



## Acute Rectus Femoris Calcific Tendinitis

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### Abstract:

Calcific tendinitis can occur in any joint even though commonly seen around shoulder. Calcification of reflected head of rectus femoris is a rare condition which causes hip pain and discomfort. Severe limitation of hip movements may occur with constitutional symptoms and elevated acute phase reactants. We are reporting two cases of reflected head of rectus femoris calcification with no past history of hip disease or significant trauma. They presented with acute hip pain and limping. Radiological investigations revealed a calcification close to the upper lip of the acetabulum within the reflected head of rectus femoris. Both cases were treated by CT guided injection of bupivacaine and triamcinolone, which gave symptomatic relief from first day itself and excellent clinico-radiological improvement on 6 weeks follow-up. Calcific tendinitis of reflected head of rectus femoris should be considered as a differential diagnosis of acute painful hip pathologies even though rare.

**Key words:** Bupivacaine, Calcinosis, Hip, Joints, Triamcinolone.

### Introduction

Calcific tendinitis can occur in any joint [1] even though commonly seen around shoulder [2-3]. It is a type of calcium hydroxyapatite deposition disease [4] which is usually self-limiting [5]. Pain and tenderness can be so severe that hip movements are severely limited. Calcium may either be deposited within the tendon or peri-tendinous soft tissues or near ligamentous attachments. At the hip, tendinitis and calcification has been described around abductors or at the origin of vastus lateralis [6]. We are reporting two cases with acute calcific tendinitis of reflected head of rectus femoris showing excellent clinico-radiological improvement after CT guided local injection of steroid and local anaesthetic.

### Case Report

We are reporting two cases of acute calcific tendinitis of rectus femoris from orthopedic outpatient department of Government medical college, Calicut.

#### Case 1:

51 year old female, presented with acute onset pain and limping right hip for three days duration. Patient had mild pain in right hip for past three weeks which was not affecting her activities of daily living. No significant past history contributing to hip pain was present. On clinical examination, hip flexion only up to 50 degrees further limited

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by pain and spasm, only jog of extension, 15 degrees of abduction and adduction and minimal rotations with no fixed deformities were noted. Blood investigations revealed normal complete blood count, ESR: 30, negative rheumatoid factor and normal blood uric acid except mildly elevated CRP of 2.1 (normal level < 0.5 mg/dL).

X-ray pelvis with both hips [Fig.1] revealed a calcification close to the upper lip of the acetabulum. Patient had treatment with analgesics which did not improve her pain. CT scan [Fig.2] confirmed calcification in reflected head of rectus femoris. In the same sitting, a 22-gauge spinal needle was positioned within the calcified deposit and 2 ml (80 mg) of triamcinolone acetate in combination with 2 ml of 0.5% bupivacaine were injected [Fig.3] under CT guidance.

Patient had dramatic pain relief of pain in the evening and was discharged on the second day. Rehabilitation with active and passive exercises were started next day itself. Patient was followed up on 2 weeks, 4 weeks and 6 weeks post injection. By 6 weeks, calcium deposit had completely disappeared [Fig.4 ].



**Fig.1:** X-ray of pelvis with both hips of case 1, showing a calcified mass close to the upper lip of the acetabulum on right side.

## Case 2:

40 year old male, presented with acute onset of pain and limping left hip, of two days duration with a past history of insignificant trauma to left hip one month back. There was no past history of pain in hip joint. Examination revealed hip flexion of 70 degrees, jog of extension, 10 degrees of abduction & adduction and jog of rotations with no fixed deformities. All blood investigations were normal. X-ray [Fig.5] revealed a calcification near upper lip of acetabulum. Since not responding to conservative management, CT scan was done [Fig.6] which confirmed location as reflected head of rectus femoris. Similar to the previous case, we treated this case by steroid and local anaesthetic injection [Fig.7].

Patient showed dramatic pain relief by evening and was discharged on the next day of injection. Rehabilitation with active and passive exercises started next day itself. We followed the patient two weekly. By 6 weeks the calcium deposit got completely disappeared [Fig.8].

