Case Report

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Thyroid Abscess and Jugular Vein Thrombosis Caused by a Migratory Fish Bone: A Case Report and Literature Review

***Faramarz Farahmand*[1], *Kimia Falamarzi*[1], *Mehrdad Karajizadeh*[1*], *Hooman Rezaei*[1], *Hamid Reza Abbasi*[1]**

[1]*Trauma Research Center, Shiraz University of Medical Sciences, Shiraz, Iran*

***Corresponding author:** *Mehrdad Karajizadeh*
Address: Trauma Research Center, Shiraz University of Medical Sciences, Shiraz, Iran. **Tel/Fax:** +98 71 36254206,
e-mail: Mehrdad.karaji@gmail.com

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ABSTRACT

We present a rare case of a migratory fish bone into the thyroid gland with abscess formation and internal jugular vein (IJV) thrombosis. A 73-year-old woman was referred to our emergency department due to several syncopal attacks, a ground-level fall, drowsiness, and left-sided neck swelling, with a history of consuming fish three months ago. CT scan and ultrasound revealed abscess formation at the left side of the neck, a foreign body within the left lobe of the thyroid, and left IJV thrombosis. The fish bone was removed successfully, and a left thyroid lobectomy was performed. The postoperative course was uneventful, and the IJV reopened without further intervention. Fish bone migration into the thyroid gland is an unusual event, and its possibility should be considered, especially when the patient has persistent symptoms with negative findings on examination. In such cases, appropriate imaging and advanced interventions are essential for timely diagnosis and management.

Keywords: Thyroid; Thrombosis; Fish bone.

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Introduction

Foreign body ingestion is a common clinical occurrence, with fish bones accounting for over 85% of cases [1]. Typically, impacted fish bones are located at the base of the tongue, in the palatine tonsils, pyriform sinus, or esophagus. These are often identifiable through careful history-taking, plain radiography, and laryngoscopic examination [1, 2]. Common clinical manifestations include foreign body sensation, discomfort, pain, dysphagia, and odynophagia [3, 4]. Due to their sharp and firm nature, fish bones can penetrate the pharyngeal or esophageal walls, leading to serious complications such as infections, abscess formation, sepsis, and neurovascular injuries [5]. Consequently, management may require various strategies, ranging from endoscopic intervention to surgical exploration [5, 6].

Migration of an ingested fish bone into extraluminal organs and soft tissue is rare. Its lodgement within the thyroid gland is even more unusual, presenting significant challenges for timely diagnosis and management [2, 7]. Here, we report a rare case of a migratory fish bone that lodged in the thyroid

gland, resulting in abscess formation and internal jugular vein (IJV) thrombosis. The foreign body was successfully removed, and a left hemithyroidectomy was performed.

Case Presentation

A 73-year-old female with a history of hypertension and diabetes mellitus presented to the Emergency Department of Rajaee Hospital (Shiraz, Iran) with nausea, vomiting, a syncopal episode lasting several minutes, drowsiness, severe malaise, and left-sided neck swelling. The patient reported a three-month history of neck pain, foreign body sensation in the throat, and cough, which began after consuming fish. At that time, she visited an ear, nose, and throat (ENT) emergency department. However, physical examination and cervical X-ray revealed no abnormalities.

Two days later, the patient developed generalized body pain, fatigue, sweating, drowsiness, and difficulty standing for prolonged periods. These symptoms resolved spontaneously after 6 days, and no further investigations were pursued. Over the subsequent two months, she experienced occasional prickling and irritation in the throat, primarily on the left side, particularly when moving her head. Two days before presentation at our hospital, she experienced nausea, lethargy, and a ground-level fall, which prompted her to visit our emergency department.

Physical examination revealed stable vital signs. Significant findings were limited to swelling and mild tenderness over the left side of the neck.

Laboratory findings on arrival showed a white blood cell (WBC) count of $12.4\times10^3/\mu L$, which increased to $15.8\times10^3/\mu L$ on the day of surgery. Platelet counts were also elevated at $495\times10^3/\mu L$ and $514\times10^3/\mu L$, respectively.

