Persistent air-leak after transhiatal oesophagectomy: A case report

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INTRODUCTION: Transhiatal oesophagectomy is a widely accepted technique for resection of tumours of the lower oesophagus. We present a life-threatening complication associated with the placement of a corrugated neck drain during this procedure.

PRESENTATION OF CASE: Our patient underwent a transhiatal oesophagectomy for a lower oesophageal tumour. He developed persistent bilateral pneumothoraces despite chest drain insertions. Following removal of the corrugated neck drain, both lungs were successfully re-inflated.

DISCUSSION: To the authors' knowledge, this serious complication has been described only once before in the medical literature; other surgeons should be made aware of this problem.

CONCLUSION: Alternative drainage systems should be considered to help prevent this injury. Exercise caution if positioning corrugated drains in the neck.

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1. Introduction

Transhiatal oesophagectomy is a well-developed and widely accepted procedure for the management of lower oesophageal cancers.1 Transthoracic approach has been associated with higher rates of morbidity and mortality therefore many surgeons favour the transhiatal method.2 It is common practice in our hospital to leave a corrugated drain in the neck wound; this has been described to encourage any leakage around the anastomosis to be directed towards the skin.3,4 However, we present a life-threatening complication associated with this type of drain placement. To the authors' knowledge, this is the second reported case.5

2. Presentation of case

Mr D was a 63 year old male who suffered with asthma and osteoporosis. He presented with a longstanding history of reflux symptoms and abdominal pain. An endoscopy and biopsy demonstrated a high grade dysplasia with an intra-mucosal adenocarcinoma of the lower oesophagus. A CT demonstrated no evidence of metastatic disease and his tumour was staged at no more than T1N0. Pre-operative pulmonary function investigations revealed a poor FEV1 of 55.8% and a FEV of 80%. He was deemed unfit for single-lung ventilation therefore was not offered a 2-stage oesophago-gastrectomy.

A transhiatal oesophagectomy was decided and performed a few weeks later. There were no intraoperative complications and a corrugated drain was placed in the neck posterior to the site of anastomosis. A mediastinal chest drain was also placed.

Three hours post-operatively, the patient was noted to be desaturating. A chest X-ray was performed which demonstrated bilateral pneumothoraces (Fig. 1). Bilateral chest drains were inserted and placed on suction. The patient remained symptomatic although saturating satisfactorily. However, it was noted that when suction was disconnected from the chest drains, Mr D would subsequently desaturate. The chest drains were both bubbling the next day, but a repeat chest X-ray showed persisting bilateral pneumothoraces, albeit much smaller. Due to on-going respiratory distress, the patient was intubated. This resolved the air leak from the chest drains immediately. To investigate the presence of a tracheobronchial injury, a bronchoscopy was performed, however, this was negative.

Attention was then turned to the corrugated neck drain; this was now considered to be a vector for the persistent pneumothoraces. Once the drain was removed and the wound stapled over, an improvement was noted immediately. Subsequent chest X-ray (Fig. 2) and CT imaging showed the lungs to be fully inflated.

No further episodes of pneumothoraces were noted and the patient went on to have a full recovery.

3. Discussion

Our case highlights an important and life-threatening complication of utilising a corrugated neck drain post transhiatal oesophagectomy. Air-leaks are well-documented post-operative complications of slipped chest drains, however, pneumothoraces associated with neck drains has only been described once before in the medical literature.6 Orringer et al. published a large series of over 2000 oesophagectomies and did not describe this difficulty.1

The corrugated neck drain behaved very much like a pneumothorax caused by a sucking chest wound. A pneumothorax often occurs when a connection develops between the pleural space and
Continuous air-leak through a chest drain or surgical emphysema of the face and neck during the early post-operative period is suggestive of an airway injury. A bronchoscopy should reveal an injury. Tracheobronchial injury should be suspected when a collapsed lung does not re-expand with negative suction applied to the chest drain; this should be managed by primary closure of the defect. A familiar problem is that of a malpositioned chest drain. Chest drains may occasionally slip out during the post-operative period which can normally be recognised by identifying the tube fenestrations outside the thorax. This, however, was not the case with our patient.

4. Conclusion

This case report demonstrates a life-threatening complication of utilising corrugated neck drains for transhiatal oesophagectomy. This is currently not well documented within the medical literature. Alternative drainage systems should be considered to help prevent this injury. Exercise caution if positioning corrugated drains in the neck.

Conflict of interest statement

None.

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Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

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