

Painful swelling of lateral neck and submandibular area in a girl

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PART A

An 8-years old girl presented at the Emergency Department with a painful swelling of the left lateral neck and submandibular area. The swelling had started 15 days earlier and worsened gradually. Five days after the initial symptoms, the patient was examined by a paediatrician and was started on antibiotics for suspected lymphadenopathy. Following a 10 days course of anti-

biotic therapy, she presented at our hospital for persisting symptoms and a palpable neck swelling. A soft tissue neck radiograph was obtained, which was initially reported as normal. Subsequently, an ultrasound (US) examination was performed, which revealed the full spectrum of findings and established the diagnosis (**Figs. 1-4**).



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Fig. 1. US transverse image with a linear probe showing the left lobe of the thyroid gland.



Fig. 2. US transverse image in the upper pole of the left thyroid lobe.

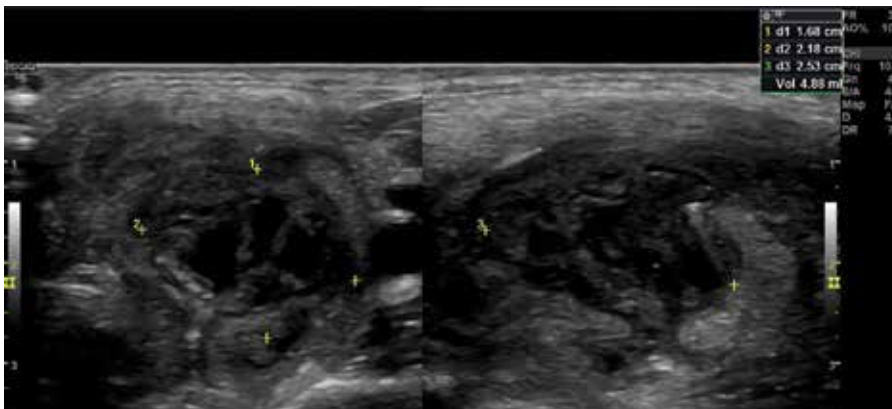


Fig. 3. US transverse and longitudinal images in the upper pole of the left thyroid lobe.

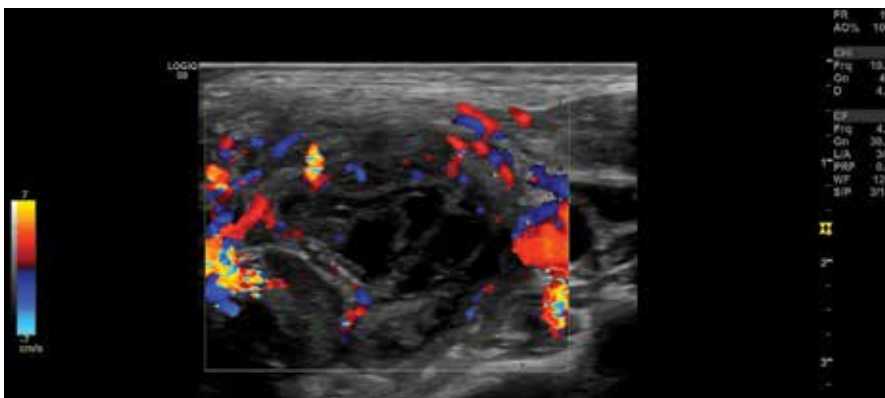


Fig. 4. US transverse image in the upper pole of the left thyroid lobe using Doppler sonography.

PART B

Diagnosis: Thyroidal abscess and focal thyroiditis due to a fish bone that penetrated the anterior wall of the oesophagus and migrated laterally into the left thyroid lobe.

