

# The Journey of an Ankylosed Hip: A 20 Year Long-Term Follow-up of an Hip Arthrodesis using Cobra Plate – The Present Day Relevance

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## Learning Point of the Article:

Hip fusion surgeries also known as arthrodesis even though have become a relatively rare surgery and have its own advantages over total hip arthroplasties with lot of evidences in literature showing a good functional outcome in long-term follow-up after hip fusion surgeries.

## Abstract

**Introduction:** Hip fusion surgeries even though uncommon have shown good functional outcomes in patients and have its own advantages over arthroplasty

**Case Report:** In this case report, we present a 62-year-old female, who underwent right hip arthrodesis using Cobra plate when she was 42 years, with a long-term 20 years follow-up, leading a functionally normal life, good patient satisfaction with acceptable quality of life.

**Discussion:** Although hip fusion can limit the patient's range of motion, it confers the advantage of better and stable fixation, pain relief, and advantage of future conversion to hip arthroplasty if done within accepted limits.

**Conclusion:** Hip fusion surgeries have become very rare in recent times due to the advances made in arthroplasty surgeries. Literature evidences of long-term follow-up of hip arthroplasties are very few while hip fusion surgeries have a substantial literature evidence of showing good functional outcomes in patients

**Keywords:** Hip, arthrodesis, fusion, THR, Cobra plate.

## Introduction

Hip pathologies can prove to have a highly detrimental effect of an individual's quality of life and affecting his/her day-to-day life. In current clinical practice, the treatment of choice for hip pathologies is hip arthroplasty and there is very little room for hip fusion surgeries. It becomes relevant in certain scenarios where joint preserving surgeries may not be feasible [1] or in young adults where the risk of complications post hip arthroplasty procedures is high [2]. There have been many literature evidences supporting arthrodesis as a feasible option for these patients with good to better quality of life post the procedure and the ability to perform day-to-day activities normally without any

functional disabilities [3]. Although certain complications are associated with arthrodesis such as back pain, ipsilateral knee pain, and contralateral hip pain, it gives the technical advantage of future conversion to hip arthroplasty in the future if done correctly.

## Case Report

A 64-year-old female came to the outpatient department for routine follow-up. She gives history of having right hip pain when she was 22 years of age which was non-radiating and was not associated with any constitutional symptoms such as loss of weight or appetite and fever. She was then diagnosed to have a

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## Author's Photo Gallery



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**Figure 1:** Ankle radiograph in 2014 showing fibular graft site.



**Figure 2:** On standing position (from anterior and posterior sides).



**Figure 3:** Single leg stance on affected side.

lesion on the right proximal femur and underwent right proximal femur curettage and biopsy of the lesion which reported to be aneurysmal bone cyst.

When she was 23 years of age, following an episode of slip and fall, she sustained right neck of femur fracture and underwent right femoral head osteosynthesis using cannulated cancellous screws and fibular strut graft (Fig. 1). At 30 years of age, she again sustained an injury to right thigh and was diagnosed to have a right shaft of femur fracture. She underwent right femur osteosynthesis with broad dynamic compression plates and cortical screws for the same.

When she was 40 years old, she again had an history of fall leading to right femur peri-implant fracture with implant failure. She did not undergo any treatment for the next 5 years and was able to lead her life with difficulty and assistance. After 4 years, at the age of 44, due to cosmetic and functionally disabling reasons, she had to undergo right femur implant removal and

open reduction and internal fixation with the right hip arthrodesis using Cobra plate + iliac bone grafting with hip fixed in 30 degrees flexion, 5 degrees adduction, and 10 degrees external rotation.

Postoperatively, the patient was initially started on hip exercises and non-weight-bearing mobilization. A limb length discrepancy of about 5 cm which was clearly evident on clinical examination from anterior and posterior aspect (Fig. 2, 3, 4) was present post the procedure for which orthotics (Fig. 5) was prescribed.

On examination in 2024, she walked with a short limb gait, healed surgical scar was present over the right hip, a limb length discrepancy of 5 cm shortening was present on the right side compared to the left on inspection, no range of movements at the right hip with no pain, the right knee had only 20 degrees of flexion with no fixed flexion deformity or coronal plane deformity. Her bilateral ankles, spine, contralateral hip, knee,



**Figure 4:** Single leg stance on unaffected side.



**Figure 5:** Orthotic footwear.



**Figure 6:** 2011 follow-up radiograph.



Figure 7: 2012 follow-up radiograph.

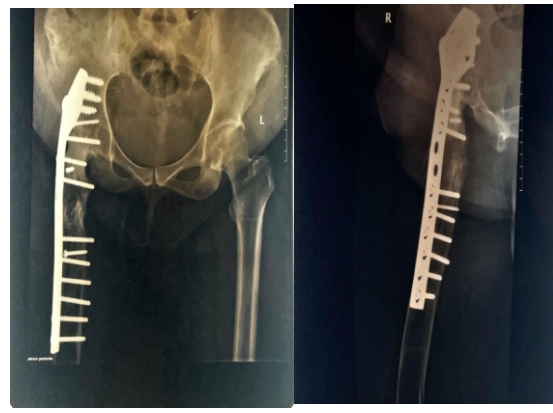


Figure 8: 2013 follow-up radiograph.



