INVESTIGATION AND MANAGEMENT OF UNILATERAL PLEURAL EFFUSIONS

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INTRODUCTION

Pleural effusion is the result of the accumulation of pleural fluid in the pleural space. It can be caused by several mechanisms, including increased permeability of the pleural membrane, increased pulmonary capillary pressure, decreased negative intrapleural pressure, decreased oncotic pressure and obstructed lymphatic flow. In patients with a pleural effusion the aim of treatment is to establish a diagnosis as quickly as possible while minimising invasive investigations. The British Thoracic Society (BTS) publishes guidelines for the investigation of a unilateral pleural effusion in adults which is taken as the gold standard diagnostic algorithm (see appendix).[1]

AUDIT STANDARDS

To compare the methods of investigation and management of unilateral pleural effusions at Furness General Hospital, Barrow-in-Furness, with the guidelines from the British Thoracic Society – see algorithm in appendix.

METHODS

An audit was carried out of patients admitted to Furness General Hospital (FGH) from December 2007 to November 2008 with unilateral pleural effusions. Overall, 32 patients with unilateral pleural effusions were identified.

RESULTS

From the clinical history, there were four cases of transudate and 28 cases of exudate. In contrast to the BTS guidelines, all patients with a clinical history of a transudative effusion had attempts at pleural aspiration (one failed tap, one successful aspiration and two chest drain insertions).

Of the 32 patients identified with a unilateral pleural effusion, 16 underwent a pleural tap as their initial investigation, ten had a chest drain inserted, three had unsuccessful attempts at a pleural tap and three patients had no aspiration attempted because they were either too ill or the effusion was deemed to be too small (see figure 1).

The rate of documentation in the notes was 89.7% (26/29) and documentation of fluid colour was 73.1% (19/26).

Eighty-five percent of the fluid samples were sent for protein level, 85% for cytology, 85% for microscopy, culture and sensitivity (MCS), 75% for lactate dehydrogenase (LDH) level, 62% for acid fast bacilli (AFB), 58% for glucose level, 52% for pH level and 32% for gram stain (see figure 2).

Following the initial tap, 14 patients had no diagnosis. Nine of these patients were then referred to a chest physician, and 13 patients had computed tomography (CT) scans of the chest. The final diagnosis following investigations (see figure 3) showed that 28% had lung cancer, 13% had another form of malignancy, 10% had congestive cardiac failure (CCF), 9% had a parapneumonic effusion, 6% had effusions secondary to alcoholic liver disease (ALD), and 3% had an effusion secondary to fibrosis and rheumatoid arthritis (RA). Nineteen percent of patients still had an unknown diagnosis or were awaiting further investigations. Nine percent of patients died before a diagnosis was made.

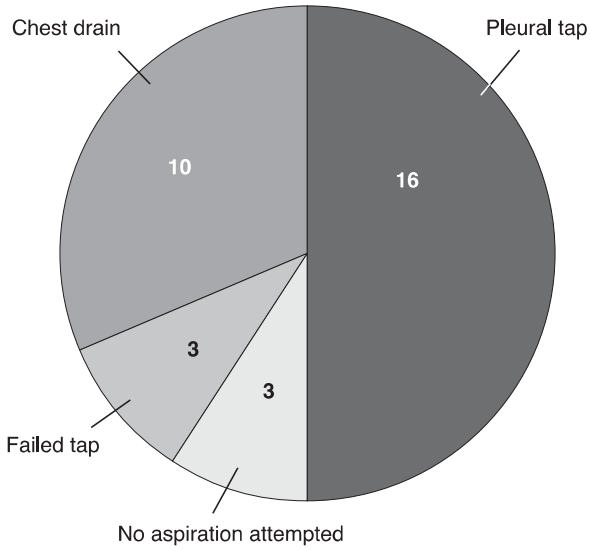
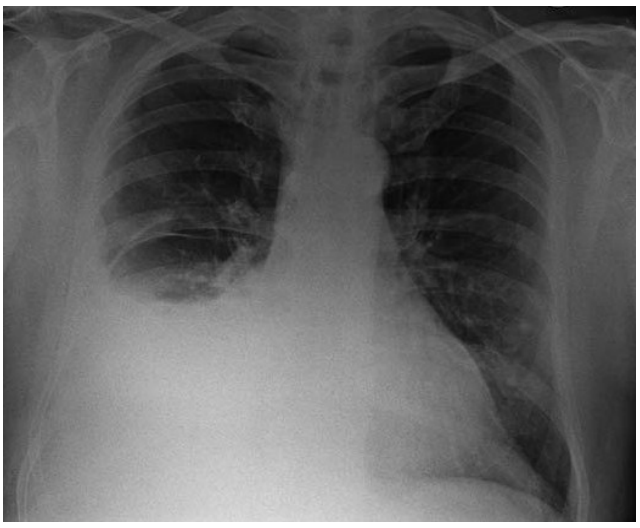