Both cases showed excellent clinical improvement on the same day evening of the



**Fig.2:** CT picture of case 1, clearly ruling out intra-articular pathology and confirm the anatomical location in reflected head of rectus femoris of right hip.



**Fig.3:** CT guided injection of steroid and bupivacaine into the calcified mass in case 1.



**Fig.6:** CT scan of case 2, was done confirming the location as reflected head of rectus femoris of left hip.



**Fig.4:** Clear demonstration of disappearing calcium mass at the right hip in the X-ray pelvis of case 1, 4 weeks following the injection.



**Fig.7:** CT guided injection of steroid and bupivacaine into the calcified mass in case 2.



**Fig.5:** X-ray of pelvis with both hip of case 2, showing a calcification near upper lip of acetabulum of left hip.



**Fig.8:** X-ray pelvis with both hip demonstrating complete disappearance of calcified deposit from the left hip at 4 weeks post injection.

injection and started walking next day. By 4 weeks the calcium deposit started disappearing and completely disappeared by 6 weeks.

## Discussion

Rectus femoris (reflected head) calcification is a rare condition which causes hip pain and discomfort [7]. Calcium hydroxyapatite crystal deposition is usually self-limiting [4,5]. Severe limitation in hip movements may be associated with constitutional symptoms like fever, acute inflammatory features, and elevated acute phase reactants [8]. It may cause pain at gluteal region and posterolateral aspect of thigh mimicking radiating pain of spine pathology [1]. Delay in starting treatment and recovery can occur due to misdiagnosis [9]. Myositis ossificans, avulsion fractures and os acetabuli are some of the conditions which cause similar radiological picture [10].

The exact etiology is still not known hence several hypothesis were introduced like post traumatic [11], genetic [12], metabolic [5] or local tissue stress necrosis [1] as the initiating event for calcium deposition. More recent hypothesis is local hypoxia secondary to vascular or mechanical insult [1]. Similar to SLAP (superior labral anterior-posterior) lesions of shoulder, the hip antero-superior labral tear with avulsion of rectus femoris [13] (HALTAR) secondary to eccentric contraction of the rectus femoris can present later as calcification. Such causes may lead to degeneration of the tendon substance followed by fibrocartilage formation and calcification. Calcification of the tendon follows pre-calcific, calcific and post-calcification stages which ultimately remodels to normal tendon [2].

Origin of straight head of rectus femoris is from anterior inferior iliac spine and reflected head just above the lip of acetabulum [14]. In our cases, comet tail appearance [1] of the deposit in X-ray indicates tendinous origin and CT [15] confirmed

its location in the reflected head of rectus femoris. Reflected head rectus femoris calcification have more chance for acute presentation because of hip joint proximity and rupture of the calcified deposit into the hip joint [8].

In 1936, Goldenberg and Leventhal [16] reviewed 550 hip radiographs. They found calcified deposits near greater trochanter in and around the gluteal medius tendon but they failed to mention rectus femoris calcification. In 1955, Blundell Jones [8] reported conservatively managed seven cases of acute hip pain and peri-articular calcification, in which he suggested that some of these lesions might be within rectus femoris. Several methods have been described to treat this condition. Conservative management, radiation, ultrasonic treatment, extra-corporeal shock wave therapy, local injections, arthroscopic debridement and even open procedures were described to relieve pain and to regain adequate range of movement [1].

Conservative management of course is the primary treatment but arthroscopic debridement and open procedures were needed in resistant cases. Conservative management and radiotherapy [1] provides symptomatic improvement only after a few weeks of latent period. Though minimally invasive, arthroscopic debridement and open procedures cannot be used as primary therapeutic option. So we opted for CT guided injection of bupivacaine and steroid which gave good symptomatic relief from first day itself and excellent clinico-radiological improvement by 6 week post-injection.

## Conclusion

Acute calcific tendinitis of rectus femoris can be treated by local injection of triamcinolone and bupivacaine under CT guidance. Calcific tendinitis of reflected head of rectus femoris should be considered as a differential diagnosis of acute painful hip pathologies even though rare.

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