Rare cause of oesophagus perforation

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Abstract

INTRODUCTION: Oesophagus perforations, which are generally caused by iatrogenic injuries, are a serious clinical event. There are still high rates of mortality and morbidity and there is no gold standard of surgical treatment.

PRESENTATION OF CASE: The case is here presented of a 54-year old female with complaints of dysphagia after having swallowed a bone in food, who was determined with oesophagus perforation on CT examination.

DISCUSSION: Oesophagus perforation generally occurs secondary to interventional procedures and rarely develops associated with foreign bodies. Treatment depends on the perforation site and dimension.

CONCLUSION: While conservative primary surgical repair may be chosen for cervical lesions, more aggressive approaches such as resection and delayed reconstruction are recommended for thoracic lesions. Early determination and appropriate treatment are life-saving.

Keywords: Oesophagus, Oesophageal perforation, Oesophageal rupture, Treatment, Surgery

1. Background

In 70% of cases of oesophagus perforation, which is a very serious clinical event, the aetiology is iatrogenic. The most common cause is from endoscopic procedures and it is very rare to be associated with a foreign body (8%). Mortality rates of oesophageal perforation are as high as 65% for reasons such as the proximity of vital organs, not being serious and extraordinary haemorrhage. Mortality rates of oesophagus perforation is from endoscopic procedures and it is very rare to be associated with a foreign body (8%).

Although there is no consensus in literature on surgical treatment choices, the treatment approach can vary depending on the presence of sepsis, the time which has elapsed from the time of the perforation to its determination and the location and size of the lesion.

The aim of this paper was to present a case of oesophagus perforation caused by a bone swallowed with food, and the treatment approach which was applied (Fig. 1).

2. Case presentation

A 54-year old female presented at the Emergency Department with difficulty in swallowing and neck pain, which had started the previous day after eating a meat-based dish, commonly prepared in the region for wedding celebrations. No pathological findings were determined from the physical examination but as the complaints continued, cervical and thoracic computed tomography (CT) imaging was applied. A mass of bone density intersecting the oesophagus lumen and surrounding air densities were determined so endoscopy was recommended to remove the foreign body (Figs. 2 and 3). However, as there was a possibility of exacerbating the perforation and potential contamination of the surrounding tissue, it was decided not to perform the endoscopic procedure and the patient was admitted for surgery. With a transverse incision on the neck, the cervical oesophagus was reached and the intraoesophageal bone was determined in the posterior. A perforation was observed of approximately 1 cm. After transoral removal of the bone, the oesophagus was repaired with 3/0 vicryl. Under postoperative monitoring, no complications developed and the patient was discharged on the 4th day.

3. Discussion

Even when oesophageal perforation is diagnosed early, the development of septic complications in particular are a...
life-threatening risk which rapidly progresses to an emergency surgical event and develops secondary to therapeutic procedures rather than as spontaneous perforation. It is a very rarely encountered event with only 5 cases per million per annum, thus surgical experience is limited.6

Oesophagus perforation is often iatrogenic, spontaneous or traumatic or may develop secondary to neoplasm. Most cases in literature are reported as secondary perforations from endoscopic procedures. There are extremely few reports in literature of perforation developing due to a swallowed foreign body.7

The initial symptoms vary according to the site of the perforation, size, time which has elapsed and the amount of contamination. The most common symptom is chest pain. Less often, dysphagia and dyspnoea may be observed. In the current case, the perforation was in the cervical area and the patient presented with dysphagia.8,9

There are several reports related to the procedures to be applied to confirm diagnosis. Endoscopic examination and fluoroscopic examination with water-soluble contrast material are often used. There is an increased risk of damage and contamination with the use of endoscopy. In addition, as there is the possibility of very small perforations being overlooked, generally its use is not recommended.10 Contrast radiographic imaging has a false-negative rate of 22%.11 However, in cases with negative X-ray results which continue to be clinically suspect, endoscopic imaging is strongly recommended. In the current case, due to the complications which could develop associated with the risks of endoscopy as described, endoscopic examination was not applied and diagnosis was made from the determination of a bone and an appearance consistent with oesophageal perforation on CT.12,13

