



FC-055

Comparison of fine needle aspiration and core needle biopsy in the diagnosis of bone tumors

P. Cardoso, J. Esteves, V. Oliveira, F. Moreno

Centro Hospitalar do Porto, Hospital de Santo Antonio, Porto, Portugal

Introduction: Image-guided core needle biopsy (CNB) is currently considered the gold standard for bone tumours diagnosis although fine needle aspiration is gaining popularity. Much literature exists regarding the diagnostic yield and accuracy of these techniques individually but none compares the two parameters in the same tumour. It was asked if FNA could identify malignancy, establish an exact diagnosis, enable the appropriate treatment and substitute CNB in bone lesions.

Methods: Ninety four patients with bone lesions were prospectively studied performing a CBN followed by a CBA. The chosen route was anesthetized and an 8-gauge needle biopsy was introduced 3-4 times. Immediately after collecting the sample, a 22-gauge needle was introduced through the path created by de tricut and a cytoaspiration was performed. In the majority of these cases a diagnosis of bone tumour was necessary to start treatment but in a few the exclusion of malignancy was also mandatory. There were 61 males and 33 females. The average age was 53,5 years (12-86). All biopsies were performed under image guidance: 64 with CT-scan and 30 with radiology. The diagnostic yield and accuracy were evaluated. A diagnosis was considered to be accurate when it was confirmed by incisional biopsy, surgical specimen or ulterior clinical and imaging evaluation since in some benign tumours, metastases and hematopoietic lesions no histological confirmation is needed. The minimum follow-up was 2,5 years. Exclusion of malignancy or infection, when clinically suspected, was included in the group of diagnosis.

Results: In 92 patients (97,9%) a diagnosis was obtained with CNB. Of these, 91 (98,9%) were accurate with 38 being confirmed by histology and 53 by clinical and imaging elements. Diagnoses were: 29 metastases, 25 primitive malignant tumours, 14 benign tumours, 12 hematologic diseases and 5 infections. In 7 cases pathology could be excluded. Only 1 benign lesion was misdiagnosed - a low-grade chondrosarcoma of the proximal femur was assumed as an osteochondroma. With FNA 70 diagnoses were possible (77,7%). Two of them were wrong - a low-grade chondrosarcoma of the scapula was assumed as an enchondroma and a spinal discitis was initially interpreted as a giant cell tumour. Accurate diagnosis rate was 97,1%. With this technique, 15 results (16%) were completely inconclusive but in 9 cases, although diagnosis was not achieved, the pathologist could differentiate a benign lesion (n = 5) from a malignant one (n = 4) and this differentiation was correct in all cases. The diagnostic yield was 97,9% for CNB and 77,7% for FNB. The diagnostic accuracy was 98,9% and 97,1% respectively. There were no complications.

Discussion: The accuracy of the two techniques was similar showing the reliability of FNA in the diagnosis of all type of bone tumours. However, certain lesions can reduce the diagnostic yield: cysts, lesions with the surrounding cortex intact and lesions with a dense calcified matrix. Among the 24 non diagnostic FNA it was possible to find at least 18 lesions with these characteristics. This fact contributed for the comparative low diagnostic yield of FNA. In this study, the quantity and quality of the sample was decided by the executant alone without the preliminary evaluation of the pathologist and the repetition, if necessary, of the procedure. This preliminary evaluation would substantially improve the diagnostic yield the FNA. Nonetheless, in the present study FNA would allow for the initiation of treatment in all 70 patients with a diagnosis proven correct and in the other 5 in which malignancy had been excluded. This would be 75 of the 94 cases (79,8%).

Conclusions: FNA is reliable and enables the initiation of treatment every time it establishes a diagnosis or excludes malignancy. The number of inconclusive cases, the real problem with this technique, can potentially be decreased by a better selection of the lesions to be analysed by the technique and by the preliminary evaluation by a pathologist. Until that, CNB remains the preferable method for bone tumours diagnosis.