

Complication of an Adult Oesophageal Foreign Body: Place of Cervicotomy

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Abstract: *Objectives:* Our work was aimed at exposing the methods of extraction of a foreign body enclosed in the cervical esophagus and specifying the place of cervicotomy in its management. *Observation:* We report the case of a 76-year-old patient admitted to the ENT emergency department for sudden onset dysphagia following the ingestion of a foreign body of dental prosthesis type (two teeth). The face and profile cervicothoracic radiography revealed a thickening of the oesophageal lumen associated with a prevertebral hyperclarity at the height of the C8 and D1 vertebrae. After two endoscopic extraction attempts to the rigid tube we performed a cervicothoracic CT that showed the dental prosthesis at the height of C8-D1 associated with a peripheral hyperclarity and a left pneumothorax. The hemoglobin level was 14 g/dl, the prothrombin rate was 84%, the activated partial thromboplastin time was 35 seconds. The cervicotomy allowed us to note a perforation of the esophagus at the height of C8-D1. We made an oesophagofissure that allowed us to extract the prosthesis. The reconstruction of the oesophageal lesion was done in two planes. *Conclusion:* Denture type foreign bodies carry a risk of perforation, especially when endoscopic extraction is difficult. This risk is all the more important when the extraction time is long, when there is a pre-existing oesophageal pathology and by forced extraction maneuvers. Standard surgery is the best way to prevent perforation and septic complications.

Keywords: Foreign Body, Complication, Cervicotomy

1. Introduction

Foreign body ingestion (CE) is a common reason for emergency consultation or admission. In 80% of the cases the accidental ingestions concern children with a peak of frequency between nine months and three years [1]. In adults, it is the inmates, the psychotic patients, as well as the edentulous age subjects who are most at risk of ingestion of EC. Nearly 80 to 90% of ingested EC pass spontaneously through the digestive system without any problem, only 10 to 20% require endoscopic extraction and less than 1% requires surgery [1, 2].

Oesophageal perforation by foreign body ingestion (CE) is rare and accounts for approximately 10 to 15% of oesophageal perforations [3]. It results in the occurrence of a tear or rupture of the esophagus during the ingestion of a foreign body and/or maneuvers of its extraction [4]. This is one of the most serious complications of EC associated with a mortality rate of around 15-30% [4]. Factors favoring EC impaction and oesophageal perforation are preexisting esophageal abnormality, CE characteristics and time to management and extraction maneuvers [1, 3, 4].

This work aims to expose the risks associated with the isolation of an EC in the cervical esophagus and to specify

the place of cervicotomy by their management.

2. Observation

We report the case of a 76-year-old patient (AS) admitted to the ENT emergency department for sudden onset dysphagia following the ingestion of a foreign body of dental prosthesis type (two teeth) for 72 hours. It was associated with hypersialorrhea without any notion of fever or dyspnoea. We noted a notion of vomiting provoked without success. Faced with the persistence of symptoms and the installation of aphasia, the patient was referred to ENT emergencies for management. He had no history of pre-existing oesophageal pathologies, but he had been hypertensive for one year under treatment. On examination, we noted pain with antero-cervical palpation associated with hypersialorrhea. The WHO activity index was scored at 1 and the other constants were normal.

Cervicothoracic radiography in profile revealed thickening of the oesophageal lumen associated with a prevertebral hyperclarity at the height of the C8 and D1 vertebrae (Figure 1). After two attempts at endoscopic extraction to the rigid tube, we performed a cervicothoracic CT scan which revealed the dental prosthesis at the height of C8-D1 associated with a prevertebral aortic hypodensity and a left pneumothorax (figures 2-3). The hemoglobin level was 14 g/dl, leukocytes were $7000/\text{mm}^3$, the CRP was negative, the prothrombin rate was 84%, the activated partial thromboplastin time was 35 seconds.



Figure 1. Thickening of the esophageal lumen associated with clarty prevertebram at height C8 D1.

12 hours later, we performed a cervicotomy by a Paul André incision along the anterior border of the left sternocleidomastoid muscle. After opening the platysma muscle and superficial cervical aponeurosis, we proceeded to a lateral retraction of the sternocleidomastoid muscle and dissection of the plane between the carotid and the left lobe of the thyroid (figure 4). After ligation of the middle thyroid vein, the inferior thyroid artery, the left recurrent nerve was dissected and medially recollected. We were able to visualize

the gap on the left lateral edge of the esophagus below KILIAN's mouth. We made a longitudinal incision on both sides of the gap, which allowed us to extract the dental prosthesis (figures 5-6). The closure of the esophageal wall was performed in two planes (mucous and muscular) on the drain. A nasogastric tube was placed intraoperatively. The patient was placed on amoxicillin-clavulanic acid antibiotics at a dose of 80 mg/kg in three doses and anti-reflux treatment. The evolution was favorable, an oesophageal Transit control at day 7 was normal. Surgical wound healing occurred around D12. The recovery of the oral route was carried out around J15.