There are no randomised, prospective studies in literature and in all the studies, patients have been evaluated retrospectively. Nonetheless, it is noticeable that early diagnosis and treatment is very important in these studies. To prevent oesophagus contamination, early antibiotic treatment and enteral nutritional support are also recommended.14

The type of surgical procedure to be applied is affected by the perforation site and size, the time to diagnosis and the presence of necrosis in the wall. When more than 24 h has elapsed before determination of the perforation and when there is wall necrosis, the complication and mortality rates are much higher. Early determination of the perforation has been reported to be the best prognostic factor. These first 24 h have been described in literature as the ‘golden period’. In the case presented here, by making an early diagnosis of a small lesion in the cervical region, treatment was applied and the patient was discharged without any problems on the 4th postoperative day.15–17

There is no surgical choice which is accepted as the gold standard for oesophageal perforation.18 The perforation aetiology, site and size, the period of contamination and the patient’s general status will define the surgery to be selected for the patient.14 Surgical choices include primary suturation, exclusion or resection. In cases which are diagnosed early, particularly in cervical and small lesions, primary suturation is suggested as the first choice.19,20 As this was appropriate for the current case, primary suturation was applied. In cases with a late diagnosis or when the patient is in a poor general condition, exclusion should be selected.21,22 Also in perforations determined secondary to neoplasm oesophagostomy and delayed repair is generally used after oesophageal resection which is the safest method.23 It may be
selected when a healthy oesophagus is in question, in cases of local or generalised sepsis. In these circumstances, the enteral nutrition pathway of the patient must be kept open by opening gastros- 
omy.

The most important aspect of the management of these injuries is deciding whether to institute conservative or operative management. The decision should be made on a case-by-case basis. Drainage with a thoracic tube without any surgical interven- 
tion was described many years ago, but mortality rates of 20-37% have been reported in conservative treatment. 

In a series by Martinez using treatment described as ’aggressive conservative’, 100% survival was achieved and with sufficient drainage of pleural free fluid with a chest tube, the perforation was able to be brought to the state of an oesophagocutaneous fis- 
ture and this healed in the same way as gastrointestinal fistules. There are also authors who have claimed that conservative treatment is more appropriate for intramura perforations or non- 
leaking microperforations. While conservative treatment may be applied at the cervical level (Triggiani and Belsey demonstrated that cervical oesophageal perforations can be managed conservatively with 80% healing spontaneously and 20% developing a localised cervical abscess which will require open drainage. Local complication following conservative management was 6% in this series. Yazilmis daha mı uygun olur?), agressive alternatives should be used for perforations determined at the thoracic level.

In recent years an aggressive strategy has prevailed that for all nonmalignant thoracic perforations and if the oesophagus is sal- 
vageable. Primary repair is suitable regardless of the time interval after injury.

4. Conclusions

In oesophageal perforation, which has high mortality rates, the surgery choice varies depending on the perforation time, site and size. Depending on the patient’s condition, resection and delayed repair are the safest of these methods and the enteral nutrition pathway must be kept open. Together with these, the most important factors affecting mortality are early diagnosis and treatment.

Conflict of interest

M.Z. Sabuncuoglu and all authors declared that have no conflict of interest.

Funding

M.Z. Sabuncuoglu and all authors have not any sources of funding for our research.

Ethical approval

Our research did not require ethics committee approval.

Author’s contribution

M.Z.S. and M.F.B. were responsible for the study design, and data analysis. M.Z.S. and A.S. were responsible for study concept and interpretation of data. M.Z.S and T.C. were responsible for article drafting and critical appraisal. I.S. was responsible for revision of the article and critical appraisal.

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