

# Excision of Osteoid Osteoma of the Acetabulum by hip Arthroscopy: A Case Report

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## What to Learn from this Article?

Difficult surgical procedure for treatment of acetabular osteoid osteoma

## Abstract

**Introduction:** Osteoid osteoma of the acetabulum is a rare orthopedic condition. Only few cases are reported in the literature. Diagnosis of such pathology can sometimes be challenging. Arthroscopic excision of the lesion seems to be a useful minimally invasive treatment option. We report a case of osteoid osteoma of the acetabulum in an adult aged 25 years old treated arthroscopically.

**Case Report:** A 25-year-old male presented to us with right hip pain of insidious onset and progressive course. The patient had limited range of motion of the right hip. Initial plain radiographs were negative, and diagnosis of osteoid osteoma was highly suspected by magnetic resonance imaging and multi-slice computer tomography (CT) showing nidus close to fovea. Arthroscopic resection of the lesion was done, and the patient had dramatic pain relief during follow-up.

**Conclusion:** Osteoid osteoma of the acetabulum is a rare diagnosis that may be responsible for a painful hip. CT scan is the investigation of choice to confirm the diagnosis. Early diagnosis and adequate treatment by arthroscopic excision of the nidus can give good results and avoid potential complications.

**Keywords:** Hip arthroscopy, Excision, Osteoid osteoma, Acetabulum, Minimally invasive

## Introduction

Osteoid osteoma is a solitary, benign bone tumor, most commonly seen in the long bones of the lower extremities [1]. It accounts for 10-13% of all benign bone tumors and 2-3% of all primary bone neoplasms [2]; and most commonly seen in the second and third decades of life, with a male to female predominance of approximately 3-1. Patients often present

with increasing pain, pain at night with pain relief by use of non-steroidal anti-inflammatory drugs. Besides the clinical characteristics, an osteoid osteoma may have a clear radiological features, however, in 85% of cases, there is a small lytic nidus surrounded by reactive bone sclerosis on computer tomography, (CT) [3]. Therefore, CT scan remains the investigative modality of choice; however magnetic resonance

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## Author's Photo Gallery



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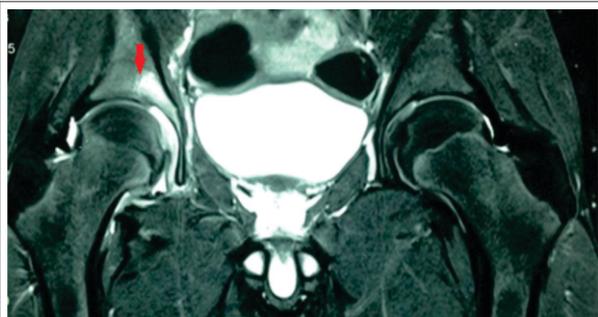
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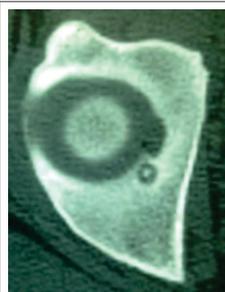
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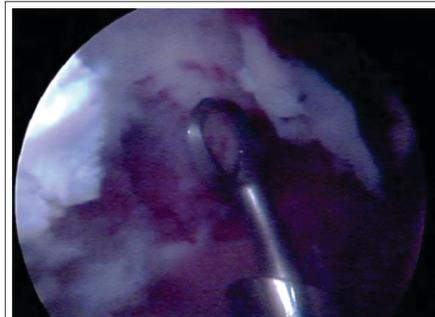
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**Figure 1:** Magnetic resonance imaging both hips, coronal view.



**Figure 2:** Computer tomography of the right hip, axial view.



**Figure 3:** Curettage of the lesion.

imaging (MRI) can also be helpful in locating the nidus close to the cartilage especially in the later stage of the disease [4].

The aim of this report is to highlight the fact that osteoid osteoma of the acetabulum is rare (0.5%) [5,6] and difficult to diagnose. Therefore, careful history and thorough clinical examination and also high index of suspicion in addition to the bone scan, MRI and CT scan should never be overlooked in arriving at a diagnosis. Furthermore, reported cases in atypical sites such as acetabulum are still few. In recent literature, we found seven case reports of arthroscopic removal of an osteoid osteoma of the acetabulum [7,8].

### Case Report

A 25-years-old man presented to us with 6 months history of right hip pain of insidious onset. Pain was initially mild but gradually increased in severity over few months and worse on movements. Medical treatment with non-steroidal anti-inflammatory analgesics did not relieve his pains.

The patient had moderate to severe pain, antalgic gait and restriction internal and external rotation the hip, due to pain. Initial standard pelvis and lumbosacral spine radiographs were normal.

