

Carpal Bone Osteonecrosis

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COMMENTS

General Points

Osteonecrosis or avascular necrosis of a carpal bone may be a cause of chronic wrist pain. The more frequently affected carpal bones are the proximal pole of the scaphoid after a fracture, and the lunate. Idiopathic lunate osteonecrosis is also known as Kienbock's disease and lunomalia. Although many imaging techniques are available for the investigation of wrist pain, obtaining a careful clinical history, physical examination, and radiography are important for the working diagnosis, initial management, and directing further imaging.

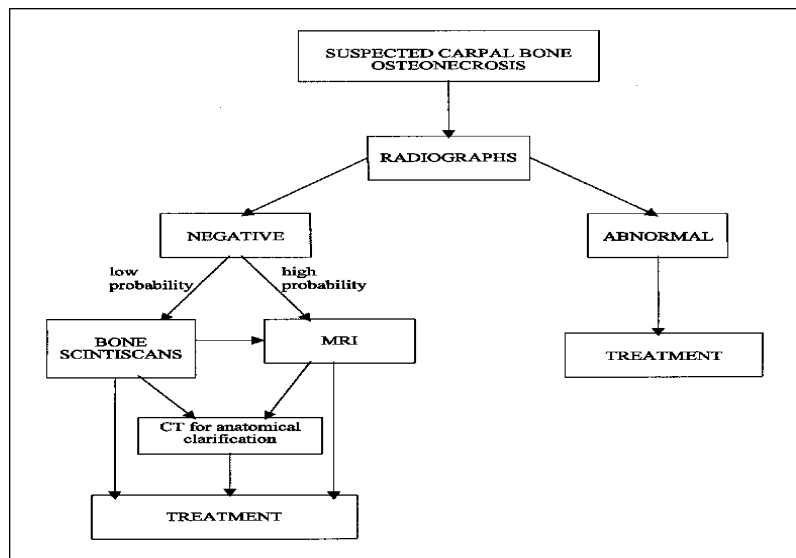
Radiographs

- The basic radiographic projections are the four-view series. These consist of the posteroanterior (PA), 45° pronated oblique, PA obtained in ulnar deviation, and neutral lateral projections. This series is designed to survey the wrist for gross abnormalities.

- If radiographs show obvious osteonecrosis, treatment can be instituted.

- If radiographs are negative, advanced imaging with either bone scintiscans or magnetic resonance imaging can be performed next. There is no widespread consensus as to which of these procedures is most ideal. Much depends on the institutional preference and modality availability.

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Bone Scintiscans

- Bone scintiscans are valuable for detecting metabolically active bone abnormalities that are not radiographically visible.

- All the carpal bones can be surveyed for abnormal activity.

- A disadvantage of scintiscans is that they may not be specific enough to differentiate among the various causes of a focal area of increased scintigraphic uptake.

- Scintiscans may be used to exclude osteochondral abnormalities when there is a low clinical suspicion that a carpal abnormality is present.

Magnetic Resonance Imaging (MRI)

- MRI shows intramedullary abnormalities well.

- MRI may show abnormalities that may not be detected on bone scintigraphy.

- In general, if both bone scintiscans and MRI are negative, then osteonecrosis can be excluded.

- With a high clinical likelihood of a carpal abnormality, performing MRI before scintiscans may eliminate the need for both MRI and scintiscans.

Computed Tomography (CT)

- CT is most valuable in further defining the anatomical details of a lesion that has been detected on MRI or bone scintiscan.

- CT is not indicated if the bone scintiscan or MRI is negative.

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