CT Findings of Peri–Prosthetic Osteolysis of the Hip

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BACKGROUND

Patients with pain due to component failure of hip joint replacement commonly present late to the orthopedic surgeon, often when the implant has become loosened. The location and amount of osteolysis can be determined with CT. The presence of osteolysis can also have a substantial impact on the success of revision surgery, especially in cases of severe or advanced osteolysis.

Cemented/Cementless

- Cemented components are less susceptible to osteolysis because the cement acts as a biological barrier. However, cement fractures and dislocation can occur.
- Cementless components, especially those with porous coating, can lead to osteolysis due to the penetration of bone into the cancellous bone.

WHY CT?

- CT allows for the evaluation of the bone-metal interface and the presence of osteolysis.
- CT is better at determining the extent of osteolysis.
- CT is better at defining the extent of osteolysis.
- CT is better at determining the location of osteolysis.

WHEN CT?

- CT is a useful tool in the assessment of osteolysis, especially in cases of cemented components or when there is a concern for osteolysis.
- CT can be used to plan surgical procedures and to assess the success of revisions.

CT TECHNIQUE

- A multiplanar technique is recommended with thin sections at 1.25mm intervals, followed by reconstruction at 2mm intervals.

CT FINDINGS OF ACETABULAR OSTEOLYSIS

- The CT scan is the standard imaging modality for assessing acetabular osteolysis.
- CT can demonstrate the extent and location of osteolysis with high accuracy.

WHAT SHOULD RADIOLOGISTS REPORT ON CT?

- The presence and extent of osteolysis.
- The location and orientation of the osteolysis.
- The presence of any associated complications, such as fracture or dislocation.

CLASSIFICATION OF ACETABULAR OSTEOLYSIS

- According to the American Academy of Orthopaedic Surgeons, acetabular osteolysis can be classified into different categories based on the extent and location of the osteolysis.

REFERENCES


Conclusions. Computed tomography is an effective method to evaluate osteolysis in cases of hip joint replacement, especially in cases of severe osteolysis where other imaging modalities may not be sufficient.

TREATMENT

- Treatment options depend on the extent and location of the osteolysis.
- Soft tissue reconstruction may be performed to improve the mechanical stability of the implant.
- Revision surgery may be necessary in cases of severe osteolysis.

CONCLUSION

- CT is the imaging modality of choice for the evaluation of acetabular osteolysis.
- CT can provide valuable information for the planning of revision surgery.
- Early detection and appropriate treatment can help to prevent or minimize the progression of acetabular osteolysis.

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