Figure 1 Initial investigation of pleural effusion (n=32)

Only three patients had all stages of their investigations performed according to the BTS guidelines. The rate of diagnosis following initial pleural aspirate was 75%.



Pleural effusion

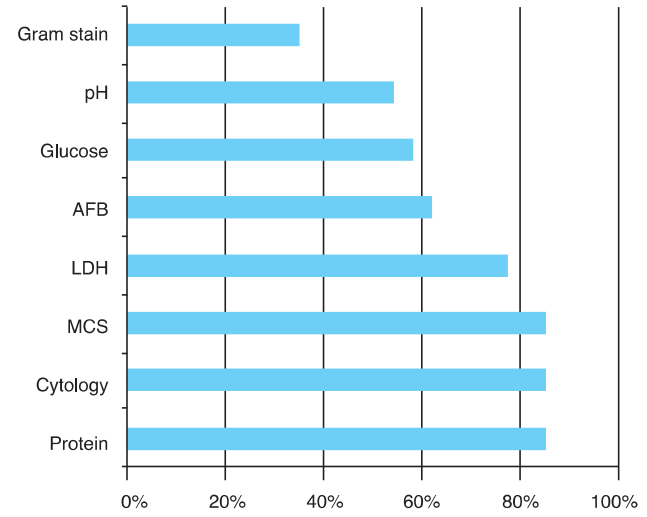


Figure 2 Tests performed of the pleural fluid

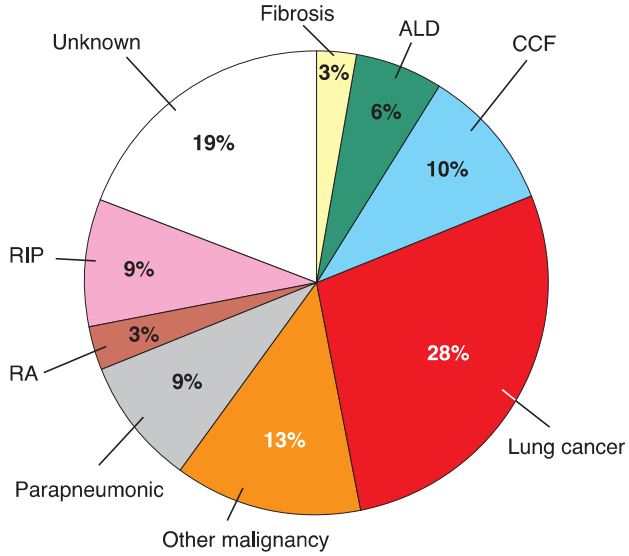


Figure 3 Final diagnosis

CONCLUSIONS

The majority of the investigations and management of unilateral pleural effusions at FGH do not follow the BTS guidelines. There is a need to increase awareness of the BTS guidelines amongst medical staff as this would reduce inappropriate initial investigations such as chest drain insertion, and would expedite the processes involved in reaching a final diagnosis. Pleural aspiration would be the appropriate initial investigation of a unilateral pleural effusion as it is less invasive and has a high success rate for achieving a diagnosis.

REFERENCE

1 Maskell NA, Butland RJA. British Thoracic Society guidelines for the investigations of a unilateral pleural effusion in adults. Thorax 2003;58 (Suppl II):ii8-ii17
Available at:
www.brit-thoracic.org.uk/Clinical Information/ PleuralDisease/ ManagementofPleuralDisease Guidelines/tabid/134/Default.aspx

APPENDIX

Flow diagram of the investigation pathway for a unilateral pleural effusion of unknown aetiology[1]

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