



## Implantation of Tantalum Rod Prophylactically in Early Stage of Avascular Necrosis of Hip

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### **Abstract**

*Avascular Necrosis of Hip is a debilitating disease which usually affects bilateral hips .We present a case of bilateral avascular necrosis of hip where patient complained of right hip pain with difficulty to walk; however the patient did not have any complaints for the left hip. MRI was done which showed avascular necrosis of bilateral hips with left hip at early stage. We decided to fix prophylactically the left hip with core decompression and tantalum rod implantation. The challenges faced while treated avascular necrosis of bilateral hips are discussed.*

### **Introduction**

Avascular Necrosis of hip is poor circulation of blood supply to the femoral head resulting in collapse of subchondral bone and change in shape of femoral head leading to early arthritis of hip joint [1]. The etiological factors contributing to the poor circulation of blood supply include alcohol, smoking, corticosteroid therapy, sickle cell anemia and genetic predisposition [1,2]. Early diagnosis of avascular necrosis may help in joint preserving surgeries [4]. Till date there has been no consensus on treatment of avascular necrosis of hip [3]. It is believed that joint preserving surgeries and conservative management are helpful in early stages of avascular necrosis [4] whereas total hip replacement arthroplasty is preferred for later stages [4].

### **Case Presentation**

A 30-year-old male presented with chief complaints of right hip pain since 6 months with difficulty to sit cross leg and pain radiating to right buttocks. The pain aggravates on movement of the right hip . However, he has no complaints for the left hip. On examination restriction of internal rotation of right hip was noted with flexion of hip painful and axis deviation noted and examination of left hip movement was normal. MRI of both hips was done as shown in Figure 1 which revealed avascular necrosis of right hip Stage 3 ARCO Classification 5 and avascular necrosis of left hip Stage 2 ARCO Classification 5. Patient underwent right hip arthroplasty and core decompression with tantalum rod implantation of left hip in the same sitting. Patient was made to bear partial weight on left hip and full weight bear on right leg on post operative day 1. Sutures were removed on day 12 following surgery

and wound healed well. 6 month follow up radiographs were taken as shown in Figure 2 which showed implant insitu and no evidence of progression of stage of disease on left hip. Harris Hip Score for the left hip at 6 months is 95.

## **Discussion**

Joint preserving surgeries have been advocated in early stages of avascular necrosis of hip [4] whereas hip arthroplasty are used in late stages of avascular necrosis of hip [4]. However there is no consensus on whether to fix prophylactically avascular necrosis of hip with tantalum rod in early stages of avascular necrosis of hip in order to retard the progression of the disease. Avascular necrosis of hip affects bilateral hips mostly 1 with males being affected more. Early diagnosis and treatment are essential to prevent early arthritis of hip which can be debilitating for young adults. MRI of both hips is usually advocated and Ficat and Arlet Classification or ARCO Classification is used to stage the disease [5]. In our case, we noted ARCO stage 3 for right hip and stage 2 for left hip as shown in figure 1. It was agreed that joint arthroplasty would be best suited for the patient for the right hip whereas core decompression with tantalum rod on left side was advocated to retard the stages of avascular necrosis for left hip despite patient showing no symptoms or signs on left hip.

Tantalum rod implantation in avascular necrosis of hips have shown successful outcomes in early stages of avascular necrosis [6]. It has also been shown about 27 percent cases of hip which underwent tantalum fixation would require conversion total hip arthroplasty in the future [7,8]. Figure 3 shows the tantalum rod used for the surgery while figure 4 shows the incision site and minimally invasive surgery for fixation of tantalum rod . Tantalum rod is a safe alternative in joint preserving surgeries of avascular necrosis of hip.

6 month follow up radiograph as shown in figure 2 revealed no progression of disease and a satisfactory Harris score 95 suggestive of excellent hip.

This was unusual presentation where prophylactic fixation of left hip at early stage without symptoms was done in order to retard the stage of the disease.

