CASE REPORT

Repair of Thoracic Oesophageal Perforation with Latissimus Dorsi Flap

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Summary

Thoracic oesophageal perforation, a life-threatening condition, is a therapeutic challenge[1]. A 20 year old male developed a lower oesophageal perforation following an abdominal cardiomyotomy for achalasia of the lower oesophagus. The resulting suppurative mediastinitis and left empyema thoracis were treated by decortication. The oesophageal perforation was closed using a transposition pedicle left latissimus dorsi muscle flap.

Key words: Oesophageal perforation, latissimus dorsi muscle flap.

Introduction

Acute mediastinitis following oesophageal surgery is a devastating complication. As the oesophagus lacks a serosal layer and is surrounded by loose areolar tissue, its perforation allows bacteria easy access to the mediastinum, causing severe infection. Early surgical intervention is necessary. In delayed cases the perforation should be covered with a well-vascularized tissue flap, either the omentum or extrathoracic skeletal muscle[2].

Case report

A 20 year old male had progressive lower oesophageal dysphagia, regurgitation and pain of 2 years duration. A barium swallow radiological examination showed mega-oesophagus with a rat tail stricture at the lower end of the oesophagus consistent with a diagnosis of achalasia.

The achalasia was treated by an abdominal cardiomyotomy. The lower oesophagus was inadvertantly perforated. This was repaired primarily.

Four days later he developed high temperature and severe lower abdominal pain. A barium swallow examination showed a lower oesophageal leak into the left chest cavity. The leak was treated by a left intercostal tube with underwater seal. Parenteral antibiotics were given.

The leak persisted. Twenty one days postoperatively a left latissimus dorsi sparing thoracotomy through the 5th intercostal space was performed. A complete decortication was performed. A Ch 14 Jacques catheter could be easily inserted through the perforation. A 6 cm wide segment of latissimus dorsi muscle was detached from its broad origin and transposed through a window created by excising a 5 cm segment of the 5th rib into the posterior mediastinum to cover the perforation. The muscle was stitched in place with interrupted 2/0 Vicryl sutures inserted into the posterior chest wall, diaphragm and oesophagus. A Ch 24 chest tube was interserted through the 7th space at the mid-axillary line.

The pyrexia and tachycardia resolved on the third day. He continued to recover uneventfully.

A subsequent barium swallow examination showed a healed lower oesophagus with no hold up of barium. He has occasional reflux oesophagitis. He has returned to his former manual job.

Discussion

Oesophageal perforation is associated with a high rate of mortality and morbidity.

When the perforation is diagnosed early, i.e. within 24 hours, it should be treated urgently with primary closure and wide drainage of the mediastinum.

When the treatment is delayed, primary closure is not recommeded. After debridement, the perforation should be plugged by a tissue flap.

Two types of tissue can be used to treat the space infections in the mediastinum or thoracic cavity. They are the greater omentum and the extrathoracic skeletal muscles, namely the latissimus dorsi and pectoralis major.

The greater omentum[3] when based on the gastroepiploic vascular pedicle can reach most sites in the chest. The other advantage is the presence of angiogenesis factor in fat, particularly in omentum. This factor can induce neovascularization in areas that are avascular. The disadvantage is that the abdominal cavity has to be opened, exposing this space to contamination and other complications.

In 1915, the first thoracic surgeon at the Mayo clinic, Samuel Robinson[4], recommended the use of the latissimus dorsi muscle in the surgical treatment of chronic empyema thoracis. It is now the most commonly used chest wall muscle for intrathoracic transfer. Its anatomical, vascular and nerve supply arrangement allows it to reach most intrathoracic locations[5]. Its transposition results in minimal functional disability of the upper extremity.

References

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