Case report - Thoracic non-oncologic
Stake through the chest

Amal K. Bose*, Jonathan Ferguson, Steven Hunter

Department of Cardiothoracic Surgery, The James Cook University Hospital, Marton Road, Middlesbrough, TS4 3BW, UK

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Abstract

We present a fascinating case of major penetrating trauma to the chest which resulted in a successful outcome. Often such trauma is associated with a poor outcome due to injury to the heart, lungs or major blood vessels with subsequent massive blood loss, pneumothorax or haemo-pneumothorax. Late complications include infection rarely mediastinitis, empyema and occasionally chylothorax from damage to the thoracic duct.

Keywords: Thoracic trauma; Pneumothorax; Haemothorax

1. Introduction

The images shown demonstrate significant penetrating trauma to the right hemi-thorax sustained in a road traffic accident. The management of large bore penetrating chest injury is presented graphically. Late infective complications, such as empyema, although a rarity, are a concern. Consent for publication was obtained from the patient.

2. Case report

A 37-year-old male was involved in a low speed road traffic accident where his vehicle collided with a car park barrier at an industrial site. The driver of the vehicle was impaled through his right chest cavity by a metal pole (Fig. 1). The blunt ended pole had penetrated the right chest cavity entering just above and medial to the right nipple and exiting the thorax between the scapula and spine. The patient had remained conscious and phoned the emergency services. The cut ends of the pole had been compressed by the cutting tool producing widened sharp ends making simple withdrawal of the pole more hazardous. There was no surgical emphysema and no air entry on auscultation of the right hemithorax.

He was taken to theatre, where under a general anaesthetic a thoracotomy was performed Fig. 2. The pole had entered the right chest devitalising and destroying the 4th rib and fracturing the 3rd rib. The lungs had been pushed aside without penetrating the parenchyma. The scapula and spine had been spared and there was no major intrathoracic bleed. There was extensive destruction of skin and soft tissue at the entrance and exit sites with contamination services. The cut ends of the pole had been compressed by the cutting tool producing widened sharp ends making simple withdrawal of the pole more hazardous. There was no surgical emphysema and no air entry on auscultation of the right hemithorax.

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Fig. 1. Picture from emergency department with patient lying on his left side showing exit pole through the right posterior chest wall.
Fig. 2. Picture from the operating theatre showing a right thoracotomy exposing the entrance of the pole.

with paint and metal debris (Fig. 2). A painstaking thorough debridement was performed removing all visible debris. The parietal defect, soft tissues and skin were closed in a standard post-thoracotomy fashion. A chest radiograph taken immediately after the operation showed good re-expansion.

Other surgical approaches, such as cutting the broadened ends of the pole and simply pulling the pole out were considered. The strength of the metal pole would have made cutting it a prolonged and difficult procedure as was found by the emergency retrieval team at the site of the accident. A thoracotomy allowed excellent access, relatively easy removal of the pole and clear assessment of intra-thoracic injury with thorough debridement.

The patient made an excellent recovery allowing his discharge home on the fifth postoperative day. He has followed up for three months, with no clinical or radiological evidence of complications with good wound healing.