It is not unusual for younger children to swallow foreign bodies (FB), which in most of the cases could traverse the digestive tract spontaneously, without any complications [1, 2]. However, when there is a witnessed or suspected FB ingestion, it is crucial to follow proper investigation in order to avoid severe sequelae. Complications are related to the size and type (sharp, corrosive etc) of the ingested object. Some of the most common complications encountered, depending on the extent of migration, can be complicated with mucosal injury, oesophageal or intestinal perforation, local or diffuse infection, abscess formation, tracheal perforation, large blood vessels rupture and pneumothorax [2]. A delayed diagnosis can result in severe morbidity and even mortality [3].

In older children FB ingestion is rare and, when it happens, patients are most of the times aware of it, therefore can ask for prompt treatment when ingestion is complicated. A swallowed fish bone penetrating the oesophagus and migrating extraluminally without causing any further discomfort is very uncommon [4] and therefore can be easily overlooked.

In our case the 8-years old girl presented with a painful swelling in the left lateral neck and submandibular area. The swelling had started 15 days ago, gradually deteriorated and had not responded to 10-day antibiotic course. A lateral soft tissue neck radiograph was obtained, which was initially reported as normal. An US examination of the neck revealed an abscess in the upper pole of the left thyroid lobe with altered echogenicity and hypervascularity of the surrounding thyroidal parenchyma (Figs. 1-4), as well as oedema of the surrounding tissues. In the central part of the abscess, within the fluid collection, an intensely echogenic line was recognised (Fig. 2) and the presence of a FB was suspected (Figs. 1-4).

Following a thorough medical history, swallowing of a fish bone prior to the beginning of neck swelling was reported. The patient's mother hadn't mentioned it before as she thought that the fish bone passed down the gut without consequences, since the patient was swallowing fluids and solids normally right after the incident. Once the presence of a fish bone was suspected, a second evaluation of the soft tissue neck radiograph confirmed the presence of a very thin linear calcified density anterior to the thyroid cartilage.

The patient was then taken to the operating room for drainage of the neck abscess along with removal of the fish bone under US guidance. The neck abscess was carefully explored, step by step, with US guidance and when the fish bone was located and removed, a drainage tube was placed in the abscess (Fig. 5). Since the inflammation was confined to the upper pole of the left lobe, hemithyroidectomy was avoided. The post-operative course was uncomplicated. The patient followed a 15-day broad-spectrum antibiotic course. Thyroid-stimulating hormone returned gradually to normal 15 days after surgery.

Penetrating oesophageal injuries are very uncommon, since most of the foreign bodies can pass down the gut without consequences [1]. Still, medical literature contains many reports of fish bones penetrating the oesophagus and causing abscesses depending on the level of penetration [5]. Approximately 90% of fish bones are impacted in the suprahyoid location [6]. It is very uncommon for a fish bone to penetrate the cricopharyngeal oesophagus and even more uncommon to migrate into the thyroidal parenchyma [6]. The main factors involved in this migration are the orientation of the fish bone and the contraction of the cricopharyngeus muscles. The increased left thyroidal lobe predilection is due to the deflation of oesophagus to the left, a small part of which is not covered by trachea [4].

The most commonly used imaging method for the investigation of FB ingestion is barium radiography.



KEY WORDS

foreign body; fish bone; oesophagus; thyroidal abscess; unilateral thyroiditis



Fig. 1. US transverse image with a linear probe showing the left lobe of the thyroid gland. Hypoechoic areas (arrow) are seen in the middle-upper part of the left thyroid lobe.



Fig. 2. US transverse image in the upper pole of the left thyroid lobe. There is enlargement of the upper pole, central fluid collection with thick wall and obvious oedema of the surrounding soft tissues. The intensely echogenic line (arrow) within the fluid collection is the swallowed foreign body (fish bone).

