

A Retrospective Audit on Diagnostic Adequacy and Safety of CT Guided Percutaneous Lung Biopsy

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Abstract

Computed tomography (CT) guided lung biopsy is applied to make a diagnosis of pathological masses found on imaging and to plan future management.

The aim of this audit is to assess the performance of CT guided percutaneous lung biopsy at University Hospital Lewisham (UHL) by comparing diagnostic adequacy and complication rates against standards set by the British Thoracic Society (BTS).

This is a retrospective audit observing CT guided biopsies carried out over a twelve month period between April 2019 to March 2020.

Keywords

Interventional radiology, Biopsy, Percutaneous, Complication, Computed tomography

Introduction

Within the field of interventional radiology, Computed tomography (CT) guided percutaneous needle biopsy of the lung is a well-established method for pathologic diagnosis of pulmonary and mediastinal lesions. The use of CT-guided needle biopsy has been widely used with high accuracy and safety.

Pneumothorax and bleeding are the two most frequently encountered complications of transthoracic biopsy [1]. Fatal complications due to systemic air embolism, haemorrhage, or pericardial tamponade have been documented [2], but these are rare.

Method

The parameters observed were compared to standards set by British Thoracic Society for the performance of CT guided lung biopsies. These standards have been approved by the Royal College of Radiologists [3].

Diagnostic adequacy and complication rates were assessed. Other data included were wait times (from the date of procedure request to the date of the biopsy), size and location of the lesion, and patient demographics.

The Standard

Standard set by the BTS are as follows:

Diagnostic adequacy – 90% of samples should be sufficient for histological diagnosis.

Complication rates:

- Pneumothorax < 20%

- Pneumothorax needing drainage < 3%
- Haemoptysis < 5%
- Death < 0.15%

Results

37 patients underwent CT guided percutaneous lung biopsy from April 2019 to March 2020.

53% (n=20) were male. The average age was 68.4 years.

Diagnostic Adequacy

Diagnostic adequacy was 97.3% (n=36). This surpassed the standard set by BTS of 90% by a significant margin.

4 patients (11%) had a negative biopsy for lung cancer.

The mean lesion size was 42.7 mm. Majority of the lesions [43.2% (n=16)] were found in the left upper lobe.

The average wait time from the date of request to the date of biopsy was 10.9 days.

Complications

3 patients (8%) had a pneumothorax complication.

All 3 required chest drain insertion/aspiration. Out of these, 2 patients underwent aspiration and 1 patient required chest drain insertion.

There were no recorded haemoptysis complications or deaths.

Conclusion

At University Hospital Lewisham, CT guided lung biopsy di-

agnostic adequacy was over 90% and pneumothorax rate was less than 20% which meets the standards set by the British Thoracic Society. Pneumothorax needing drainage was slightly below par.

References

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