

Osteoid Osteoma of Scapular Glenoid: A Case Report of an 18-Year-Old Female

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Background: Osteoid osteoma is a rare bone tumor predominantly encountered in young males. Pain is the most common and sometimes the only symptom at presentation. Diagnosis and treatment are particularly challenging especially when the location is unusual, such as the case of the shoulder.

Case Report: This is a case of an 18 year old female patient, who came to the orthopedic clinic, after suffering from chronic pain in the right shoulder for two years. It was first misdiagnosed as a regional pain syndrome and was unsuccessfully treated with pain-killers and physiotherapy. Imaging showed a unique scapular glenoid-coracoid process space osteoid osteoma that was successfully treated by percutaneous computerized tomography scan-guided radiofrequency ablation.

Conclusion: This case report supports prescribing further imaging investigation in case of any chronic shoulder pain so that rare osteoid osteomas do not get misdiagnosed and unnecessary treatment burden gets saved.

Keywords: Osteoid Osteoma; Glenoid, Shoulder; Radio-Frequency Ablation; Scapula

Background

Osteoid osteoma is a rare tumor (2 to 3 % of all tumors in the bones) that accounts for 10 to 14% of benign bone tumors [1]. It is predominantly encountered in young males [2] aged less than 20 years in 70% of the cases [3]. In about 13% of the cases, osteoid osteomas are intra-articular [4]. Intra-articular osteoid osteomas are particularly challenging to diagnose and to treat [5]. It is common that young patients report symptoms for a long duration before the accurate diagnosis is posed [3].

Clinically, the most common and sometimes the only symptom at presentation is pain, with increased intensity at night, which is relieved by non-steroidal anti-inflammatory drugs as well as salicylates [6]. Besides, mobility restrictions can be observed in intra-articular osteoid osteomas. Diagnosis is determined by identifying a nidus of less than 1.5 centimeters, followed by determining its calcification level using plain radiography,

computerized tomography, as well as magnetic resonance imaging [7,8].

While these tumors regress spontaneously in 2 to 6 years after taking pain killers, conservative treatment is commonly used [9]. However, when this approach fails, or in cases of mobility limitations, surgical management is needed [2]. At the same time, due to their high recurrence and complication rates, traditional surgery approaches [7] are being replaced by less invasive techniques such as computerized tomography guided percutaneous ablation, or cryoablation [4,10]. The primary success rate of the radiofrequency ablation of intra-articular osteoid osteomas is relatively high between 97% [4] and 97.7% [11].

Up to our knowledge, only few cases of scapular glenoid have been reported in literature [12-16]. In our present case report, we describe a unique scapular glenoid-coracoid process space osteoid osteoma case with atypical medical history in a young female. The

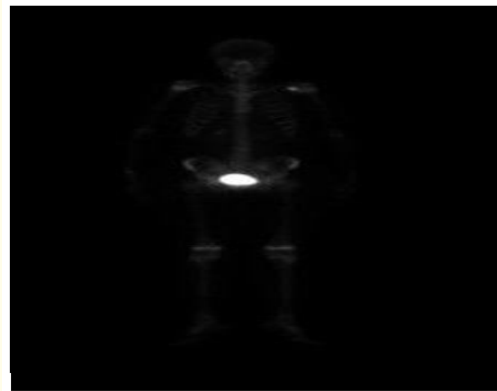
case was first misdiagnosed and treated initially as regional pain syndrome but was then successfully treated with percutaneous computerized tomography scan-guided radiofrequency ablation.

Case Report

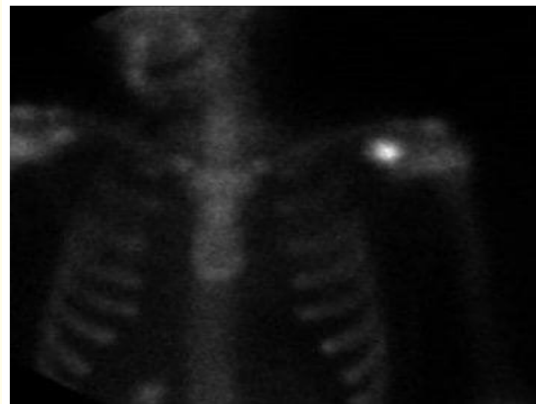
An 18-year-old healthy female was complaining from right forearm and shoulder pain for 2 years. The pain was intermittent, progressive, and more intense at night. First, pain started in the right forearm, then affected the right shoulder a few months later. The severity of pain was 8/10 on the numerical rating scale. It became constant, burning in nature, aggravated by movement, and associated with sweating in the right arm during the pain attack. Yet, it was relieved by Ibuprofen, a non-steroidal anti-inflammatory drug. The patient has unremarkable family history.