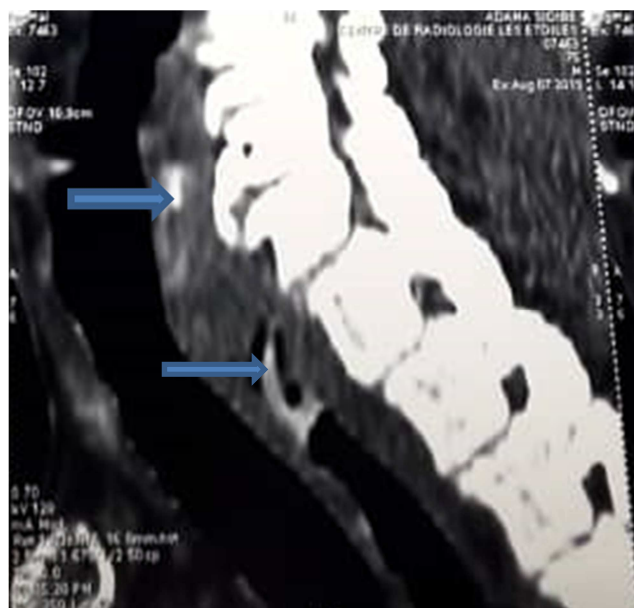


Figure 2. CT cervicothoracic in sagittal couples: highlighting the prosthesis enclosed in the Oesophageal lumen.

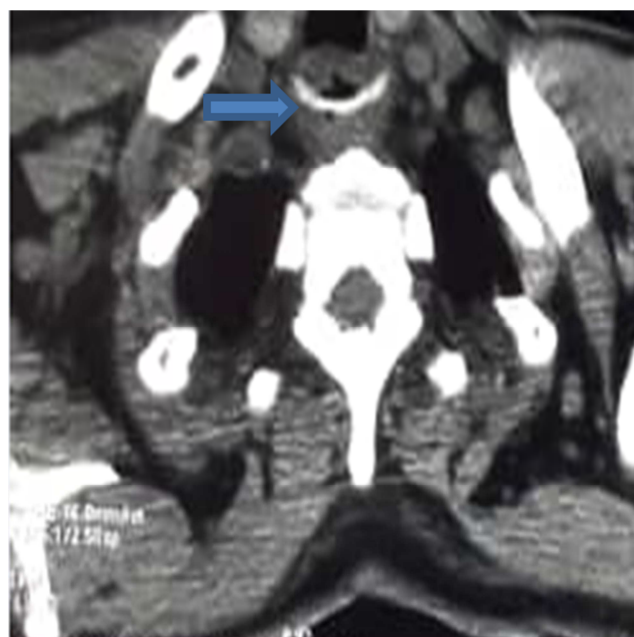


Figure 3. CT cervicothoracic in axial couples: highlighting the prosthesis enclosed in the Oesophageal lumen.

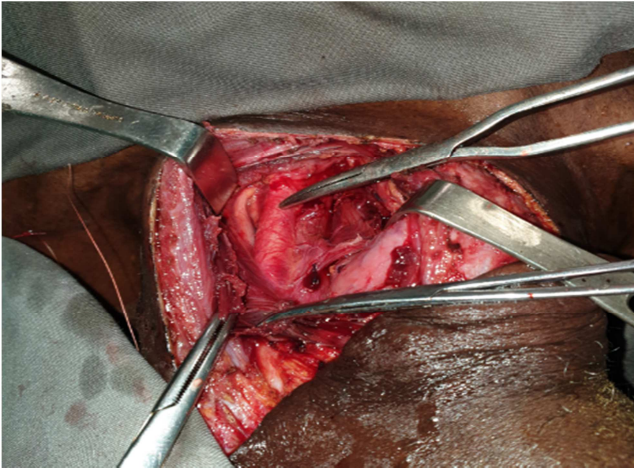


Figure 4. Dissection of the plan between the carotide and the left thyroid lobe.

