

Sclerotherapy for Aneurysmal Bone Cyst

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Background

- Aneurysmal bone cysts (ABC) are **non-malignant, tumor-like vascular anomalies** characterized by blood-filled channels. While they can arise in any bone, the most common occurrences are the femur, tibia, and vertebrae.
- These **osteolytic lesions** can expand and cause **discomfort, inflammation, and disruption of joints and growth plates**. They can grow aggressively, be locally destructive, and weaken bones to the point of pathologic fracture.
- Treatment options include curettage, with and without bone grafting.
- Minimal invasive alternatives include sclerotherapy, selective arterial embolization, radiotherapy, or a combination of both.

Case Description

- A 16-year-old male with a 6-month history of hip pain and swelling consulted the IR department for evaluation. The pain was dull, intensified during activity, it had worsened over time, until becoming refractory to stretching, NSAIDs, and physical therapy.
- Pelvic MRI** showed a 4 x 3.3 x 3.6 cm heterogenous expansile lesion in the left superior pubic ramus, significant cortical thinning superiorly, and likely cortical breakthrough, extensive internal fluid levels, with no solid components. Subsequent **CT-guided bone biopsy** revealed findings consistent with an aneurysmal bone cyst, negative for malignancy.
- The admission diagnosis was an ABC of the left superior pubic ramus

Intervention

- Given the characteristics of the lesion, pain refractoriness, and limited physical capability, **percutaneous intralesional sclerotherapy** was suggested.
- Through a lateral approach and CT fluoroscopic guidance, the lesion was accessed with 18-gauge, and 19-gauge needles. After position confirmation, the stylet was removed, and sanguineous fluid was obtained from both needles, likely in relation to prior biopsy and hematoma formation.
- Omnipaque 300 was injected to confirm positioning within the lesion and exclude intravasation of contrast into vessels.
- A slurry mixture of **200 mg doxycycline, 25% human serum albumin, and Omnipaque 300** was slowly administered with intermittent CT fluoroscopy, indicating adequate filling of the cystic spaces. Once the sclerosant injection and filling of the cystic spaces achieved the desired results, the needles were removed, resulting in a technically successful doxycycline injection with chemical ablation of aneurysm bone cyst in the left public lesion.
- CT showed no immediate complications and post procedural course was uneventful.

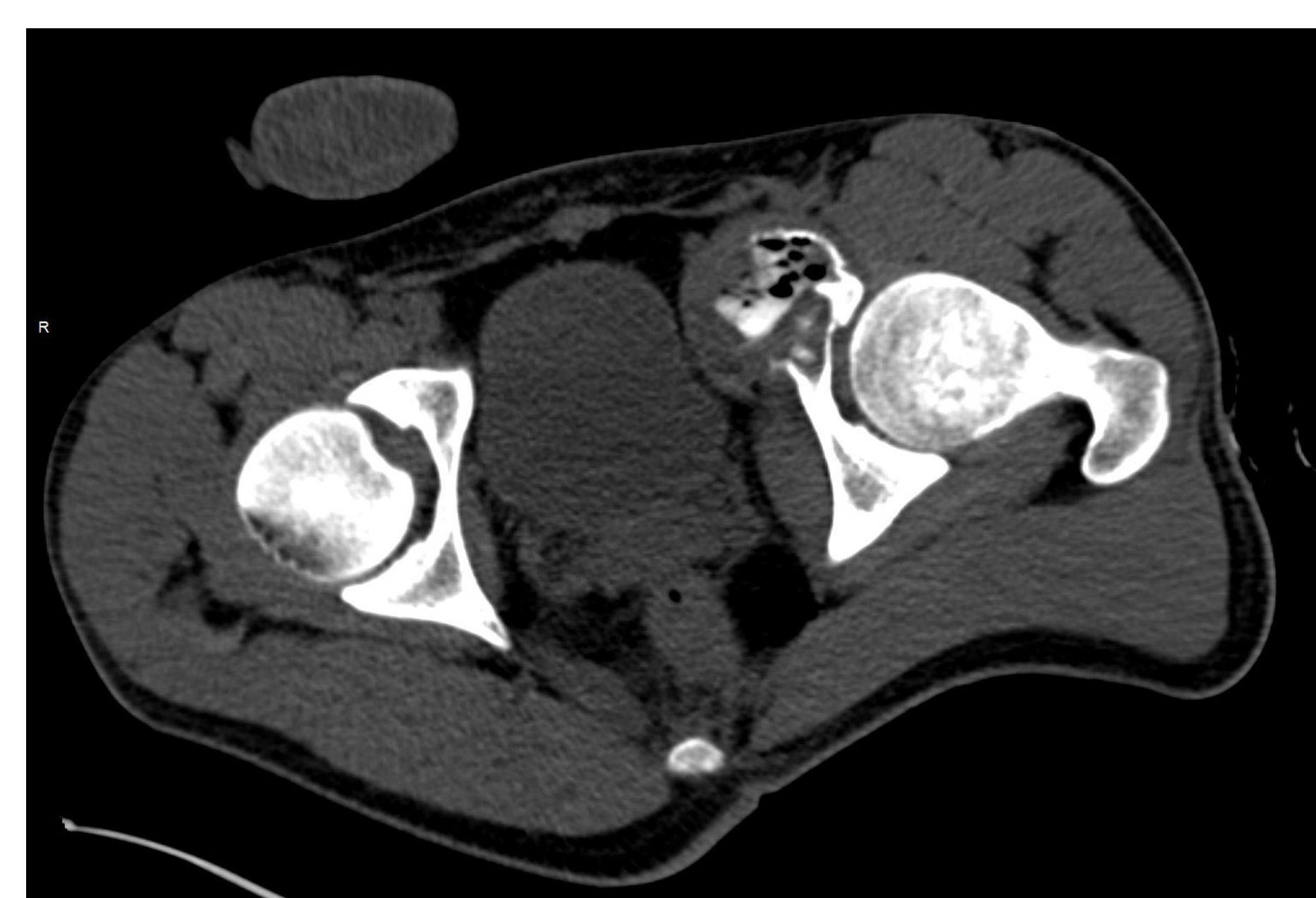
Pre- sclerotherapy



CT- Sclerotherapy



1- month follow-up



1 year follow-up



Outcomes

- Post-procedural x-ray of the pelvis after 1,3, and 6 months demonstrated **healing changes, with normal bony mineralization**. Follow up after 1 year showed remarkable mineralization of the left superior pubic ramus. The patient experienced **significant clinical improvement**, with significant pain reduction and increased functionality in daily activities.

Take home points

- Percutaneous sclerotherapy is a safe, and effective treatment option for refractory and nonresectable ABCs, particularly useful for deep lesions, challenging access for surgery and potentially damaging structures. Leading to bone mineralization and significantly improved patients' QOL.
- Through future RCTs, the clinical and radiological effectiveness of sclerotherapy could position it as a viable and acceptable alternative to conventional treatments.

References

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