EBUS technique

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- Prepare well by examining the CT Thorax carefully.
- Start by preparing the posterior channel of the scope with a small amount of water. Inject enough water for it to come out the end of the scope freely.
- Place the Olympus adapter on the biopsy channel.
- Set the needle up so the sheath is visible but **not obscuring the USS crystal.** This can be adjusted by unlocking the metal screw and advancing/withdrawing the sheath, then locking the screw.
- Set the suction on the syringe by expelling all the air, then locking the 3-way tap and then pulling the plunger and locking it at 10ml.
- Ensure adequate anaesthesia to oropharynx.
- Usual amount of sedation needed is 3mg midazolam and 50mcg fentanyl but this is variable.
- Procedure should be performed with patient in the supine position.
- Once bronchial tree is examined for endobronchial disease then systematically examine the lymph node stations from 11, 10, 7, 4, 2.
- Stations are set out as below: (see figure 1)

11R - **interlobar nodes**, just past the RUL bronchus entrance

10R - **hilar nodes**, just above the RUL bronchus entrance but below the azygous vein

7 - **subcarinal node**, accessible either side of the carina

4R - **right paratracheal nodes**, above the azygous vein but to the right of the trachea

2R - **upper paratracheal nodes** 180 degree to right of 2L

11L - just into the entrance of the LLL bronchus then lateral wall

10L - lateral wall of left main bronchus distally

4L - l**eft paratracheal**, just superior to carina on left wall of trachea

2L - above the aorta (from 4L moving superiorly, PA then aorta then 2L)

- Stations 5 and 6 (aorto-pulmonary window) can be sampled but this may require passing through the pulmonary artery.
- Highest staging nodes sampled 1st to avoid contamination by tumour cells (I.e. N3 nodes first).
- To sample the node, pass the needle sheath down through the biopsy channel and then lock it in place.
- Ensure the sheath is easily visible and hasn't moved from original position.
- When the node to be sampled is in view, ensure it is in the middle of the picture and observe the biopsy guide line. Move the wrist fractionally to ensure the node is at its maximal size.
- Use the depth guide to gauge the distance you need the needle to travel. The default distance is 2cm (with the safety catch in place). If the length needs to be shorter for smaller nodes then unlock the safety catch and lock it at the required length by using the upper border of the lock.
- Once the safety lock is released and set at distance then a firm fast snap of the wrist is required to pass the needle through the bronchial wall into the node. *Pulling the stylet back fractionally sometimes aids passage though the mucosa.*
- *Once in the node, advance the stylet to get rid of endobronchial matter.*
- Then, whilst in the node, withdraw the stylet and apply the suction.
- Move the needle from one edge of the node to the other 15 times and once completed move the needle to the middle of the node and remove the suction.
- Withdraw the needle so it **clicks** in place and then lock the needle with the safety catch and remove the sheath.
- The needle then needs pushing out into the cytolyte and then the stylet passed into the needle to push the aspirate out. The passage of the stylet is easier if it is moist with saline. The needle is then flushed with a small amount of cytolyte solution into the sampling pot.
- The needle is then cleaned into separate pot with saline used to flush it.

- The stylet is then placed back in the needle and the suction syringe reset.
- Each nodal station should be sampled 4 times (or bronchoscopist is happy with quantity/quality of the cores)
- An extra pass should be performed for AFB if not definitively cancer.
- REMEMBER TO SAMPLE HIGHEST STAGING NODES FIRST.