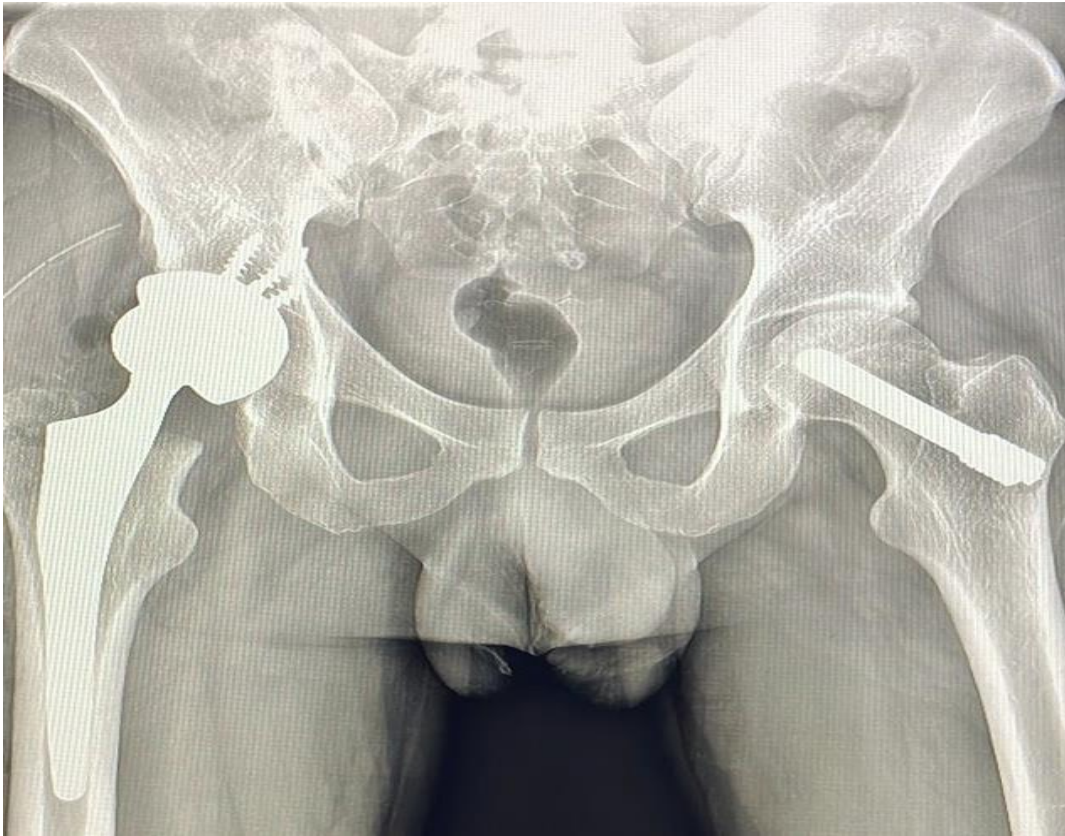
## **The uniqueness of this case**

This case report demonstrates that fixation prophylactically with tantalum rod helps in management of avascular necrosis of hip and retards the evolution of stages of avascular necrosis of hip. We do note

that we need to have a longer duration of follow up to assess the evolution of the disease and to assess whether the patient will require a hip arthroplasty at later stage.



**Figure 1.** MRI of pelvis with both hips demonstrating Stage 3 Avascular Necrosis of Right Hip(late stage) and Stage 2 Avascular Necrosis of Left Hip (early stage) as per ARCO Classification.



**Figure 2.** Plain radiographs of pelvis with both hips in AP view 6 months postoperative demonstrating no progression of disease on left hip and prosthesis insitu for right hip.



**Figure 3.** Tantalum Rod used for fixation of left hip after core decompression



**Figure 4.** Incision site for left hip for tantalum rod fixation

### **Conclusion**

Avascular necrosis of hip affects bilateral hips in most cases. Early diagnosis and treatment is warranted to delay the stages of the disease. While early stages have good prognosis, late stages have poorer prognosis and joint arthroplasty is advocated. Early stages of the disease need to be treated aggressively to achieve a good outcome in the future and avoid the need for early joint arthroplasty. Prophylactic fixation after core decompression is recommended from our case report.

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