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INTRODUCTION

Osteoid osteoma is a painful benign bone tumor with no malignant potential. It represents about 10 % of benign bone tumors and 5 % of all tumors with male predominance involving mainly younger patients. Lesions are characterized radiographically by a nidus within a dense, reactive bone of variable thickness. Percutaneous radiofrequency ablation is lately replacing the surgical approach; it works by using thermal coagulation to induce necrosis in the nidus in a minimally invasive manner.

COMMON INDICATIONS [1–3]

- Pain control using NSAIDS is not adequate
- Contraindication for use of NSAIDS
- Contraindication for surgical procedure
- Lesions that are surgically demanding or involve anatomic places that needs dissecting major organs to reach
- Patient preference
- Patients with skin problems or prone to scar formation

COMMON CONTRAINDICATIONS [1, 3]

- Bleeding diathesis
- Infection in the surrounding soft tissues
- Infection in the surrounding soft tissues
- Uncooperative patient
- Pregnancy
- Inability to rule out malignancy

Possible Complications [1, 2, 4, 5]

Usually radiofrequency ablation of osteoid osteoma is a very safe procedure and complication rate is very rare

- Fractures that usually involve only one cortex (*the nature of sclerotic bone helps avoid any progression of the fracture*)
- Skin burns with subcutaneous tissue necrosis
- Neural injury
- Infection
- Breakage of needle or probe
- Bleeding
- Transient paresthesia
- Erythema
- Hyperthermia

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PREOPERATIVE ASSESSMENT AND PLANNING

- History, indications and physical examination (*Appendix 1* in Chap. 149)
- Evaluation of diagnostic imaging studies to determine the location of the lesion, its extent and relevant anatomy (*major neurovascular bundles*)
- Periprocedural management of coagulation status (*Appendices 2* in Chap. 150 and *3* in Chap. 151)
- Antibiotic prophylaxis: Not routinely recommended or use first generation cephalosporin if possible breakage of sterility is anticipated [6]
- Imaging modality for guidance: CT or fluoroscopy
- Positioning: Patient is placed supine or prone, depending on the location of the lesion and the planned route

PROCEDURE NOTE

Procedure: CT/Fluoroscopy-guided biopsy and radiofrequency ablation of [name the bone/location] osteoid osteoma

Staff: []

Fellow: []

Resident: []

Clinical Information: Describe history and list indications

Allergies: None known/Allergic to [specify/type of allergy]

Anesthesia: General anesthesia/deep sedation with local anesthesia

Medications: List any relevant medications used (sedation, antibiotics)

Field: Sterile

Procedure classification: Clean

Position: Supine/left lateral decubitus/right lateral decubitus/oblique/prone

Monitoring: Intravenous access line was secured and vital signs were continuously monitored by nursing staff/anesthesia team throughout the procedure

Cumulative radiation dose: () mGy

Description of Procedure [2–5, 7]:

The risks, benefits, alternatives, and the procedure itself were explained to the patient/patient's Power of Attorney/legal guardian, and informed written consent was obtained. The site of the procedure was identified and marked. Time out was performed to confirm the correct patient, procedure, and site.

The [name the bone] lesion was evaluated using CT scan/fluoroscopy after placement of a radiopaque marker/grid. The procedure was planned and the skin puncture site was marked using combined information from the location of the lesion and preliminary CT images. The angle of needle entry and the distance to the nidus of the lesion away from the neurovascular bundle were calculated from the planning images. Dispersive grounding pads were applied to patient back.

The skin was prepped and draped in the usual sterile fashion. Local anesthesia was administered. A small skin incision was made. Subsequently, an (11)-gauge bone biopsy needle was advanced to the bone lesion and repeat CT imaging confirmed adequate position of the needle tip. Bone biopsy was performed. Then, a (14) gauge [type] side deployment electrode was advanced deep into the nidus. To ensure proper location and trajectory of the probe, repeat imaging was performed confirming location. The electrode was heated to (90 °C) for (5–6 min) according to manufacturer protocol, using a [type] radiofrequency generator.

Following the procedure, the probe and biopsy needle guide were removed. A sterile pressure dressing was applied to the puncture site.

The patient was transferred to the floor/recovery room following the procedure in a stable condition. Staff was present for the entire procedure.

Intra-Procedure Findings: List any additional findings if relevant.

Immediate Complications: None encountered during or directly after the procedure. List the complication if any.

Post-Procedure Plan:

- Monitor the patient in the recovery room for 2–4 h for pain control; check for skin burns,

bleeding, motor, and sensory power in the affected limb.

- Ensure adequate pain control on discharge.
- Advise patient to avoid excessive physical activity for 1 month after the procedure (*if the lesion was in a weight bearing bone*).
- Follow-up in 7 days to assess patient and to get pathology results if biopsy was taken and ensure adequate relief of pain related to osteoid osteoma.
- Perform an MRI or CT scan 1 month after the procedure (*coagulation necrosis of the lesion and decrease of bone edema suggests a successful procedure*).

Impression:

- Radiofrequency ablation of [name the bone] osteoid osteoma, as described above.
- The patient tolerated the procedure well and left the interventional unit in a stable condition.
- The patient was unable to tolerate the procedure which was canceled/terminated prematurely.
- List any other relevant or important information/finding.

References

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