Figure 9: 2014 follow-up radiograph.

and ankle were normal. She has been on regular follow-up ever since 2005 with radiographs taken at each visit, but she had only preserved a few which are included here.

Fig. 6 is the post-operative radiograph at 6 years post-operative, Fig. 7 at 7 years post-operative, Fig. 8 at 8 years post-operative, Fig. 9 at 9 years post-operative, Fig. 1 shows the ankle radiograph at 10 years post-operative which shows the fibular strut graft taken for bone grafting, Fig. 10 at 10 years post-operative, Fig. 11 at 20 years post-operative, Fig. 2 shows the limb length discrepancy on inspection from anterior and posterior aspect of the patient, Fig. 3 shows the single leg stance on affected side, Fig. 5 shows the orthotic footwear prescribed for the resulting 5 cm of limb length discrepancy, Fig. 12 shows the healed surgical scar on the lateral aspect of the patient's hip, and Fig. 4 shows the single leg stance on unaffected side which did not require assistance.

Functionally, she is able to carry out her day-to-day activities normally, she is able to walk every day for around 3- 4 km. Since she works as a teacher in a high school which is highly demanding, it is clinically evident that the procedure has preserved her functional ability and helped her in leading a comfortable, perform even technically demanding activities associated with her day-to-day activities and in her occupation

without much compromises and complications.

### Discussion

Hip arthrodesis is a surgically challenging procedure that has been often deferred by surgeons and patients due to the surgical challenges and functional disabilities resulting in the patients [4]. Arthroplasty procedures can provide the patient with immediate pain relief and better functional outcome and naturally becoming the choice of surgery in young patients [5]. There is limited literature evidence confirming the good functional outcomes and better patient satisfaction in long-term follow-up of total hip arthroplasty when compared to that of arthrodesis which has enough evidence showing good functional outcomes and patient satisfaction in long-term follow-up [6]. Many considerations should be taken into account before proceeding with the decision of arthrodesis versus arthroplasty as the latter has shown many complications such as prosthesis wear and tear, metallosis, and prosthesis failure [7] with very less successful revision surgeries whereas arthrodesis confers the technical advantage of proceeding with future arthroplasty [8] if the arthrodesis is done within acceptable limits [9]. In this patient, with the history of multiple fractures, aneurysmal bone cyst in the head of femur, peri-



Figure 10: 2016 follow-up radiograph.

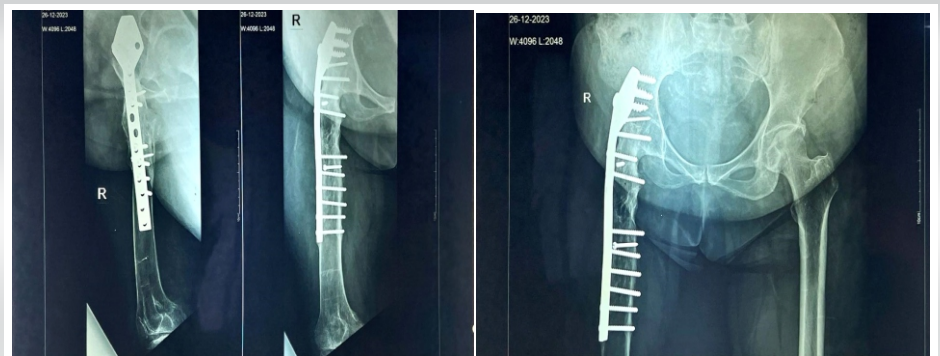


Figure 11: Follow-up radiograph in 2023.



**Figure 12:** Healed surgical scars.

implant fracture, poor bone stock, and associated with a functionally and technically demanding occupation, she became an ideal candidate for arthrodesis using Cobra plate [10, 11]. The procedure initially explained by Schneider, modified in the future, using a lateral Cobra plate was done for the patient. She was then able to do her day-to-day activities without any functional shortcoming, slightly adjusting to the thus caused limb length discrepancy with 5 cm shortening on the operated limb. Even though she was unmarried, during her long-term follow-up of 20 years, she had consistently risen through the ranks in her work and was able to perform at par

**Declaration of patient consent:** The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

**Conflict of interest:** Nil **Source of support:** None

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with her pre-procedural levels meeting all pre-requisites at her occupational level.

## Conclusion

This 62-year-old lady, with 20 years long-term follow-up of hip arthrodesis, is a living evidence of durability and sustainability that hip arthrodesis provides in clinically challenging hip joints with good functional outcomes for the patient without compromising the activities of daily living (ADL). It also confers an advantage of converting the joint for future arthroplasty if done within acceptable limits. Even in literature, there is meager evidence on long-term follow-up of hip replacements while there is substantially more evidence in support of hip arthrodesis with long-term follow-up giving good functional outcomes and good quality of life (QoL)

## Clinical Message

Hip fusion surgeries are facing the risks of becoming obsolete in the future with advancements in hip arthroplasties, better quality prosthesis which can withstand longer, etc. In clinically challenging scenarios, where hip replacements are not advocated or where the replacement is prone for failure, hip fusion surgeries play a major role in that they give good functional outcomes with painless joints and with minor adjustments, the patient can lead a normal life performing all activities. It also gives the added advantage of conversion to hip replacement in the future.

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