

Biopsy

Dr.mohamad habash

Definition

Retrieval of part or all of tissue or organ for histological .evaluation to ascertain future management

The removal of cells or tissues for examination by a pathologist. The pathologist may study the tissue under a microscope or perform other tests on the cells or tissue

Indications

Determine tissue diagnosis where clinical diagnosis is in-1

.doubt e.g. Tru-cut liver biopsy for cirrhosis of unknown etiology

.Determine whether the tumor is benign or malignant-2

.Ascertain the degree of differentiation (grade)-3

Ascertain extent of spread of disease (stage)-4

e.g. sentinel LN biopsy in melanoma

Determine the tissue of origin-5

Determine different therapeutic pathways-6

e.g. LN biopsy in lymphoma

Surgical resection margins provide critical information e.g.-7

complete excision of the lesion (clearance of the margins)

Types of biopsy

Cytological biopsy (1

❑ **FNAC**

❑ **Exfoliative cytology**

❑ **Brush cytology**

❑ **Fluid spin cytology**

Histological biopsy (2

Incisional biopsy

❑ **Core biopsy**

❑ **Curettage**

❑ **Open incisional biopsy**

❑ **Frozen section biopsy**

Excisional biopsy

Fine needle aspiration cytology

:Uses

*Directly into a lump e.g. thyroid lump FNA **

*Under U/S control e.g. breast lump FNA **

*Under CT guidance e.g. liver lesion FNA **

Advantages

Simple and minimally invasive

Cheap

Rapid result

Easily repeatable

Highly accurate for the diagnosis of a palpable mass or
.radio graphically visible lesion, false positive results are rare

Disadvantages

Gives cytological, but not architectural histology <<<

Potential for spread of malignant cells <<<

Sample may be insufficient, or only blood may be aspirated <<<

May alter morphology of lesion for subsequent imaging <<<

Depends on expertise of cytologist- may be operator <<<
dependent

Exfoliative cytology Cancer cells are shed from the surface of neoplasms arising in epithelial surfaces these cells can be sampled then smeared on a slide and examined for cytology, such as slide imprints from nipple in Paget's disease, cervical .cytology or sputum cytology

Brush cytology By collecting exfoliated cells using a brush, from . intraluminal lesions

Uses

Endoscopically for GI lesions •

At ERCP for biliary or pancreatic lesions •

Bronchoscopically for pulmonary or bronchial lesions •

Fluid spin cytology Used for pleural fluid, ascetic fluid, bronchoscopically for sputum and finally for urine, the latter is especially useful in monitoring patients with known urothelial .tumors

Core biopsy Uses a circular cutting device to retrieve a core of .tissue, either manually or with a trigger device (Tru-cut®)
As FNA may be direct, U/S or CT controlled. *Useful for breast, liver .and LN biopsy*

Advantages

- Simple, easily repeatable
- Provides a core of tissue for architectural and cytological evaluation

Disadvantages

- Insufficient sample
- May cause bleeding
- May be painful or distressing to patient
- Potential for spread of malignant cells
- May alter morphology of lesion for subsequent imaging

Incisional biopsy

In incisional biopsies, only a portion or wedge of the lesion is sampled, and therefore the procedure is strictly of diagnostic nature

Advantages

- .May be performed endoscopically , laparoscopically or open

- .May be useful when other biopsy techniques have failed

Performed when the lesion is too big or too fixed to allow complete excision

Some can still be performed under local anesthesia in an out-patient setting

Frozen section Is when fresh tissue (in a dry container without formalin) is sent for rapid histological assessment (within 10-15 min), during the course of an operative procedure. The tissue is frozen in liquid nitrogen then rapidly sectioned and examined, and .the result phoned back to the theatre

Uses

To assess operability of tumor e.g. to examine LNs in *

pancreatico-duodenectomy

To Localize tissues e.g. parathyroid glands *

To assess tumor margins *

To assess malignant status where pre-operative diagnosis is in *

.doubt and more radical surgery may be required

Disadvantages

☐ Operator and pathologist dependent

☐ Occasional false positive and false negatives

☐ May delay surgical procedure

Excisional biopsy

In excisional biopsies, the entire lesion is removed, usually with a rim of normal tissue (safety margin), and therefore the procedure serves both diagnostic and therapeutic function ,The decision whether to perform an incisional or an excisional biopsy depends primarily on the size, of the lesion; the smaller it is, the more logical to take it out completely when first encountered. Skin and .superficial lesions are usually managed by excision too Resectional biopsy may involve lobectomy, hemicolectomy or .thyroidectomy

Thank you