Inner Spaces
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Points

- CT-guided biopsies should yield a better than 90% diagnostic success rate
- Doing this, requires strict adherence to protocol and technique
- Difficult biopsies then become easier to perform

What Does it Take to Do a Good CT-Guided Biopsy?

CT-guided biopsies are routine procedures, and performed in many centres. However, to obtain diagnostic success rates of over 90%, requires a specific methodology to be in place.

There are certain rules to be followed

1.Core biopsies not FNACs

There is still a tendency in many places to put a thin needle and to aspirate for cytology. The yield in such situations is usually around 50% and if the procedure has to be repeated, it leads to a significant wastage of time, effort and money. The complication rates are virtually the same whether we do core biopsies with 20G guns or FNACs with 22G needles

2. Proper pre-biopsy evaluation

This is a must. It is important to evaluate the entire case in detail. Very often, a biopsy can be obviated with just a careful re-evaluation of the case. If the CT scan or MRI is more than 6 weeks old, it should be repeated. At least 10-20% of patients who come to us for biopsy referral land up getting a diagnosis, without a biopsy.

3. In-room foot pedal or CT-fluoroscopy (Fig. 1)

It is important to have total control while positioning the needle during biopsies, especially since CT scan is not a real-time procedure like USG. To enable this accurately and to reduce complication rates as well as to improve success rates, it is necessary for the radiologist to remain inside the gantry-room with the patient, controlling the scanning process with a foot pedal.

Fig. 1

Fig. 1: Biopsy method. One foot (arrow) controls the scanning process with a foot-pedal. The in-room monitor (arrowhead) allows the doctor to see the images virtually immediately, allowing excellent control

The online version is up at ***http://www.jankharia.com/innerspaces/current.htm***

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4.New biopsy guns and gun-canula technique (Fig. 2)

The use of new biopsy guns improves yield and reduces the complication rate that occurs with the use of blunt, old guns, especially in the lungs (pneumothorax, bleeding, etc).

If a biopsy gun is being used, it should be a gun-canula. With this, a canula is introduced into the lesion once, through which a biopsy can be obtained multiple times without increasing the complication rate.

5.Sample handling

The sample should not be split into multiple parts and should all be sent to the same pathologist to avoid any confusion in the reports later.

6.Pathologist

A good pathologist improves the success rate. Especially important is the way the small cores are handled by the technicians and the way in which the blocks and slides are made.

Strict adherence to such techniques allows us to perform more and more complicated biopsies and procedures, such as

1.Subcarinal biopsies, using an extrapleural technique (Fig. 3)

2.Biopsies of the parapharyngeal space and skull base (Fig. 4)

3.Transpedicular spine biopsies (Fig. 5)

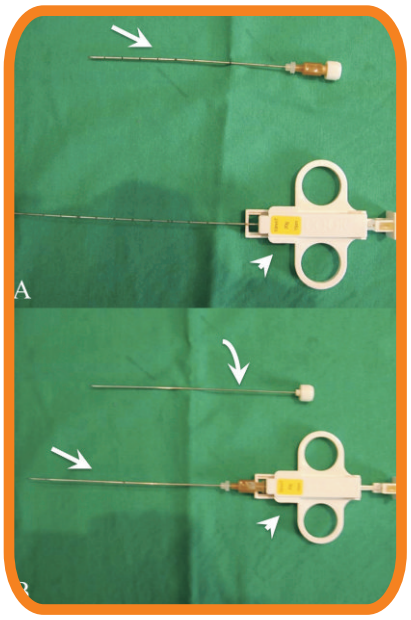

Fig. 2

Fig. 2 (A,B): Gun-canula technique. The canula (arrow) with its stylet and the gun (arrowhead) are separately seen in A. Once the canula is in the patient, the stylet (curved arrow) is removed and the gun (arrowhead) goes through the canula (arrow), to allow multiple biopsies, but with a single patient/organ puncture.

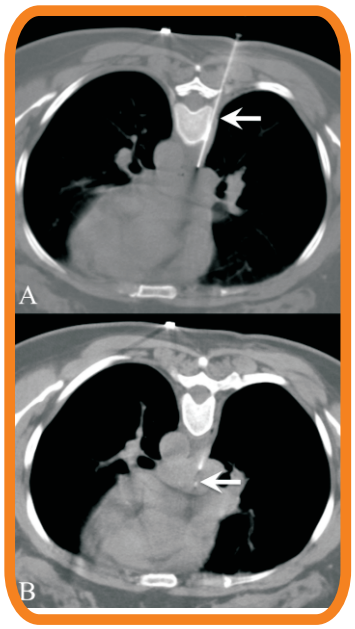

Fig. 3

Fig. 3 (A,B): Extrapleural subcarinal lymph node biopsy. In this patient with an enlarged subcarinal lymph node, the canula (arrow in A) is advanced upto the node, through the extrapleural space, by separating the pleura from the vertebral body after injecting saline (A). The tip of the gun (arrow in B) is seen projecting through the canula tip within the lymph node (B).

Fig. 4

Fig. 4: Parapharyngeal space biopsy. This patient presented with a parapharyngeal space mass. Using an anterior approach through the buccal space, a needle (arrow) was introduced into the mass and a biopsy was obtained. The lesion was an aggressive adenocarcinoma.

Fig. 5

Fig. 5: Transpedicular vertebral biopsy. In this patient, proven to have metastatic adenocarcinoma, the biopsy needle (arrow) is seen within the vertebral body osteolytic lesion, approached through the vertebral pedicle.

Designed by

MKIS

Main Clinic
Bhaveshwar Vihar,
383, Sardar V. P. Road,
Mumbai - 400 004
Tel : 022-6617 3333.
Email : info@jankharia.com

Cardiac & Ultra fast CT scan
Nishat Business Center, Arya Bhavan, 461, Sardar V. P. Road,
Mumbai - 400 004
Tel : 022-2389-3551
Fax : 022-2382-9595

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Tel: 6615 4151, M: 97692 54151

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