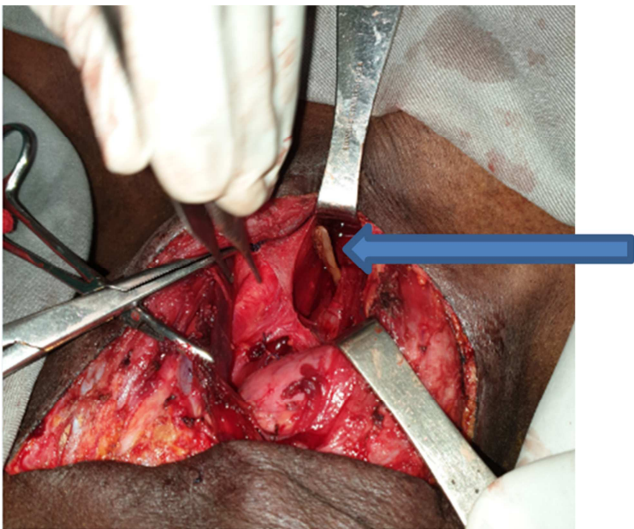


Figure 5. Visualization of the prosthesis in the esophageal lumen.



Figure 6. Dental prosthesis after extraction.

3. Discussion

Oesophageal perforation by foreign body ingestion (CE) is rare, and accounts for approximately 10 to 15% of oesophageal perforations [3]; their incidence is estimated at about 3 cases per million inhabitants per year [5]. Several peculiarities explain its sensitivity of the esophagus to

perforation and the difficulty of therapeutic management [2, 3, 6, 7]: it is the only organ to successively cross three anatomical regions and put them in close contact with each other. For example, localized perforation of the cervical esophagus or abdominal esophagus may result in thoracic contamination; it does not present a serous tunic, which makes it fragile in the face of any trauma; it does not have a clean mesentery and its vascularization is poor, which exposes it to the risk of releasing surgical sutures; it presents three zones of weakness particularly exposed to instrumental perforation.

The first is at the level of the cricopharyngeal region where a triangular parietal weakness called Lannier's triangle is delimited at the top by the intercrossing of the constrictor muscle of the pharynx and below by the cricopharyngeal muscle. The hyperextension position of the neck or the presence of a vertebral osteophyte increases the risk of perforation.

The second zone is located in the middle third of the esophagus compared to the narrowing related to the aortic arch and the left bronchus.

The third level consists of a zone of narrowing and curving of the esophagus associated with its passage through the diaphragmatic hiatus.

This work suggests to take into account a certain number of parameters that can favor the occurrence of a perforation on foreign body. These factors fall into four categories: time to management, factors related to the foreign body, factors related to the patient and finally those related to endoscopy. The delay of the treatment is essential especially for the foreign bodies of large diameter, indeed, the compression of the esophageal wall causes a local ischemia which would be at the origin of the perforation. Thus, the mucosal damage can appear from the fourth hour and the perforation towards the 6th hour. Our patient was seen after 72 hours which represents a risk factor for the occurrence of perforation. Other factors were prosthesis size (two teeth), patient age, endoscopic extraction attempts, and vomiting (Boerhave syndrome). However, our patient had no history of stenosis or other pathological history of the esophagus. Regardless of the type of EC, the risk of perforation increases over time and the extraction of an EC that is impacted in the esophagus is therefore a therapeutic emergency [8].

The clinical symptomatology varies according to the location of the perforation. Thus, cervical perforations are manifested by cervical pain related to the contraction of sterno-cleido-mastoid muscles and thoracic perforations by chest pain increased by swallowing and deep breathing movements. The pain is sign the more frequent and the most constant. It is present in 70 to 95% of patients. The subcutaneous emphysema is of course very evocative, but is only present in half of the cases. The triad pain, fever, emphysema is not constant [9]. The signs of impaction of the foreign body (dysphagia, hypersialorrhea and odynophagia) were the only ones present in our patient. We discussed the diagnosis of perforation on the EC's length of stay, its size

and the failures of endoscopic extraction attempts to the rigid tube confirmed by cervico-thoracic CT.

The diagnosis of oesophageal perforation is not always easy in the absence of cervicothoracic emphysema. Esophageal transit and/or cervicothoracic computed tomography may be essential [9]. The sensitivity of the endoscopy for the diagnosis of perforation is between 86 and 98% [3]. Mediastinal and pleuropulmonary complications are rarely observed in perforations of the cervical esophagus in contrast to perforations of the thoracic esophagus. Management should be as early as possible to prevent the occurrence of these complications [10]. Surgery must be indicated not only in front of an isolated foreign body whose endoscopic extraction is difficult or dangerous but also for the management of perforations and their complications [10]. In our case the surgical indication was raised in front of the difficulties of extraction of the EC and on the tomodensitometric signs of perforation. Perforations of the cervical esophagus are less likely to cause septic complications than thoracic or abdominal perforations. No sign of cervical infections was noted in our patient during cervicotomy this would be explained by the character of perforation and the removal orally diet.

4. Conclusion

Denture type foreign bodies carry a risk of perforation, especially when endoscopic extraction is difficult. This risk is all the more important when the extraction time is long, when there is a pre-existing oesophageal pathology and by forced extraction maneuvers. Standard surgery is the best way to prevent perforation and septic complications.

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