedure was with a 5 mm incision (Fig. 4) and guided by ultrasound all the time. Follow the skin incision, a soft dissection was made and the superficial end of the foreign body was found. We grasped gently the tip of the fishbone and pulled it out in the direction that it was coming out spontaneously.

The extraction of the foreign body was successful and the intraoperative ultrasound follow-up showed that it was completely removed.

The patient was very surprised and grateful at the moment our team showed her the fish bone.

The patient was discharged 2 hours later and the evolution was uneventful.

Discussion

Surgeons are sometimes confronted with foreign bodies in-
Introduced during an act of violence, such as a gunshot injury or other trauma, or with objects remaining after surgical interventions, such as burr fragments, dislocated teeth, dental implants or restorative material.

In the seacoasts and river coasts zones where the whole fish is served without removal the bones, the ingestion of fish bones are very often.

Previous study demonstrated that esophageal foreign bodies, especially fish bones, could penetrate the mucosa and then migrate extraluminally to the neck even within several hours and, consequently, the risk of serious complications might increase rapidly. The mechanism that causes foreign bodies to move through the soft tissues is unknown, but it has been postulated to be a combination of esophageal peristalsis and neck movement.

Interestingly, most of the reported cases with migratory fish bone in the neck were female. The elderly women with anodontia or dentures might have been at a higher risk, which are likely to swallow food whole without complete mastication and therefore less likely to detect the fish bone.

The intraoperative search for foreign bodies could be time consuming and frustrating. Neck exploration for migrated foreign bodies has been described by some authors as “searching for a needle in a haystack” or “fishing for a needle in the deep ocean.”

Fig. 1. Neck ultrasonography of the patient’s neck showing a hyperechogenic foreign body inside the sternocleidomastoid muscle and coming out to the hypodermic neck space. (A) Neck ultrasonography with linear probe ultrasonography. (B) Hyperechogenic foreign body was detected inside the sternocleidomastoid muscle. (C) The linear structure was running through the hypodermic neck space. (D) The superficial end of the foreign body was lodged just below the skin.

Fig. 2. (A) Mini-invasive image guided procedure. (B) Ultrasound shows the superficial end of the foreign body.

Fig. 3. A 34 mm needle-shaped fish bone.

Fig. 4. Foreign body (fish bone) grasped and removed from the 5 mm incision.
Image guided surgery helps to prevent major complications including injury to surrounding vital structures, shortens the operating time and allows minimally, invasive access.¹

There are only a few reports on the use of ultrasonography for the localization of foreign bodies in the head and neck region, although it is widely recognized to be a safe, quick and cheap technique, and additionally offers the remarkable ability of real-time imaging.²

Computer aided surgery provides a direct correlation of pre-operatively collected three-dimensional imaging data with the anatomy encountered intraoperatively.¹

In our case, it is probably that the fish bone needle-shaped stuck in her cervical esophagus and spontaneously it migrated out of the lumen anteriorly, penetrated through her esophageal wall and laterally through the neck inside the right sternocleidomastoid muscle, and reached her anterior cervical hypodermis in the course of 6 weeks after she swallowed the fish bone.

Like in this case, others found ultrasonography as a useful diagnostic tool because most solid foreign bodies show acoustic shadows.⁴

Ultrasonography showed us the whole fish bone and its relationship with the neck structures and without any dangerous organ invasion at the moment of the diagnosis.

Other cases reported a detailed description of the fish bone length, with a median length of 2.6 cm (range, 2.0–4.1 cm). This size fish bone has thin sharp end and has enough hardness to penetrate the cervical esophagus wall.³

The nearest of one of the end of the fish bone to the right lateral neck surface and the safe distance of the vital neck structures, allowed us to design a mini-invasive planning ultrasound guided.

There are few reports of migratory fish bones that have remained in the neck for a long period. We didn’t be able to find other case reported of fish bone foreign bodies removed by mini-invasive ultrasound guided surgery.

In conclusion, in some specific location, migratory foreign bodies in the neck, could be treated safety with mini-invasive image guided surgery.

**Conflicts of Interest**

No potential conflict of interest relevant to this article was reported.

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