



Inner Spaces

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Special points of interest:

- Subcarinal lymphadenopathy occurs commonly with conditions such as tuberculosis, sarcoidosis & lymphoma
- Necrosis in a lymph node in the correct clinical setting is often diagnostic of tuberculosis
- Subcarinal lymph node biopsy is performed using an extrapleural approach from the posterior aspect.
- The complication rate is negligible

Chest - Subcarinal Lymph Node Biopsy

Subcarinal lymphadenopathy occurs commonly in many pathologies, especially tuberculosis, sarcoidosis and lymphoma. It may either be part of a generalized lymphadenopathy in the chest or may occur on its own or with just hilar adenopathy.

In India, one of the commonest confounding presentations is that of PUO, i.e. pyrexia of unknown origin. Often times, the cause is unknown even after a battery of tests. Either due to an appearance of possible adenopathy on a chest x-ray or as part of a routine chest, abdomen & pelvis CT, lymphadenopathy is diagnosed on a CT chest. If the lymph nodes are necrotic, in the correct clinical setting, in patients under the age of 35 and without a known primary neoplasm, a diagnosis of tuberculosis can almost certainly be made.

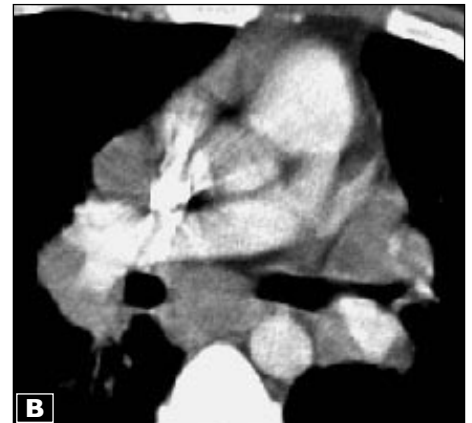
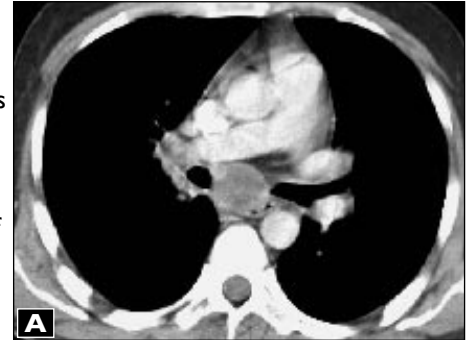
Many times however the lymph nodes are non-necrotic or the patients are older or the necrosis involves less than 75% of the lymph node, or the clinical picture is very atypical. In such situations, it is necessary to get a tissue diagnosis.

If there is an easily accessible para-aortic lymph node, an anterior trans-thoracic biopsy can be performed. However in many situations, the only accessible lymph node is an enlarged subcarinal lymph node. It then becomes necessary to biopsy this lymph node so as to make the correct diagnosis.

Subcarinal lymph node biopsy can often be performed using an extrapleural approach. The procedure is as follows

1. Pre-procedural evaluation is performed especially of the coagulation profile. If this is normal, the procedure is scheduled.
2. The patient is placed in the prone position
3. After identifying the site of biopsy, a needle is advanced into the space between the pleura and the vertebral body
4. Saline mixed with lignocaine is injected into this space to separate the pleura from the spine.
5. Once a tract is created, a cannula is inserted upto the enlarged node.
6. Through the canula, multiple biopsies can now be obtained.

We have performed this procedure in 192 patients over the last six years. The procedure has been technically feasible in all patients (100%). The success rate for obtaining a diagnosis on the sample obtained has been 95% (183/192). Of these, the majority of patients had non-caseating granulomatous disease (111 patients - 58%). 26 patients had frank pus which was aspirated from necrotic nodes (14%). Twenty one patients (11%) had sarcoidosis, 17 patients (9%) had lymphoma and 8 patients (3%) had metastases. No diagnosis was possible in 9 patients. Ten patients had complications; minor pneumothorax was seen in 7 patients and severe pain at the site due to nerve injury in 3 patients.



Necrotic (A) adenopathy in tuberculosis and non-necrotic adenopathy (B) with bilateral hilar adenopathy in sarcoidosis.



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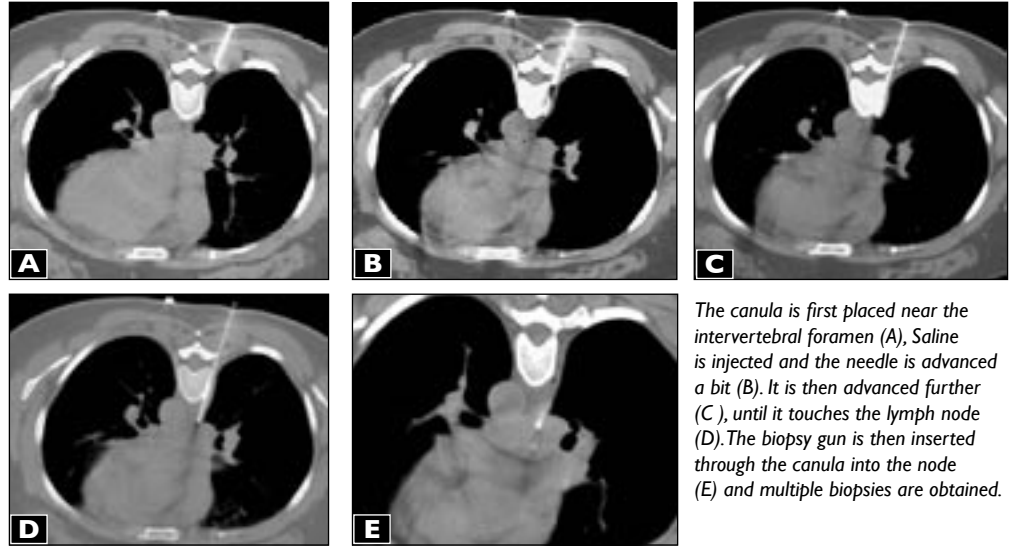
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The complications that can occur are as follows:

1. Bleeding at the site of puncture
2. Bleeding in and around the lymph node
3. Intercostal neuralgia due to injury to the nerve
4. Pneumothorax

We did not question the patients after they left the centre to assess the remote rate of intercostal neuralgia. Three patients however had moderate pain for at least two hours that responded later to anti-inflammatory drugs. Seven patients developed small pneumothoraces since a good track could not be obtained. All these patients were observed and no further action was taken. Six patients had mild peri-nodal hemorrhage, which was also uneventful.



The canula is first placed near the intervertebral foramen (A), Saline is injected and the needle is advanced a bit (B). It is then advanced further (C), until it touches the lymph node (D). The biopsy gun is then inserted through the canula into the node (E) and multiple biopsies are obtained.

BIOPSIES IN GENERAL

- It is preferable to perform tru-cut biopsies as compared to FNACs, FNABs
- A gun-canula technique is the best as multiple samples can be obtained with multiple passes without trauma to the organ
- The coagulation profile must be normal
- CT-guidance is the best for the chest, though in the abdomen, both CT and USG can be used depending on personal preference
- Microbiological samples must be obtained as well, whenever infection is a possibility.

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