

Metabolic bone disease

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Plain radiographs should be the first images of patients with metabolic bone disease. They may detect the subperiosteal erosions in hyperparathyroidism or, more commonly, the osteopenia in osteoporosis, but they cannot be used to quantify osteoporosis. The apparent density of the bone on the film is linked to the penetration of the rays, among other variables, as well as to the bone density. If a quantitative method is needed, (DEXA) is the most accurate and practical. However, fractures will cause erroneously high readings, and they tend to occur in the vertebrae used for DEXA measurements. Quantitative CT is an alternative technique, although this is less readily available. Ultrasound transmission measurement in the extremities has its advocates, as it arguably measures factors that better represent the strength of bone rather than its density. Its limitation is that it cannot be used to study the vertebrae or hip, tions ar and these are the sites where osteoporotic fractures occur most frequently. MRI may be useful in detecting fractures and is an essential prerequisite to percutaneous vertebroplasty.

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