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Ultrasound-guided biopsy in bone lesions: how and when it can be done. Preliminary results.

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BACKGROUND

Bone biopsy is usually under CT guidance. Compared to US guided biopsy, this technique is extremely precise but it takes more time in execution and in some geographic areas is less available. The aim of this study is to propose US guided biopsy in specified bone lesions with cortex interruption but without soft tissue involvement.

METHODS

From January to December 2012, eleven patients (7 males, average age 57 years old, range 28-81) underwent an US guided biopsy for a bone lesion. The lesions, always characterized by a cortex interruption, were located in the lower limb (3 cases), in the upper limb (4), in the chest (3), and in the pelvis (1). MyLab Twice sonography (Esaote, Genova, Italy) with multifrequency probes and sterilizable biopsy kit was used. In 9 patients only a tru-cut needle had been used, whilst in 2 cases was necessary to take same samples also with a trephine bone needle. To assess the diagnostic accuracy we evaluated agreement between the diagnosis made on bone tissue specimens from needle biopsy and either the final diagnosis or the clinical evolution (whether not further surgically treated) by means of Cohen's kappa. This coefficient is a statistical measure of inter-rater agreement for qualitative (categorical) items.

RESULTS

In 9 cases out of 11 the diagnosis was obtained correctly. The diagnosis were myeloma (3 cases), metastases of carcinoma (2), metastases of sarcoma (1), giant cell of the bone (2), Tietze's disease (1), not diagnostic biopsy (2). On 11 patients 5 tumors types were diagnosed, so that 5 items were considered for Kappa coefficient calculation. In two patients insufficient material was obtained to allow a histological diagnosis. In the remainder 9 patients a perfect agreement was observed ($k=1$, p).

CONCLUSION

In accurately selected cases the biopsy of bone lesions can be performed under US guide. This technique is eventually more time effective and does not use ionizing radiation. Further studies are needed to confirm our results.

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