Role of Interventional Radiology In Management of Osteoid Osteoma

For partial fulfillment of master degree in radiodiagnosis
(Essay)

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Role of interventional radiology in management of osteoid osteoma

Abstract

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Osteoid osteomas are relatively common bone lesions accounting for approximately 10% to 12% of all benign bone tumors and 2% to 3% of all primary bone tumors.The male-to-female ratio is 2:1.It is generally a condition of young people.

The lower extremities are the most common sites of osteoid osteomas Ten percent to 25% of all cases occur in the spine.

The classic presentation includes focal skeletal bone pain, which worsens at night and is frequently relieved with a small dose of aspirin.

Histologically, these lesions consist of a central area of vascularized connective tissue, nidus, which is largely occupied by active, differentiated osteoblasts that produce osteoid or bone. Multinucleated osteoclast can also be encountered as part of active bone remodeling..

Osteoid osteoma is classified as cortical, cancellous, or subperiosteal.The lesions appear as small heamorrhagic, berry like, granular lesions.

Different radiological aspects characterize osteoid osteoma and are therefore used to confirm or even to diagnose the tumor .

Simple Radiography is the initial examination of choice and may be the only examination required.

Computed Tomography (CT) is used for precise localization of the nidus and may be used for guiding percutaneous ablation

Magnetic resonance imaging (MRI) is a useful imaging technique, but CT appears superior for precise localization

Angiography may be useful in differentiating the tumor from a Brodie abscess.

Single photon emission computed tomography (SPECT) is useful in the localization of the tumor when the spinal arch or spinous process is involved.

Radionuclide scanning for technetium (Tc99m) diphosphonate uptake shows fairly intense activity at the tumor site. This examination may also be used to localize the tumor preoperatively and to establish complete removal of the nidus by using a hand-held radioactivity detector.

Osteoid osteomas may undergo spontaneous regression after several years of observation.the treatment option includes medical,traditional surgical manner and percutaneous methods.

The open resection method has several drawbacks including weakening of the bone , possibility of reccurence, and immobilization ..

Percutaneous techniques are divided into two groups: those that attempt to remove the lesion physically,and those that aim at in-situ destruction (ablation)

Ablative techniques include ethanol injection, laser photocoagulation, and radiofrequency treatment.

Alcohol injection has been used as a salvage technique after failed surgery and as an adjunct to percutaneous excision

Radiofrequency ablation is a treatment situated halfway between less invasive techniques and major surgical resections.

Advantages include decrease cost, minimal morbidity and complications,possibility to perform the procedure on an outpatient basis,suitability for real time imaging guidance and ability to easily treat recurrent tumors and possibility of treating patients who would not be considered candidates for surgery due to age , co-morbidity, or extent of disease

Complications were such as skin burn , local hypoaesthesia Recurrence has been reported in some cases in which the nidus was larger than 10 mm, several cycles of radiofrequency application are therefore advisable .

Interstitial laser photocoagulation, (ILP), is also a valuable treatment method for osteoid osteomas.

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List of abbreviation

Ct : computed tomography.
MRI: magnetic resonance imaging.
SPECT: single photon emission computed tomography.
RFA: Radio frequency ablation.
ILP: interstitial laser photocoagulation.

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