

Appendix 10

BTS Flexible Bronchoscopy – Suggested guides on how to perform standard procedures

BRONCHOALVEOLAR LAVAGE

This procedure is performed during flexible bronchoscopy and is useful in the diagnosis of pulmonary infections and may be useful in the diagnosis of parenchymal lung disease.

The site of BAL should be guided by available radiology.

- i. Once the site for BAL has been chosen, the bronchoscope should be advanced until the desired site is reached.
- ii. The bronchoscope should then be wedged in to a position where the lumen of the bronchus is occluded by the bronchoscope
- iii. Whilst the bronchoscope is in this position, 60-180mls of normal saline should be instilled in to the segment
- iv. Low-pressure suction should then be applied to retrieve the sample. The aim should be to apply enough suction to retrieve the sample without causing airway collapse.
- v. To ensure an adequate sample is retrieved it is useful to have tubing with several containers in series attached to the suction pump.
- vi. Some centres employ a syringe to retrieve the sample from the same port that the saline is instilled through.

ENDOBONCHIAL BIOPSY

This procedure is performed for visible airway abnormalities, most commonly in the diagnosis of suspected lung cancer. Once again, radiology should be available to plan where sampling should occur. There are several types of biopsy forceps, most commonly alligator or open cup forceps are used. Studies have not demonstrated any advantage of one type of forceps over the other in diagnostic yield.

- i. The bronchoscope should be advanced until the endobronchial lesion is visualised.
- ii. Secure the bronchoscope in this position so that the abnormality can be fully visualised, then advance the forceps in the closed position through the working channel of the bronchoscope.
- iii. Once the forceps are visualised at the distal end of the bronchoscope the forceps can be opened.
- iv. Whilst keeping the bronchoscope still the forceps should be advanced in the open position towards the abnormality.
- v. Once the target is reached the forceps should be closed trapping as much tissue as possible.
- vi. The forceps should be retracted and removed from the working channel of the bronchoscope.
- vii. A “tugging” sensation may be felt whilst retracting the forceps.
- viii. Once the sample has been removed from the forceps, it should be reinserted into the working channel and the procedure repeated 5-6 times.

ENDOBONCHIAL BRUSH

This procedure is performed to gain cytology samples in areas of abnormal mucosa or endobronchial lesions. Although no evidence exists for which procedure is performed first we suggest that endobronchial biopsies are performed prior to brushings.

- i. Once the area of abnormality is detected the bronchial brush is inserted through the working channel of the bronchoscope in its retracted position in its protective sheath
- ii. Once the bronchial brush is seen at the distal end of the bronchoscope the brush can be pushed out (opened)
- iii. The brush is then advanced towards the lesion and moved back and forth over the lesion several times
- iv. The brush is then retracted into its sheath (closed) and removed from the working channel
- v. The procedure is repeated

TRANSBRONCHIAL LUNG BIOPSY

This procedure is performed via flexible bronchoscopy, to aid the diagnosis of parenchymal lung disease. Unlike endobronchial biopsy this procedure can be performed “blind”, without direct visualisation of the lesion. Some centres chose to perform this procedure with radiological guidance (fluoroscopy), diagnostic yield does not differ between methods. Accurate radiological imaging is essential to guide the bronchoscopist to the lung parenchyma with the greatest potential diagnostic yield in non-diffuse interstitial disease.

- i. The bronchoscope is advanced as far as possible into the area of the lung to be biopsied
- ii. The forceps are then inserted into the working channel and advanced as far as possible
- iii. At this point the forceps are retracted 1 cm to avoid a biopsy of the pleura
- iv. Instruct the patient to take a slow deep breath in. The forceps are then opened during inspiration
- v. Instruct the patient to breathe out slowly, whilst the patient is breathing out the forceps are advanced and closed
- vi. The forceps are then removed and the sample retrieved
Warning: Do not take the biopsy if the patient experience pain when forceps is pulled back or removed, pleura could have been caught in the forceps. Open forceps and remove without biopsy.
- vii. The procedure is repeated a further 5-6 times

Clinical Tip: Whilst performing a TBLB co-operation of the patient is necessary. Patients should be able to follow commands and light sedation is therefore advised.



BTS Transbronchial Lung Biopsy Guide



Step 1

Step 1: Advance bronchoscope in to area to be biopsied



Step 2

Step 2: Wedge bronchoscope in to subsegmental bronchus



Step 3

Step 3: Advance biopsy forceps through working channel



Step 4

Step 4: Retract forceps by 1cm



Step 5

Step 5: Open forceps and advance whilst asking patient to breathe in



Step 6a

Step 6a: Magnified view, whilst asking the patient to breathe in advance forceps in open position



Step 6b

Step 6b: Magnified view, close forceps whilst asking patient to breathe out and withdraw



Step-by-step guide

1. The bronchoscope is advanced as far as possible in to the area of the lung to be biopsied.
2. The forceps are then inserted in to the working channel and advanced as far as possible.
3. At this point the forceps are retracted 1 cm to avoid a biopsy of the pleura.
4. Instruct the patient to take a slow deep breath in. The forceps are then opened during inspiration.

Step-by-step guide

5. Instruct the patient to breathe out slowly, whilst the patient is breathing out the forceps are advanced and closed.
6. The forceps are then removed and the sample retrieved.
7. The procedure is again repeated a further 5-6 times.

Whilst performing a TBLB co-operation of the patient is necessary. Patients should be able to follow commands and light sedation is therefore recommended.