

Tumor Work up

1. Clinical Examination: Look for common primary site.

Thyroid, Breasts, Chest Liver, Kidney, Rectal, Skin

2. Hematological Investigations

Basic blood tests:

FBC

ESR

Biochemistry: Bone profile: Ca, PO₄, Alkaline Phosphatase

LFT [liver function test]

Thyroid function tests

PSA [Prostate]

Serum Electrophoresis

3. Urine: Bence Jones in Multiple myeloma [24 hours urine collection]

4. X ray

Location: Bone and site

Zone of transition

Internal characteristics: Lysis or sclerosis

Periosteal reaction

Soft tissue component

5. Chest X ray: chest secondaries

6. Bone Scan

Sensitive but not specific

Negative in Myeloma

Useful in Secondaries

Gallium more sensitive than Tc in primary bone tumor

Usually benign tumors are cold (Exceptions: Osteoid osteoma, Fibrous dysplasia)

7. CT scans

Useful when pelvis and scapula

Subtle cortical changes or calcification

Can detect: 5 mm soft tissue

CT lung or staging for investigation abdominal, pelvic, or retroperitoneal tumors

8. MRI

T1 and T2

T1 Anatomy and T2 Pathology

T1 is good for marrow extension

Soft tissue definition

Extra-osseous extension

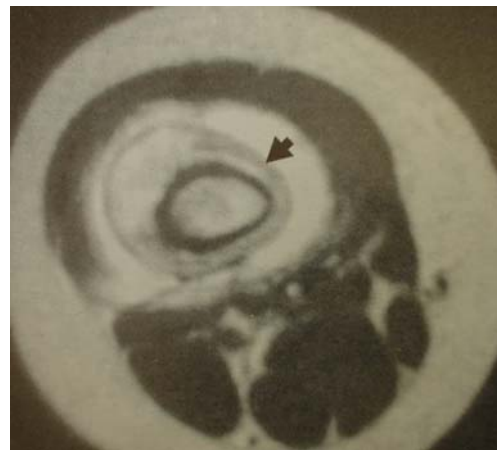
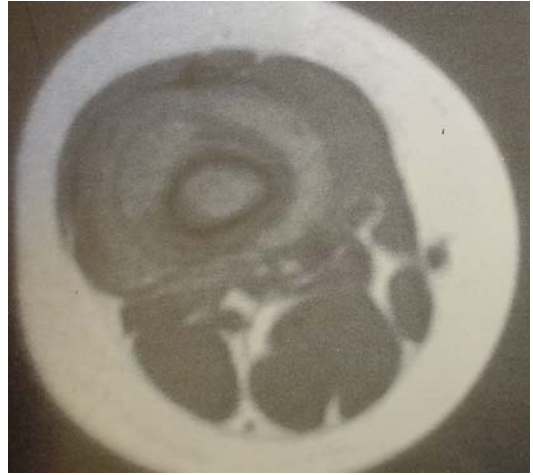
Joint involvement

Skip lesion

Oedema surrounds malignant lesions

and is unusual around benign tumors

Enhanced by Gadolinium



9. Angiography

- a. Determination of relationship of tumor to vascular structures
- b. Embolisation of vascular tumor prior to surgery
- c. Intra-arterial chemotherapy

10. Biopsy

1. Complete radiological staging before biopsy
2. Thorough planning: discuss with pathologist and radiologist
3. Discuss with tumor centre
4. Appropriate biopsy [Neele or core or open]
5. Surgical technique

Open biopsy: Gold standard for any malignant lesions

1. Longitudinal incision
2. Sharp dissection should proceed directly to the tumor, through the compartment and, not between the muscles
3. Avoid all major NV structures to prevent contamination
4. Biopsy material: Block of reactive tissue, pseudo capsule, capsule, and tumor
[in a sterile bottle without formalin] and transferred straight to lab to check adequacy of the sample].
5. Tourniquet should be used without exsanguinations.
6. Achieve hemostasis
7. Drain is brought out through the wound
8. Culture all tumor and biopsy all infection

Needle biopsy

Needle tract should be positioned to enable excision at time of definitive surgery

Indicated in superficial soft tissue tumors and in tumors with soft tissue extension

Fine needle biopsy: in some centres

Cannot do on hard tissue

Relies on cytological interpretation by an experienced pathologist

Accuracy 65-80%

Does not allow for immunohistochemical analysis

Sampling error

Fine needle aspiration Cytological assessment

Cytogenetics, immunochemistry not possible

Core needle biopsy

Takes more tissue and allows for immuno-histochemical analysis

Accuracy: 75-95%

Tissue obtained from necrotic portion tumor

Frozen section

Able to determine if specimen is adequate or representative

Can decide if lesion is inflammatory and needs culturing

Can determine if there is need to perform further investigation

Mankin in 1982

Biopsy by a referral surgeon Vs definitive tumor surgeon

In the hands of referral surgeon

20% major error in diagnosis

10% technical problem

20% optimum results not achieved

5% unnecessary amputation

10% Prognosis adversely affected

5 fold increase in problems related to biopsy by a referral doctor

Mankin in 1996

Findings were similar to the first study