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# Title: Core Decompression Augmented with Autologous Bone Marrow Aspiration for Early Avascular Necrosis of the Femoral Head - Single Hole Techniques

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# INTRODUCTION

- The management of early-stage osteonecrosis of the femoral head remains challenging.
- Depending on the stage of the disease, there are a variety of non-surgical and surgical treatment options available for the management of hip osteoarthritis [1]

Grade 0



Grade 1



Grade 2



Grade 3



Grade 4



K L SCORE



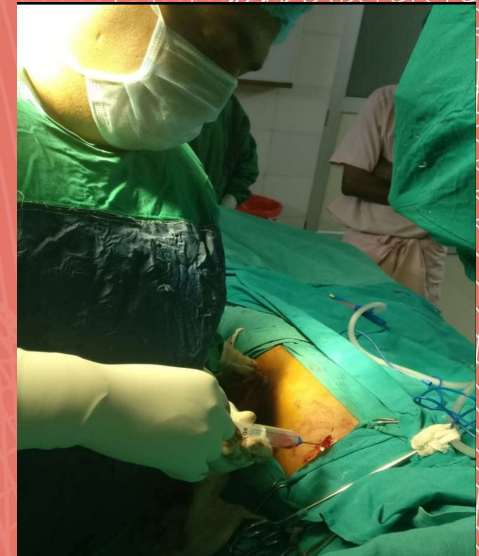
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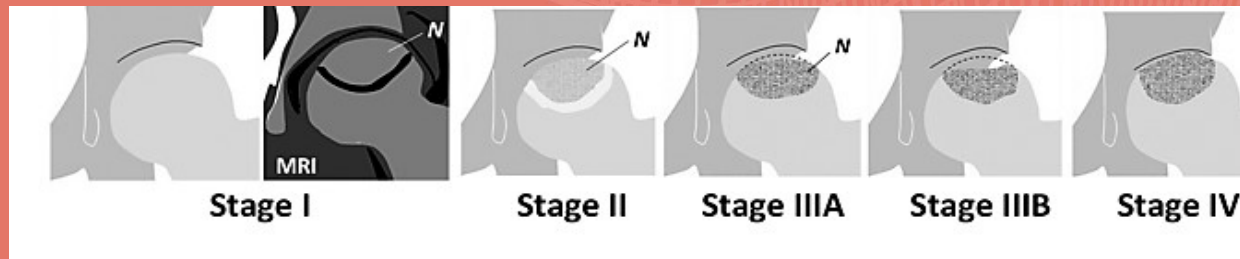
- In the current series, core decompression with multiple pinning was done with autologous bone marrow obtained from the iliac crest of patients operated on for osteonecrosis of the hip.
- We describe the use of bone marrow aspirate to stimulate a healing response in 1 st 2 nd stage of AVN of hip with core decompression. Bone marrow aspirate is a rich source of MSCs and osteoprogenitor cells in the body.[2]





# Method

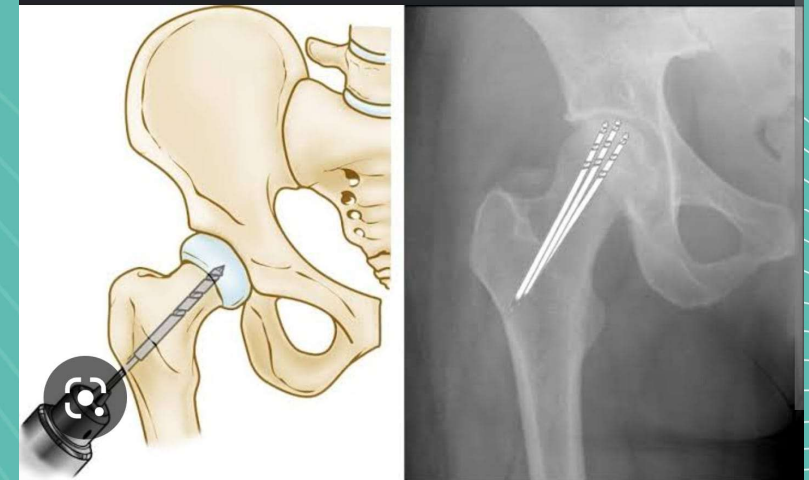
- We evaluated 12 patients with a non traumatic FHN during the period of 2-5 years after intervention.
- The inclusion criteria for this study were age over 18 years and presence of stage 1&2 femoral head necrosis according to the ARCO classification.



- All the patients evaluated with X rays of pelvis AP view and MRI of the affected hips.

# Surgical procedure

- The core decompression was performed in all procedures under spinal anesthesia. Under the guidance of image intensifier the multiple pinning was done with 2 mm k-wires were drilled through base of trochanter .
- The multiple k wire were drilled through single hole after analysing the necrotic areas in the MRI .The bone marrow aspirate was instilled in the multiple holes with epidural needle.



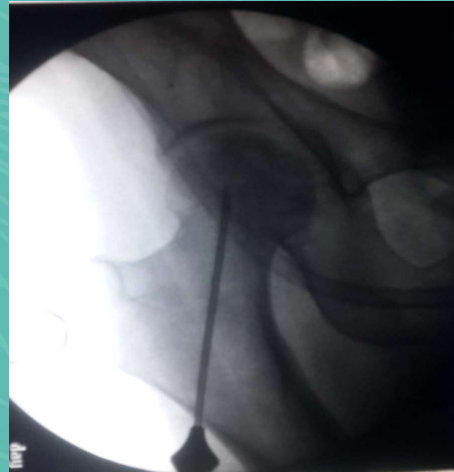
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# Surgical Steps



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# Results

- 12 hips were operated of 6 patients from 2015-2017 .The clinical and radiological outcome was evaluated at 3 months postoperatively by VAS and HHS and 1-2 years on radiological.



- There was significant improvement in the pain and the healing patch was formed in xray and MRI.



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# Conclusion

- The trial could detect that the additional injection of BMA In the hip region gives benefit of improvement in the functional and radiological outcome with regards of bone regeration in the AVN stage 1 ST and 2 ND .
- The single hole tecnique gives benefit of less chances of stress and fracture and single tract instilling of bone marrow aspirate.





- The conventional method of doing core decompression involves the use of an 8 mm trephine or cannula inserted under fluoroscopic guidance to penetrate the lesion.
- Complications can occur with multiple drillings with the use of these large-diameter trephines which can weaken the femoral head or when the trephine penetrates the femoral head, can injure the articular cartilage, and enter the joint space. [3]
- This multiple drilling is technically straightforward and led to minimal morbidity with no surgical complications. It may be effective in delaying the need for total hip arthroplasty in young patients with early (precollapse) stages of femoral head osteonecrosis. [4]



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