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Clinic-based biopsy with a small curette: is it a reliable and safe option in extremity tumours?

Waseem Ahmed, Masood Umer, Yasir Mohib, Rizwan Haroon Rashid

Abstract

Objective: To establish the diagnostic accuracy and safety of clinic-based biopsy done with a small curette.

Methods: The retrospective study was conducted at Aga Khan University Hospital Karachi and comprised data of patients who underwent biopsy procedure of extremity tumours in clinic under local anaesthesia from July 2009 to June 2012. Patients who underwent the procedure in operating room under general anaesthesia were excluded and so were those with insufficient or missing information, or those who had the final procedure done elsewhere. Clinical parameters were evaluated and histo-pathology was compared with the final resected specimen.

Results: The mean age of the 51 patients in the study was 32 ± 19.6 years. Lower extremity was involved in 37(73%) cases, and the most common tumour was osteosarcoma in 9(17%). Biopsy was inconclusive in 2(4%) patients, leaving the clinical accuracy to be 94%. The cost of clinic-based biopsy was at least seven times less than those done in the operating room under general anaesthesia.

Conclusion: Biopsy done in a clinic with a small curette is accurate, safe and cost-effective method.

Keywords: Biopsy, Histopathology, Clinic biopsy, Curette. (JPMA 65: S-205 (Suppl. 3); 2015)

Introduction

The biopsy is a critical step in the diagnosis of neoplastic, inflammatory, infectious and reactive lesions of the musculoskeletal system. Open, incisional biopsy is traditionally considered to be the gold standard, but it needs to be done in the operating room (OR) under general anaesthesia. The overall diagnostic accuracy of open biopsies ranges from 91% to 96%.¹ Complications of this procedure includes seroma, hematoma, infection, wound dehiscence with tumour seeding the biopsy tract and fracture, and it tends to occur more frequently after open or excisional biopsies. The complication rate of percutaneous techniques ranges from 0% to 1% and of surgical open biopsies from 4% to 19%.²

As an alternative to open biopsy, percutaneous techniques, including core needle biopsy (CNB) and curette biopsy, have been developed. These techniques can be performed in clinic under local anaesthesia when the lesion or pertinent landmarks are palpable or in the radiology suite using fluoroscopy, computed tomography (CT), magnetic resonance imaging (MRI), or ultrasound (US).³ Advantages of clinic-based biopsy over open or image-assisted biopsies include decreased cost, unnecessary scheduling delays, lower complication rates, and smaller incisions that may be easier to incorporate into the definitive surgical resection.⁴ Problems with

needle biopsy may include insufficient samples with inconclusive results, which ultimately leads to a second procedure of open biopsies preferably in OR, further adding to the financial burden.⁵

Based on all these issues, including the financial burden on the poor patient undergoing these investigations as well as interventions in the form of neoadjuvant therapy, surgeries and adjuvant therapies, clinic-based biopsy is a safe and cost-effective method confirming the diagnosis.⁶

The current study was planned to establish the diagnostic accuracy and safety of clinic-based biopsies done with a small curette.

Material and Methods

The retrospective study was conducted at Aga Khan University Hospital and comprised data of patients who underwent biopsy procedure of extremity tumours in clinic under local anaesthesia from July 2009 to June 2012. Patients who underwent the procedure in operating room under general anaesthesia were excluded and so were those with insufficient or missing information, or those who had the final procedure done elsewhere.

All biopsies had been performed by consultant orthopaedic oncologists, using 2% of lidocaine solution for local anaesthesia infiltration. Stab incision with No.11 blade was used to incise the skin and to breach fascia. Then curette was advanced to get the final specimen. Multiple specimens were obtained using the same incision. Specimens were processed routinely for

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histopathology and immuno-histo-chemical studies were performed at the discretion of the interpreting pathologist. Clinical parameters in terms of age, gender, site and tissue involvement, grade of lesion, and complications were noted. Clinical histopathology was compared with the final resected specimen.

Results

A total of 120 medical records were reviewed, but 53(44%) patients who had undergone the procedure in OR under general anaesthesia were excluded. Another 16(13) had to be excluded as they had either insufficient or missing information or had their final procedure done elsewhere. The final study sample, as such, stood at 51(42.5%).

The median age of the sample was 29 years (range: 16-58 years). There were 27(53%) males and 24(47%) were females. Lower extremity was involved in 37(73%) and the upper extremity in 14(27%) patients. Overall, 37(72%) were malignant and 14(28%) were benign lesions. In 35(69%) cases, lesion was arising from soft tissues and 16(31%) patients had the lesion arising from bone. The most common tumour was osteosarcoma in 9(17%) followed by Ewings in 8(15%), synovial sarcoma in 7(14%) and spindle sarcoma in 3(7%). The rest of the tumours included malignant fibrous histiocytoma (MFH), chondrosarcoma, liposarcoma etc.

Biopsy was inconclusive in 2(4%) patients, leaving the clinical accuracy to be 94%. These patients then underwent re-biopsy in OR but histo-pathological diagnosis of 1(2%) patient could not be established.

The only complications encountered were surgical-site infection in 2(4%) patients which was managed successfully with antibiotics.

Discussion

The optimal technique for the biopsy of malignant neoplasms of soft tissue and bone remains controversial and is often dictated by the preference of the operating surgeon.⁷ Although curette biopsy has been more widely used in recent years, but the literature for diagnostic yield and accuracy remains quite variable.⁸

Skrzynski et al.⁵ prospectively analysed 62 patients undergoing outpatient CNB and reported an overall diagnostic accuracy of 84%, with 13% biopsies considered

non-diagnostic, compared with 96% accuracy in a contemporary cohort of patients undergoing open biopsy. In a series of CNB, Heslin et al.⁹ obtained adequate biopsy samples in 93% and established a correct diagnosis of malignancy in 95%, histology in 75%, and grade in 88%, and the results were comparable to their open biopsy results for malignancy and grade. In an analysis by Ball et al.¹⁰ of 52 CNBs, the overall accuracy was 98%, but inadequate or non-diagnostic biopsy specimens were excluded from statistical analysis.

In our study, clinic-based biopsies showed a 94% accuracy rate for malignancy and was diagnostic and accurate for histopathological diagnosis. Our findings, thus, are consistent with the aforementioned results of clinic-based biopsies.

Conclusion

Clinic-based curette biopsy is a cost-effective and accurate method of diagnosis with negligible complication rates in the hands of trained orthopaedic oncologists.

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