

Percutaneous Image Guided Bone Biopsy In Diagnosis Of Neoplastic Bony Lesions

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- **OBJECTIVES:** Tissue diagnosis of a musculoskeletal mass is necessary before the institution of definitive treatment. Acquiring tissue for histopathologic diagnosis Tissue sampling can be accomplished with either Open surgical biopsy or Percutaneous image guided biopsy (CNB,FNAC). The choice of technique balances the invasiveness, risk, and cost of the procedure against the total amount of tissue obtained. Percutaneous image-guided musculoskeletal biopsies provide an accurate, rapid, and cost-effective method for helping clinicians diagnose benign and malignant musculoskeletal lesions . *The aim of this study was to assess the value, clinical utility and diagnostic yield of percutaneous image-guided biopsy in diagnosis of neoplastic bony lesions.*
- **MATERIAL AND METHODS:** The study was conducted on 40 patients presenting with bone tumors referred to the Orthopedic Surgery or Diagnostic and Interventional Radiology departments at Alexandria University Hospitals. From April 2011 to September 2012, 40 consecutive Percutaneous image-guided biopsies were performed in 40 patients (31 males and 9 females) presenting with neoplastic bony lesions.
- **RESULTS:** The mean patient age was **45.4** years and the commonest age group was between 61-70 years. **Tissue type:** Most of biopsied lesions were osteolytic associated with extra osseous soft tissue component (70% [28/40]) that was targeted with biopsy. Ten lesions showed sclerotic matrix (25% [10/40]) while only two lesions were osteolytic (5% [5/40]). **Type of biopsy :** In present study we referred to trephine needles to biopsy 10 bony lesions (25% [10/40])and the remaining 30 lesions (28 osteolytic lesion with soft tissue component and two osteolytic with bony shell) semi automated cutting needles biopsy were used in 28 lesions 70% [28/40] and fine needle aspiration was used in 2 lesions (5%[2/40]). Diagnostic yield Bony lesions was in sclerotic 100%[7/7], osteolytic 80%[4/5] Osteolytic with extra-osseous soft tissue component 85.7%[24/28]. Diagnostic accuracy: The overall Diagnostic accuracy in our study was 85%. Primary malignant 100%, Metastasis 100% and Benign 83.3% .

CONCLUSIONS: From this study, we concluded that percutaneous image guided bone biopsy:

- Is a safe, easy and effective technique for the diagnosis of neoplastic bony lesion.
- It can be performed on an outpatient basis under local anesthesia, thus saving the cost of hospitalization.
- It has a high diagnostic yield
- The internal consistency of the lesion will guide the choice of the type of needle.
- For sclerotic lesions, biopsy can be done only with trephine needle with drill tip , while osteolytic bony lesions could be access either directly with trephine needle or with a coaxial system

- For lesions with extra-osseous soft tissue component, biopsy of the soft tissue with cutting needles 16 or 18 gauge is always enough to get an adequate specimens without targeting the bony lesion itself
- Image guidance by CT/Fluoroscopy is mandatory in deeply seated inaccessible lesions rather than sclerotic and osteolytic lesions with outer intact bony shell
- Ultrasound is best image guidance in osteolytic lesion with extra-osseous soft tissue or with interrupted or no outer bony shell
- Proper planning, and selecting the appropriate approach, result in a low complication rate.