Haemothorax after mediastinoscopy: a word of caution

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Abstract

Mediastinoscopy is used for the staging of lung cancer and for the diagnosis of mediastinal lesions. It is a valuable diagnostic tool but, in a few cases, it could result in major complications. We describe a simple technique to avoid the development of a major complication – massive haemothorax – after a mediastinoscopy, which should be applied in cases of inadvertent injury of the pleura during the procedure.

Keyword: Mediastinoscopy complications

INTRODUCTION

Mediastinoscopy was originally described by Carlens in 1959 [1]. It is used for the staging of lung cancer and for the diagnosis of mediastinal lesions. Low perioperative morbidity (0.6–3.7%) and mortality rates (0–0.3%) for mediastinoscopy have been reported in some series. Although major haemorrhage caused by injury to the great vessels within the mediastinum is an uncommon event, it may lead to a catastrophic and fatal outcome.

CASE SCENARIO

A 64-year-old man had a bowel resection for a Duke D colonic cancer 3 years back. He was undergoing surveillance computed tomography (CT) scan of his abdomen and chest (Fig. 1), which revealed enlarged mediastinal and right hilar lymph nodes. The patient also had a slightly raised right-side hemi-diaphragm, which was explained by a history of right lower lobe pneumonia with post-pneumonic scarring and traction on the diaphragm. He had no other significant past medical history. Preoperative haemoglobin was 15 g dl\textsuperscript{-1}. A mediastinoscopy was decided as the way forward to reveal a diagnosis, because a lymphoma was also suspected and a sizable biopsy was required which would not be feasible through endobronchial ultrasound (EBUS).

A mediastinoscopy was performed and stations 2R and 4R mediastinal nodes were sampled. During the procedure, the right pleura was seen to be inadvertently opened. At the end, a very mild venous bleed was observed which was expected to self-tamponade and the patient was closed. Postoperatively, a chest X-ray showed a right-side massive haemothorax. Haemoglobin had dropped to 11 g dl\textsuperscript{-1} but the patient was haemodynamically stable. A chest drain was inserted but drainage was still minimal over the following 24 h and a chest X-ray (Fig. 2a) showed no improvement. On the next day, the patient was more dyspnoeic and the chest X-ray showed an organised haematoma. The patient was taken back to the theatre and a video-assisted thoracoscopic surgery (VATS) was performed but significant adhesions were found; hence, we proceeded to a right thoracotomy and drainage of 1800 ml of clotted blood was performed. No bleeding vessel was found. In addition, a mediastinal lymphadenectomy and a partial decortication to the right lower lobe were performed. The procedure was uneventful and the patient made an uneventful recovery and was discharged home on the seventh postoperative day with a clear X-ray (Fig. 2b).

Histology revealed lymph nodes to show features of sarcoidosis with no evidence of malignancy.

COMMENT

Complications of mediastinoscopy include haemorrhage, pneumothorax, recurrent laryngeal and phrenic nerve injuries, oesophageal perforation, tracheobronchial laceration and wound infection. Park and associates [2] reported 14 major haemorrhages (0.4%) necessitating additional surgical exploration in the form of a median sternotomy during the procedure for definite control in 3391 mediastinoscopies. The most frequently injured vessels were the aygos vein and the innominate and pulmonary arteries. Only one major haemorrhage was caused by bronchial artery injury. In a series of 324 mediastinoscopies, Urschel [3] reported two major haemorrhages, both successfully controlled by gauze packing. Massive haemothorax requiring a right thoracotomy after mediastinoscopy has never been reported in the literature.

In this case, the patient’s iatrogenic pleural defect had prevented the self-tamponade of the mild venous bleeder after the mediastinoscopy, as the blood trickled into the right hemithorax and clotted. Additionally, the right lower lobe adhesions...
prevented drainage of the blood by the basally inserted chest drain until the blood clotted and formed an organised haematoma.

Surgeons should be cautious if the pleura has been visualised to be opened such that strict haemostasis should be achieved. The usual self-haemostasis that is seen in the majority of cases of mediastinoscopy may not be possible if the pleura is opened as the contained pretracheal plane is now connected with the massive right pleural space. The recognition of such a simple observation can help prevent major potential complications.

Conflict of interest: none declared.

REFERENCES