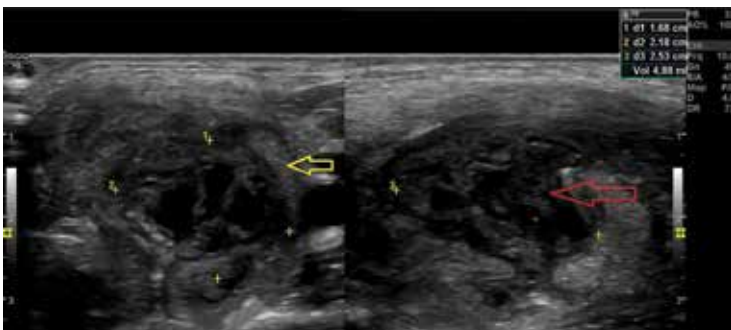


Fig. 3. US transverse and longitudinal images in the upper pole of the left thyroid lobe. The central fluid collection (yellow arrow) with thick wall and multiple thick internal septa represents the abscess. Extensive oedema (red arrow) of the surrounding soft tissues is also noted.

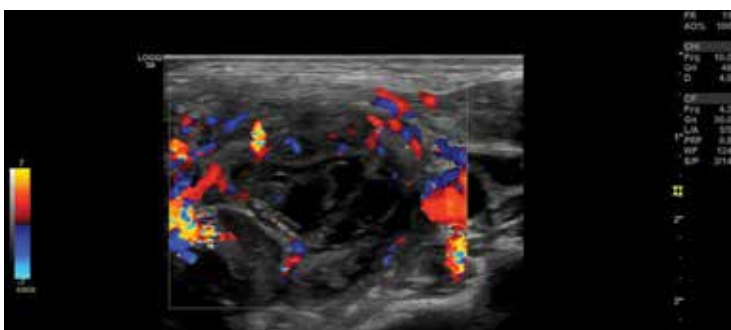


Fig. 4. US transverse image in the upper pole of the left thyroid lobe using Doppler sonography. There is hypervascularity of the thick wall of the collection and surrounding thyroidal parenchyma (thyroiditis) as well as of the oedematous surrounding soft tissues.

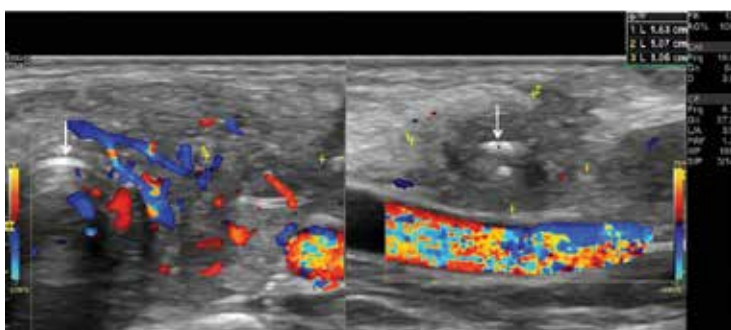


Fig. 5. Post-operative transverse and longitudinal US images of the left thyroidal lobe after the removal of the fishbone. There is an area of inhomogeneous thyroidal parenchyma with the drainage tube (arrows) at the center of it. The abscess has resolved. The affected parenchyma is still hypervascular one week after drainage.

However, for small size FBs, like a fish bone, laryngoscopy or oesophagoscopy are usually preferred [4]. US is useful in soft tissue investigation. The main advantage of US over other modalities is that it is readily accessible and non-invasive. It can locate the FB and also provide useful information concerning its size, shape and position, its relationship with surrounding tissues, the extent of inflammation as well as guidance for its surgical removal. In the cases of thyroidal penetration, like in our case, US can also differentiate unilateral thyroiditis due to FB from other rare causes of thyroid abscesses and cysts, such as acute suppurative thyroiditis associated with a piriform fossa sinus (left lobe more

frequently involved) and thyroglossal duct remnants [7, 8]. When no FB is detected, oesophagography with diluted barium is performed in order to reveal the pyriform sinus fistula [9].

In conclusion, the most important tool for early diagnosis of FB ingestion is the high index of suspicion [3]. In complicated ingested FBs with thyroid abscess, thorough history when symptoms persist along with diligent imaging investigation are the keys to an early FB detection, removal and prevention of further complications. **R**

Conflict of interest

The authors declared no conflicts of interest.

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