A cervical contrast-enhanced computed tomography scan revealed a 47.5×39×47 mm collection (abscess) with a 13.4×8.6 mm liquefied center in the left side of the neck adjacent to the cricoid cartilage. A linear foreign body, approximately 31 mm in length, was identified within the left thyroid lobe, with its tip located in the mentioned liquefied center (Figure 1). Associated findings included soft tissue edema, subcutaneous fat stranding, and reactive cervical lymphadenopathy. The abscess caused lateral displacement of the left common carotid artery and mild tracheal deviation to the right. Edematous changes in the left sternocleidomastoid (SCM) muscle and thrombosis of the left IJV were also noted. A preoperative neck ultrasound confirmed these findings.

Antibiotic treatment was initiated. The patient underwent exploratory surgery under general anesthesia. Following a left thyroid lobectomy, a 3-cm sharp object embedded within the thyroid lobe was identified and removed (Figure 2). A hemovac drain was placed. No intervention was performed on the thrombosed jugular vein. The thyroid specimen was sent for histopathological examination, which revealed acute and chronic inflammation with abscess formation, chronic thyroiditis with fibrosis, and four reactive lymph nodes.

The patient's postoperative course was uneventful, with gradual resolution of her preoperative symptoms. A neck ultrasound two days postoperatively demonstrated a 3 mm increase in the luminal diameter of the IJV. After 10 days, complete recanalization of the vein was observed, and the patient was entirely asymptomatic.

Discussion

Accidental ingestion of foreign bodies, particularly fish bones, is a common reason for emergency department visits and requires serious clinical attention [8]. Despite being rare, the migration of such foreign bodies into soft tissues and extraluminal organs, such as the thyroid gland, can lead to critical and life-threatening complications, including abscess formation, fistula, thromboembolism, and neurovascular damage [8]. Contributing factors for migration include the size and orientation of the fish bone, contraction and relaxation of neck muscles, cricopharyngeus muscle contraction

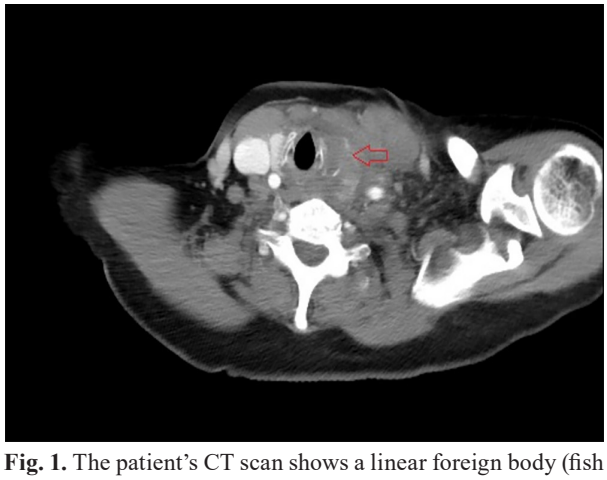

Fig. 1. The patient's CT scan shows a linear foreign body (fish bone, arrowhead) within the left thyroid lobe.

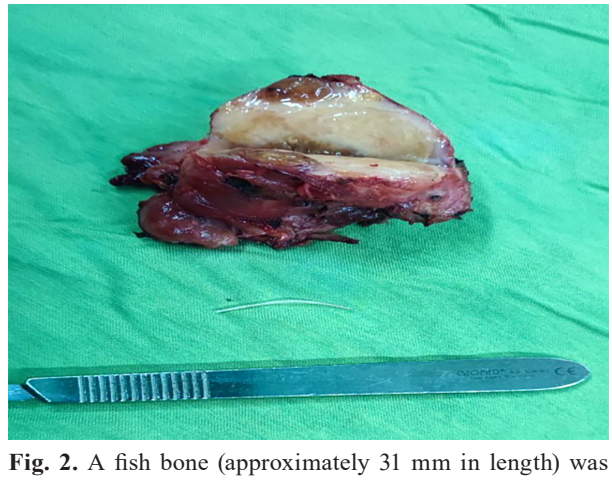

Fig. 2. A fish bone (approximately 31 mm in length) was detected in the thyroid left lobe after hemithyroidectomy.

during swallowing, and local inflammation of the pharyngeal and esophageal walls [9].

In the present case, we report a rare case of a migratory ingested fish bone that lodged in the thyroid gland, resulting in abscess formation and IJV thrombosis. The patient presented with syncope, a rare manifestation attributed to IJV thrombosis. Thrombosis of the IJV is a rare vascular incident typically associated with long-term central venous catheterization, intravenous drug abuse, malignancies, and deep head/neck infections or inflammatory processes [10]. Previous research indicated that uncontrolled infection might lead to thrombophlebitis and septic thrombosis of the venous system [11]. Only a limited number of cases linking venous thrombosis to foreign body ingestion have been reported, including descriptions of IJV thrombosis resulting from migratory fish bones and ingested sewing needles [10, 12]. Moreover, a case report described hepatic abscess and portal vein thrombosis secondary to foreign body ingestion [13]. IJV thrombosis caused by a migratory fish bone within the thyroid gland remains an extremely rare event with the potential for fatal complications [10].