Before visiting the orthopedic clinic, the initial plain imaging of the shoulder and the cervical spine during past visits did not show any abnormalities. Thus, the patient has been misdiagnosed as having a case of regional pain syndrome. She was treated medically by oral non-steroidal anti-inflammatory drug alongside physiotherapy but did not have any significant improvement.

After examination at the orthopedic clinic and upon inspection, no asymmetrical deformities, muscle atony, and shoulder dyskinesia were recorded. Neither swelling points of tenderness at the shoulder, elbow and wrist, nor skin changes were detected. However, a painful decreased range of motion was present at the right shoulder, specifically during extension, flexion, and abduction. In addition, a tenderness was observed around the shoulder with joint movement restriction over 90° of abduction with painful external rotation and with positive Neer test with pain severity of 7/10 on the numerical rating scale and with positive O'Brien test with pain severity of 9/10 on the numerical rating scale. Plain x-ray of the affected shoulder showed an ill-defined lesion at the inferior glenoid with intact articular surface with neither erosions, nor periosteal reaction or mass lesion. A bone scan was then done which demonstrated a double density sign, with a focal rejoin of intense uptake, superimposed on a larger area of generalized increased activity (Figures 1, and 2). Non-enhancement computerized tomography scan of the right shoulder revealed a well-defined lytic lesion with peripheral sclerosis involving the anterior and inferior aspects of the glenoid with adjacent sclerosis and cortical thickening (central nidus) (Figure 3), which is typical for osteoid osteoma. The lesion measures about 7mm in diameter maximum. No definite periosteal reaction or soft tissue component were present to suggest aggressive lesion.



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Figure 1 and 2: Bone scan demonstrates a double density sign, with a focal rejoin of intense uptake, superimposed on a larger area of generalized increased activity.

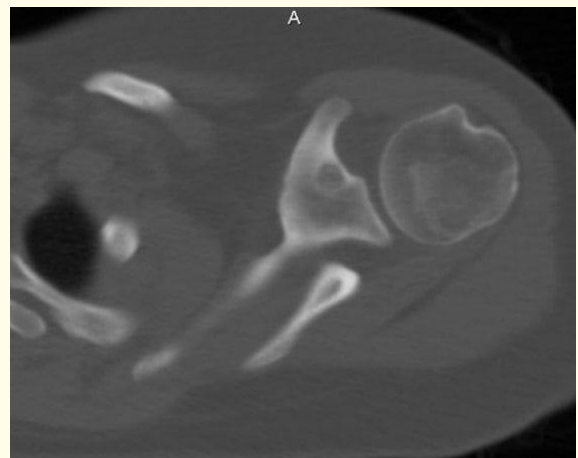


Figure 3: Computed tomography of the shoulder shows a well-defined rounded lytic bone lesion, juxta cortical, 7mm maximal diameter containing punctiform calcifications surrounded by a small sclerotic reaction.

Since surgical treatment options are risky, less invasive procedures became preferable. Therefore, a musculoskeletal radiologist has been consulted to manage this lesion by percutaneous computerized tomography guided radiofrequency ablation. After obtaining the informed consent of the patient, general anesthesia was used during the operation. After the operation, a temporary arm sling was applied, and oral painkillers were prescribed to be taken when needed. There were no reported post-intervention complications. The patient tolerated the operation and the pain gradually disappeared after 2 weeks. The patient was then followed up for 6 months and had neither pain nor restriction of shoulder motion. She was highly satisfied with the treatment protocol [17].

Discussion

The case described in this report was successfully treated using computerized tomography scan guided radiofrequency ablation. Other cases of glenoid osteoid osteomas were previously treated using open surgery [18], needle biopsy [19], corticosteroid injections [20], and arthroscopic excision [12,15]. Less invasive techniques, such as radiofrequency ablation used to treat this case, are currently preferred due to less complications, higher success rates, and the possibility to restore the patient's normal functioning shortly after the operation [8]. Previous studies evaluating radiofrequency ablation did not separately evaluate intra-articular osteoid osteomas [11,21], especially glenoid ones [14,16]. In this case report, particular attention was given to this specific location with a detailed description of the clinical presentation, radiological findings, treatment, and outcome.

A two-year delay in posing the diagnosis was observed in this case. This is common in the literature of osteoid osteomas, especially when they are located in exceptional locations such as the shoulder, since this is not a differential diagnosis in shoulder pain presentation [22]. Patients were misdiagnosed with impingement syndrome [15], scapular osteomyelitis with synovitis [23], neuralgic amyotrophy [24], and regional pain syndrome [17]. Diagnosis delay reached five years in a similar case [17].

Conclusion

This case report supports prescribing further imaging investigation in case of any chronic shoulder pain so that rare osteoid osteomas do not get misdiagnosed and unnecessary treatment burden gets saved. Osteoid osteoma must be thoroughly investigated in cases of chronic rebel pain, despite the fact that this diagnosis is rare in patients with shoulder pain.

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