MRI showed marked bone edema of the superomedial portion of the acetabulum and our experience with that appearance on MRI strongly suggested osteoid osteoma [9], CT scan confirmed the possible diagnosis showing a small sclerotic lesion in the acetabulum near the fovea measuring 4 mm.

Being close to the articular cartilage we decided that arthroscopy would be the operative technique of choice to excise this lesion to avoid the possible complications reported with surgical dislocation of the hip joint and to allow for early mobilization and immediate weight bearing.

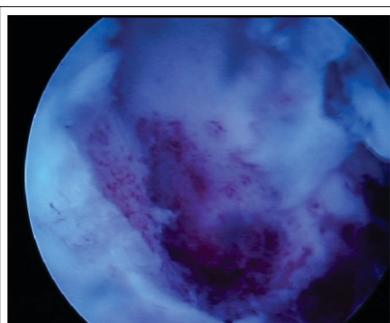
Standard hip arthroscopy was taken out using the traction table. We started with the proximal anterolateral portal using the same anatomic surface landmarks used for intra-articular

injection of the hip joint to start in the peripheral compartment without the use of image intensifier [10]. No abnormalities were detected in femoral head or labrum, and mild synovitis was noticed. The distal anterolateral portal was created from outside - In under vision, motorized shaver introduced and partial synovectomy done. Distraction of the hip joint was done to gain access into the central compartment, and a small cartilage defect close to the fovea with the lesion underneath was noticed. Excision of the nidus was done using a small open curette. Being small and close to fovea nothing was done for the cartilage defect.

Histological examination of the excised tissue confirmed the diagnosis of osteoid osteoma. After the operation, the patient's pain completely resolved. He remained symptom-free at 4 months of follow-up. He underwent physiotherapy to improve the range of motion of the hip. Harris hip score improved from 12.4 to 99.

### Discussion

Over half of osteoid osteoma, lesions occur in the long bones of the lower extremity, with the proximal femur being the most common location [11]. Rarely, they may occur in juxta-articular bone within the confines of the synovial cavity, where they are termed intra-articular osteoid osteoma. Our case report falls under this group of rare occurrence. Under this condition, diagnosis is difficult because they may mimic other intra-articular pathologies [12], such as Ewing's sarcoma, septic arthritis, avascular necrosis and traumatic conditions of the hip. Therefore, careful history, coupled with high index of suspicion, and thorough clinical examination in addition to standard radiographs, CT scan and MRI are very important diagnostic tools in this condition. We bring the surgeons' attention to the characteristic high signal lesion on MRI, which arouse suspicion and can be confirmed by CT. In retrospect, the small lesion could have been noticed by more careful inspection of the plain



**Figure 4:** Lesion curetted with small articular cartilage defect.



**Figure 5:** Nidus after excision.



**Figure 6:** Plain radiograph of the pelvis

radiograph of the pelvis.

Hip arthroscopy and excision is the modality of treatment of choice in this condition and is also being highlighted here. In recent literature, different treatment options for osteoid osteoma are described such as: Open surgical en-block excision, percutaneous CT-guided resection and CT-guided radiofrequency ablation [13-15]. However, due to the location of the osteoid osteoma close to the cartilage, we decided to perform an arthroscopy to remove the nidus and also for treatment of the overlying chondral lesion if needed. The nidus was easily removed, and histological examination confirmed our diagnosis.

For some patients, however, complete excision of the osteoid osteoma may require excessive bone resection and bone grafting and internal fixation, which luckily was not the case with our patient.

The advantages of arthroscopy are minimal surgical approach, evaluation and treatment of the cartilage defect.

Disadvantages of the technique are potential failure of arthroscopic approach due to failure of traction, and if the preoperative assessment involves a wider excision, then another option may be considered. Furthermore, there is a possibility of nerve injury and also incomplete excision of the

lesion or nidus [8,16,17].

Finally, after the operation, no further imaging was performed due to the disappearance of symptoms, and patient has remained symptoms free in subsequent follow-ups and evaluations.

## Conclusion

Osteoid osteoma of the acetabulum is a rare diagnosis that may be responsible for a painful restriction of hip motion. MRI should arouse suspicion however CT scan is the gold standard investigation to make a diagnosis. Early diagnosis and adequate treatment by arthroscopic excision of the nidus can give good results of pain relief and early recovery.

## Clinical Message

Though rare, osteoid osteoma of the acetabulum is a possible cause of a painful hip. Careful history and thorough clinical examination together with high index of suspicion and multi-slice CT make the diagnosis. Arthroscopic excision of the nidus is a useful treatment option with low complication rate and excellent pain relief.

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