A careful history and physical examination are essential during the initial evaluation [8]. Clinical manifestations following fish bone ingestion range from non-specific symptoms to a foreign body sensation, odynophagia or dysphagia, sore throat, neck pain, and neck mass [7, 14]. When a fish bone becomes lodged in the esophagus wall, pain and discomfort at rest are the common early symptoms. Following penetration of the esophageal wall, symptoms may become less pronounced, with persistent neck pain and mild dysphagia often remaining as the main clinical manifestations [7, 14]. Persistent symptoms might indicate a retained fish bone concealed within a mucosal fold or one that has migrated extraluminally [14, 15]. Therefore, patients should be re-evaluated 48- 72 hours later to confirm symptom resolution [8].

A variety of diagnostic tools are available for detecting foreign body invasion, including plain radiography, ultrasonography, CT scan, esophagoscopy, and laryngoscopy [8]. Plain radiography is the fastest method for detecting an impacted foreign body. However, the diagnosis could become challenging as fish bones might be radiopaque or radiolucent depending on their species, and radiopaque bones could be mistaken for normal calcified neck structures [2, 14]. Esophagoscopy and laryngoscopy are preferred methods for suspected foreign body ingestions as they serve both diagnostic and therapeutic purposes, allowing for the removal of visible objects [4]. Moreover, they can identify the presence and extent of perforation, edema, or hematoma [16].

However, in cases of migratory foreign bodies, only mucosal wounds or lacerations from the entry point might be visible, and the foreign body itself may not be detected [4, 17]. Hence, extraluminal migration should be considered in patients with persistent neck pain despite normal radiography and endoscopic findings [1], as was observed in the present case. Ultrasound is an easily accessible, cost-effective, and portable tool that can be used at the bedside to detect foreign bodies, assess the extent of injury, identify fluid collections, and evaluate changes in surrounding tissues [5, 14]. CT scanning offers superior sensitivity and specificity for detecting fish bones compared to other modalities, allowing for accurate localization and characterization of the foreign body's size, shape, and orientation [14]. It is also the preferred modality for diagnosing jugular vein thrombosis or other vascular injuries [10]. Consequently, CT is invaluable for surgical planning and evaluating complications [1, 9].

Management strategies varied based on the foreign body's location and size, the presence of complications, and the patient's hemodynamic status [18]. In patients with a migratory foreign body in the thyroid gland with no damage to the adjacent tissues, abscess, or bleeding, open surgical removal is recommended [4]. However, when other complications such as abscesses are present, thyroid resection, abscess excision, and drainage are indicated in addition to foreign body removal [4]. Antibiotic therapy should be initiated promptly, particularly in cases of suppurative thyroiditis caused by a migratory foreign body [5]. While a prior study indicated that a 15-day course of antibiotics prior to surgery is feasible, early surgical intervention is generally recommended to prevent prolonged inflammation and tissue damage [5].

In summary, this study presented a case of accidental fish bone ingestion resulting in thyroid abscess and IJV thrombosis. As discussed above, the migration and penetration of a foreign body into the thyroid gland is a rare occurrence that poses significant diagnostic and therapeutic challenges. Prompt diagnosis and management necessitate detailed history-taking and a thorough physical examination. Persistent symptoms in the absence of positive findings on physical and endoscopic evaluation should raise clinical suspicion for extraluminal migration. Consequently, immediate diagnostic imaging and appropriate surgical interventions must be considered to prevent delayed diagnosis and prevent life-threatening complications, such as abscess formation, sepsis, thromboembolism, and vascular injury.

Declaration

Ethics approval and consent to participate: This study was approved by the Institutional Review Board of the Shiraz University of Medical Sciences (Approval ID: IR.SUMS.REC.1404.426). All procedures performed were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration

and its later amendments or comparable ethical standards. Written informed consent was obtained from the patient.

Availability of data and material: The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Conflict of Interest: The authors declared no conflicts of interest with respect to the research, authorship, and publication of this article.

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