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Advantages of Ultrasound in the General Surgery emergency of the Departmental Hospital of Totonicapán, Guatemala

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Abstract

Objective: To demonstrate the benefit of ultrasound use in the emergency department as a fundamental tool in the diagnosis of a foreign body in the esophagus.

Introduction: Foreign bodies are the main cause of consultation in emergency rooms around the world.

Design: Case report.

Diagnosis: The clinical findings of the patient and the history referred to as the suspected ingestion by the 8-year-old patient, confirmed our diagnosis by neck ultrasound, showing an image in the vertical and horizontal section of the low-frequency transducer in real time.

Treatment: By means of sedation in the operating room, the coin is extracted with a Foley catheter no. 16 Fr. Without complications.

Patient left the hospital 24 hours after with a satisfactory evolution.

Conclusion. The use of ultrasound by the surgeon in the emergency room is a highly reliable diagnostic method with its advantages of portability, non-radiation, and non-invasiveness of the patient.

Introduction

Foreign bodies in the esophagus are a very common cause of emergency consultation, including various methods, such as ingestion, aspiration, and purposeful insertion.(1)

According to the United States outpatient medical unit, approximately 535,000 cases were seen in 2010. (2) The presentation, anatomical considerations, and the appropriate imaging strategy that includes x-rays, ultrasound, fluoroscopy or computed tomography, They will depend on the resources available in the hospital or care center.(3)

Ultrasonography is a modality par excellence to superficially evaluate a foreign body in both the esophagus and genitourinary system (4). It is operator dependent however its advantages include portability, and the ability to detect and provide anatomical detail in the evaluation, without radiation. For surface evaluation the high frequency (7-12MHz) linear transducer is recommended, which provides high resolution at the sacrifice of penetration (5).

A low frequency (3-5MHz) curved transducer for deep imaging is recommended.

Objective

Demonstrate the benefit of ultrasound in the emergency as a fundamental tool in the diagnosis of foreign body in the esophagus.

Method

Case Report



Figure 1: Ultrasound in horizontal and vertical view of the foreign body in the region posterior to the cricothyroid cartilage.

A 7-year-old male patient with a history of sialorrhea, odynophagia and suspected ingestion of a foreign body two hours previously.

Results

Clinical Findings

The physical examination at the time of admission, afebrile, no dyspnea, and the laboratories within normal limits, Because it is a blunt foreign body and it is possible that it is a coin due to the father's history, an ultrasound



Figure 2: Anteroposterior neck x-ray.



Figure 3: Foreign body

of the neck is performed in the first instance, showing an elongated image in both the horizontal and sagittal planes, approximately one and a half centimeters in length by 3 millimeters in diameter in both planes.

Diagnostic Evaluation

In the simple x-ray of the neck and chest, round radio opacity is evident at the level of the middle third of the neck seen in the anteroposterior and lateral image.

Treatment

The operating room is scheduled for the extraction of the foreign body. In our case and in the majority of national departmental hospitals, since we do not have a gastroenterologist, the extraction of the foreign body is scheduled, which is lodged in the upper third at the level of the stricture. superior.

In the operating room, a foreign body is removed with a

Foley catheter without complications.

Ultrasound as a portable diagnostic tool is a useful tool in the absence of radiological means in places where we do not have them.

Patient who is admitted to bed rest and discharged 24 hours after extraction.

Discussion

Ultrasonographic imaging is a reliable and very useful means for the diagnosis of emergency pathologies and in our case of a foreign body as a cause for consultation, knowing that the area where they frequently lodge is in the upper esophageal stricture.

Simple and basic knowledge is required to handle this portable equipment, and there are even devices with rechargeable energy if needed in inaccessible places.

The majority of foreign bodies in adults are food in 34-59% or bone 16-18%, also demonstrating dental prostheses, pills, coins, and batteries, the sensitivity of radiography has been reported in 42-80%, Computed tomography detects up to 94.7-100% sensitivity.

During the evaluation process of the case, added to the clinical symptoms, the presence of a hyperechoic image surrounded by hypoechoic structure that comprises subcutaneous cellular tissue and surrounding cartilage is evident in the sagittal (vertical) and transverse (horizontal) section image. (Fig 1) Likewise, in the video it is evident in real time with a low-frequency convex transducer since due to the location of the esophagus, posterior to the trachea, it is not possible to demonstrate its structure with a high-frequency linear transducer. (Fig 2).

In the radiological image, the presence of a round image at the level of the neck is evident, present in both anteroposterior presentation (Fig 3).

However, as previously mentioned, due to issues of cost, location, electrical energy, ease of transport, ultrasound today represents assessing the benefit of having it at the right time but also knowing its use.

In the following image (Fig 4) we present the object that was extracted with the No.16Fr Foley probe. Under sedation and direct vision using direct laryngoscopy and Magil forceps.

The patient was kept under medical observation for 24 hours, starting a liquid diet three hours after the procedure. The diet was progressed and discharge was decided one day after admission.

Conclusions

Ultrasound is a reliable and useful tool for surgeons in the emergency room as a diagnostic method in foreign bodies of the proximal esophagus.

References

1. Application of point of care ultrasound of different types of esophageal foreign bodies: tree case reports. Jung Hwan. Department of emergency medicine. Khalifa specificity hospital. Ras al Kaimah. UAE. December 2019.
2. Imagin foeign bodies Ingested, aspirated, and inserted; Hsiang Her MD. American College Emergency Phycicians, Annals of Emergency Medicine. 2015. USA.
3. Ultrasonography; The third eye of hand surgeons, Esther Vogelín, Department of plastic an hand surgery, University of Bern, (European Volume) 2020. Switzerland.
4. Bennett CE, Samavedam S, Jayaprakash N, et al. When to incorporate point-of-care ultra sound (POCUS) into the initial assess mento facutely ill patients: a pilot cross over study to compare 2POCUS-assisted simulation protocols. Cardiovasc Ultrasound 2018;16:14.
5. Mori T, Nomura O, Hagiwara Y. An other useful application of point-of care ultrasound: detection of esophageal foreign bodies in pediatric patients. Pediatr Emerg Care 2019;35:154-6.