Traumatic pneumomediastinum, subcutaneous emphysema and bilateral pneumothoraces in a closed chest injury

Mohamed Abu Yousif, Mark Tan
The Queen Elizabeth Hospital, King's Lynn, Norfolk, Gayton Road, PE30 4ET

Introduction

Pneumomediastinum results from air in the mediastinum. Occasionally, it can be caused by blunt chest trauma. It usually presents with severe central chest pain and respiratory distress. Subcutaneous emphysema may also be a feature. A pneumothorax is an abnormal collection of gas in the pleural space. While traumatic pneumothoraces are not uncommon, we report a case of pneumomediastinum, bilateral pneumothoraces and subcutaneous emphysema resulting from a closed, blunt chest injury. To the authors' knowledge there have been no previous reports of this injury.

Case Report

A 65 year old man presented to A&E after been assaulted the night prior. He had clinical signs of a base of skull fracture, but otherwise was haemodynamically stable and not in respiratory distress. Extensive subcutaneous emphysema was noted on the thorax, neck and face. There was no penetration of skin on the thorax or abdomen. Plain chest radiograph was difficult to interpret due to subcutaneous emphysema, however, repeat film on day 2 revealed obvious pneumomediastinum (figure 1). Computerised tomography showed bilateral pneumothoraces and pneumomediastinum with extensive subcutaneous emphysema (figures 2, 3 and 4). These were likely secondary to bilateral rib fractures.
He was managed conservatively with analgesia and close monitoring on the high dependency unit initially. After 7 days, his pneumothoraces, pneumomediastinum and subcutaneous emphysema had reabsorbed. He was discharged after an uneventful recovery.

Discussion

The traditional aggressive approach of early chest drainage in bilateral traumatic pneumothoraces is being challenged with a growing body of evidence to support conservative management providing the patient is not suffering from respiratory distress [1].The theoretical risk of chest drain misplacement into the mediastinum helped to support the decision against chest drain placement. In most patients, pneumomediastinum is treated conservatively. There is some evidence for the use of high flow oxygen in aiding resorption of a pneumomediastinum [2].

Figure 1

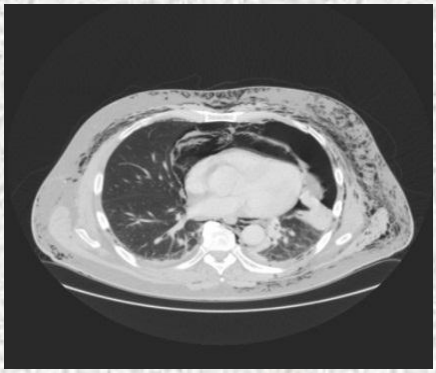

Figure 2

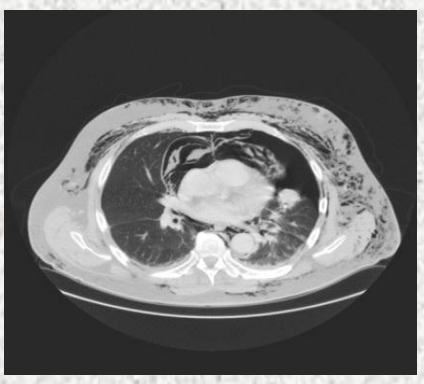

Figure 3

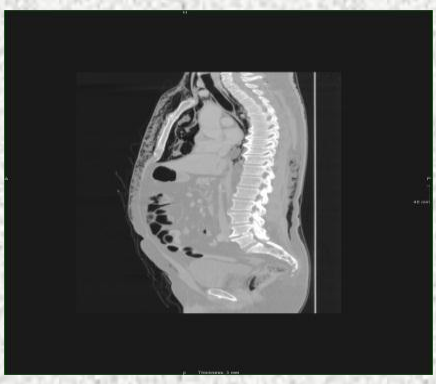

Figure 4

Conclusion

Despite the dramatic appearances of traumatic pneumomediastinum, bilateral pneumothoraces and extensive subcutaneous emphysema, we have presented a case where conservative management of the injuries have been appropriate. A case-by-case basis will need to be adopted by clinicians in the assessment and management of traumatic chest injuries. The authors support conservative treatment of pneumothoraces for patients not in respiratory distress.

References

1. Johnson G. Traumatic pneumothorax: is a chest drain always necessary? *Journal of Accident & Emergency Medicine*. 1996;13(3):173-174.

2. A. Patel, B. Kesler, and R. A. Wise, "Persistent pneumomediastinum in interstitial fibrosis associated with rheumatoid arthritis: treatment with high-concentration oxygen," Chest, vol. 117, no. 6, pp. 1809–1813, 2000. View at Publisher · View at Scopus