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Yield of percutaneous core needle biopsies in musculoskeletal tumours

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Abstract

Background: A biopsy is a crucial step in the diagnosis of musculoskeletal tumours. Percutaneous core needle biopsy (PCNB) was developed as an alternative technique to open biopsy. The diagnostic yield and accuracy are comparable, with an added benefit of low complication rates.

Objectives: To determine the diagnostic yield of PCNB in musculoskeletal tumours and to determine the commonest tumour diagnosed at Chris Hani Baragwanath Academic Hospital (CHBAH). To document complications related to PCNB in our context.

Study methods: We retrospectively reviewed clinical records of 49 patients who underwent PCNB for a musculoskeletal tumour at CHBAH between January 2016 and January 2022. Histopathological findings were used to establish the diagnostic potential of PCNB. These findings were compared to a final resection specimen or an alternate tissue biopsy result when available. Procedure-related complications were documented when present. Statistical analysis of data was performed using STATA software package version 11 (StataCorp, College, Texas, United States of America, July 2009).

Results: Overall, diagnostic yield was 81.6% (40 of 49). When distinguished, the yield was 81.3% (39 of 48) and 100% (1 of 1) for bone and soft tissue tumours, respectively. Of the 49 PCNB, 22 had a comparative specimen with a diagnostic accuracy of 86.4%. Sensitivity and specificity were 89.5% (17 of 19) and 100% (3 of 3), respectively. The commonest musculoskeletal tumour diagnosed was osteosarcoma (n = 20). Complication rate of PCNB was 2.0% (1 of 49), consisting of post-biopsy haematoma formation.

Conclusion: PCNB technique is effective, safe and accurate in bone tumours. It is associated with low complication rates and osteosarcoma remains the commonest bone sarcoma.