

# Complete Healing of Esophago-Cutaneous Fistula Due to Foreign Body Ingestion by Conservative Treatment Alone in A 81-Year-Old Woman: Case Discussion and Literature Review

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## Summary

An 81-year-old woman was admitted in our department for chronic persistent esophago-cutaneous fistula in the antero-lateral left side of her neck. A history of ingestion of a foreign body missed in her food two months ago is present and neglected. The patient was treated for 2 weeks with antibiotics and NSAIDs for her sore throat and neck emphysema until an abscess appeared in the left side of her neck leading to cervical CT and surgical evacuation leaving behind the fistula. Although normal X-ray of the neck, echography and cervical CT didn't show any foreign body in the abscess content, the operating surgeon found a sharp plastic piece of one centimeter inside the abscess (see fig). On admission to our department 6 weeks later, the patient had fever, dyspnea, and cachexia due to weight loss (8 kg in 2 months), severe malnutrition and aspiration pneumonia in the right pulmonary lower lobe. Her blood pressure was maintained at 130/80 mmHg and arterial oxygen saturation around 94% on room air. Almost all her foods were going out through the fistula. She is known to have well controlled arterial hypertension and hypercholesterolemia without any cardiac or renal problems. Blood tests was normal except for high WBC (13000), elevated CRP (35 normal <5) and hypoproteinemia (4,6 normal > 6,5); Cultures from the fistula revealed usual bacterial flora and PCR for tuberculosis was negative. Gastroscopy showed severe erythema in the upper third of the esophagus and cervical CT with esophagogram revealed clearly the fistula route without any adjacent organ injuries or cervical lymph nodes. Echocardiography was normal and Thoracic CT showed only right lower lobe pneumonia. The patient was put on hyperproteic hypercaloric parenteral nutrition, nasogastric aspiration, wide-spectrum antibiotic and PPIs. Surgical repair was discarded regarding the patient age, deteriorated general status and the chronicity of the fistula. Moreover, endo-esophageal tube replacement was impossible due to the high localization of the fistula. Two weeks later, pneumonia resolved completely, and the fistula's outer orifice became much smaller. The patient was put on strict enteral nutrition via

jejunostomy tube and discharged from the hospital. Two months later, control cervical CT with esophagogram revealed complete healing of the fistula and we decided to start normal oral alimentation. When I saw her six months later, the patient was eating normally and gaining weight.

## Abstract

Esophageal traumatic fistula and its bad effects have been noted frequently in the literature. Etiologies include tumors, iatrogenic manipulation, direct traumatism and foreign body ingestion. However, cervical esophageal perforation with or without adjacent organs injuries or fistula resulting from foreign body ingestion remains rare; It carries a variable degree of morbidity and mortality depending on the localization, associated injuries, and therapeutic management. CT scan coupled with esophagogram remains the gold standard to reveal perforation and fistula. Although early recognition and surgical repair remain the mainstay of the treatment to reduce further morbidity and mortality, definitive treatment is still controversial and may be only conservative. Final decision depends not only on the pattern of the fistula but although on the patient general status. We review in this article the case of an 81-year-old lady with isolated chronic cervical esophago-cutaneous fistula due to foreign body ingestion that healed completely with conservative treatment. We discussed the etiology of esophageal fistulas through the literature, its diagnosis, complications and therapeutic strategies.

## Discussion

Perforation of the esophagus may be a very risky accident because of the rapid installation of infection in the structures around it. This is due to the absence of a serosa in the esophagus and the presence of a thin reticular tissue with a few elastic fibers around it [1].

Injuries of the esophagus may be iatrogenic or not. The cause of non-iatrogenic injuries is direct traumatism in 10% and foreign body ingestion in 12% of patients; on the other hand, 60% of esophageal perforation are due to iatrogenic lesions [2].

Traumatic injuries are present most of the time in the cervical esophagus [3]. In the study of Sheely et al., they have around 6% of esophageal perforations between 700 patients involved over 22 years and admitted for neck trauma [4]. Injuries due to ingested foreign bodies can lead to esophageal perforation in only 1 to 4% of instances [5,6]; this perforation is the cause of esophageal fistula in only 30% of patients [7]. This fistulization may be into any adjacent organ (trachea, aorta...etc) or directly to the skin.

Esophagocutaneous Fistula (ECF) due to ingested foreign bodies, without any adjacent organ's involvement, as is the case of our patient, is rarely found in the literature; the rare similar cases were due either to iatrogenic complications of cervical spine surgery [8], cervical lymph nodes tuberculosis [9], or electrical burns (one case) [10].

The perforation due to ingested foreign bodies occurs mainly in the narrow anatomic regions of the esophagus like the cricopharyngeus region and the lower part of the esophagus [2]. Esophageal fistula or perforation is usually preceded by symptoms like odynophagia or complications like neck emphysema or abscess formation as in our case; this is mainly due to inflammation and erosion by the foreign body.

The morbidity and the mortality rates are relatively high in this complication because of the mediastinitis, vascular injuries, paraesophageal abscess with or without fistula, pericarditis, pneumothorax, pyopneumothorax and pneumomediastinum. They reported a mortality rate of 22% in a big series of 511 cases of esophageal perforation. Ingested foreign bodies was the etiology in 7% of that series [11].

The gold standard in the diagnosis of esophageal foreign body remains the direct visualization by gastroscopy [12]. The morbidity rate due to air insufflations during gastroscopy may increase if the perforation is already here [13]. Lot of parameters are mandatory to assess the probability of esophageal perforation such as the characteristics of the foreign body (coins [14], fishbones, needles [15] ...etc), duration of foreign body lodgment, underlying esophageal disease and clinical presentation with complications. In our case, there was no clear evidence of that plastic foreign body ingestion which was moreover radiolucent.

After surgery, we can easily miss the diagnosis of esophageal perforation if the surgeon did not suspect its presence. This perforation is followed usually by the installation of neck emphysema in 60 to 95% of patients [16] which is easily diagnosed with contrast esophagography but with 10 to 25% of false negative results [17]. Our patient developed cervical emphysema for 2 weeks before diagnosis.

Moreover, CT scan of the neck and mediastinum is necessary in the management of esophageal perforation that are due to foreign bodies because of the presence of air almost all the time in the structures around the perforated esophagus [18]. This CTscan is especially useful to guide physicians in atypical cases [19]. In the case presented, the piece of plastic was not seen on CT. Many findings on CTscan are helpful to diagnosis esophageal perforation such as the presence of air in the soft tissue around the esophagus, abscess formation, and the presence of a communication between the esophagus and an adjacent air-filled collection [20]. Moreover, CTscan may help in the follow-up after initial therapy [21].

The above case illustrates the importance of a detailed history, physical examination and clinically guided investigations when we do suspect an esophagus injury or perforation with or without adjacent complications.

Regarding the treatment of esophageal fistula, many techniques have been found useful in our literature review such as thoracoplasty, reconstructive surgery (like muscle flap) and stent insertion. However, early surgical repair remains the most successful treatment for cervical esophageal perforation [22,23]. The most frequently used surgical procedure is the primary closure, with or without tissue reinforcement [8]. The biggest prognostic factor for successful primary repair is the time between the perforation and the surgical repair and should be less than 24 hours [24]. After that time, surgical repair is usually associated with increased mortality [25]. However, many surgeons did recently primary repair without respecting this interval of time [26,27] but the closure is supported by muscle flap to prevent leakage after suture [8,28].

Sometimes these classical prompts surgical repair cannot be applied because of lack of infrastructure, the absence of well-trained surgeon, or the presence of co-morbidities in an old patient or the presence of severe inflammation like in our case. In these cases, we may better choose conservative methods like external drainage, antibiotics and proton pump inhibitors use, continuous suction and total para-enteral nutrition [29]. Besides the utility of para-enteral alimentation, some physicians prefer early introduction of enteral nutrition to accelerate the mucosa repair. The healing of some fistulas of non-malignant origin seems to be easy after

medical treatment. This medical treatment is mainly based on complete liquid diet through nasojunal tube [29].

## Conclusion

In conclusion, esophageal perforation remains a serious complication of foreign body ingestion or direct neck trauma, but early diagnosis and rapid surgical treatment may improve its impact on morbidity and mortality. Persisting odynophagia, neck abscess and emphysema are highly suspicious of esophageal injury resulting from foreign body ingestion and should lead to perform an urgent CTscan of the neck and gastroscopy. Prompt surgical repair with a local tissue flap and drainage reduces the complications and the mortality and remains the gold standard of treatment; however, therapeutic strategies should be tailored upon the general health status of the patient and the characteristics and the etiology of the fistula. Conservative treatment using enteral nutrition through an esophageal tube may be very useful for certain patients especially those with late perforations. The prognosis of these patients depends mainly of the time elapsed before the diagnosis and the treatment and the presence of associated damage and complications (infections, malnutrition...etc).

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