

# Successful Management of an Infected Total Hip Arthroplasty with Antibiotic Spacer (Prostalac) Followed by Revision with Wagon R Stem: A Case Report

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## Abstract

Total hip arthroplasty (THA) is a common and successful surgical procedure which becomes complicated by periprosthetic joint infection (PJI), which requires a careful and complete treatment strategy to eliminate the infection and restore function. A case of an infected THA in a 52-year-old male is described in this case report, as well as the course of treatment. Immediately after the failed THA, and with no improvement, the patient underwent a two-stage revision procedure utilizing an antibiotic concentrated Prostalac spacer, then definitive revision THA with Wagner SL revision hip stem. At one year follow up, the Patient had no signs of infection recurrence and had great subjective improvement in function and mobility. The two-stage revision protocol is illustrated to be useful and the Wagner SL revision hip stem in revision arthroplasty demonstrated to be effective in this case. The wire augmentation to greater trochanter gives significant abductor stability.

**Keywords:** Periprosthetic Joint Infection (PJI), Two-Stage Revision, Wagner SL Revision, Hip Stem

## Introduction

The incidence of periprosthetic joint infection (PJI) after THA is 1-2% in primary arthroplasty cases and is significantly higher in revision procedures, with significant morbidity and treatment complexity [1]. Chronic PJI is commonly treated by two-stage revision, and particularly where infection persists beyond the early postoperative period [2]. The approach consists initial exploration of the infected prosthesis, placement of an antibiotic impregnated spacer, and subsequent revision arthroplasty after the resolution of infection. In our case, Prostalac spacer was used which as mentioned is well known to maintain joint space and release local antibiotics [3]. Such a case demonstrates significant bone loss especially in proximal femur with a well-constructed greater trochanter with stainless steel wiring which helps to provide additional support and stability and better functional outcome.

## Case Presentation

A 52-year-old male patient presented with a six-month history of pain, limited range of motion, and a swollen right hip following a primary THA. His hypertension and no known immune deficiencies were noted on his medical history. The hip was tender and swollen and he could feel the pain on movement on examination. Laboratory investigations showed a very elevated ESR (60 mm/hr) and CRP (45 mg/L). The diagnosis of a chronic Periprosthetic Joint Infection was

confirmed on culture growth of *Staphylococcus aureus* from synovial fluid aspirate, with elevated leukocyte count.

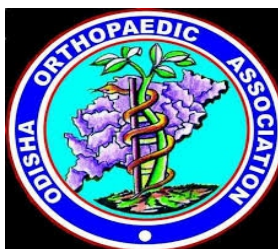
## Treatment

**Stage One:** After extensive debridement and removal of the infected implant, the patient was subsequently placed with a Prostalac spacer loaded with vancomycin and gentamicin (Figure 1). The Prostalac (PROSThesis of Antibiotic Loaded Acrylic Cement) is a temporary implant that preserves soft tissue tension while providing circumventricular antibiotic levels. The approach minimizes dead space, preserves joint mechanics, and will therefore support future reimplantation. The patient was started on a six-week course of intravenous antibiotics and followed by ESR and CRP.

**Stage Two:** After laboratory markers normalized, the second part of the procedure was performed. A revision THA was performed using the Wagner SL revision hip stem after removal of the Prostalac spacer (Figure 2). The Wagner SL revision hip stem, characterized by modularity and adaptability in compromised bone stock provides rotational stability and optimal fixation in complex revisions. In figure of 8 manner, the stainless-steel wiring was reinforced to the greater trochanter part with the abductor mechanism (Figure 3).

## Outcome and Follow-Up

The patient had an uneventful postoperative course and allowed progression of weight bearing six weeks post-surgery. At one year follow up, ESR and CRP levels remained within normal limits, and radiographic evaluation was normal finding in terms of proper positioning of the implant and lack of signs of loosening or of infection recurrence. The patient reported minimal pain, functional status, and independence in daily activities with a Harris Hip Score of 86; clinically (Figure 4, Figure 5, Figure 6).



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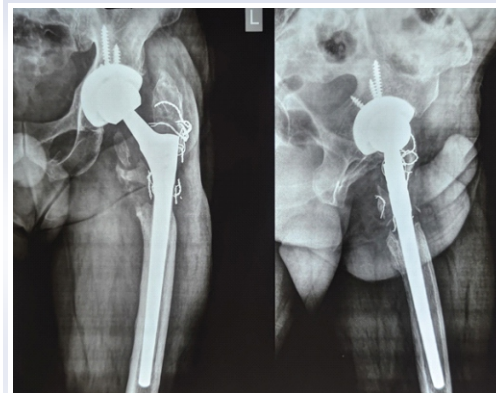
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**Figure 1:** patient placed with a prostalac spacer loaded with vancomycin and gentamicin



**Figure 2:** Immediate post operative radiograph



**Figure 3:** Post operative radiograph 6 weeks



**Figure 4:** Clinical image of patient with hip flexion



**Figure 5:** Clinical image of patient with hip abduction



**Figure 6:** Clinical image of patient walking

## Discussion

The two-stage protocol for chronic PJI is widely supported by robust evidence, with success rates for infection eradication reaching as high as 90% [4]. This approach is particularly advantageous due to its dual role: it not only aids in infection control but also helps maintain joint stability. The placement of a Prostalac spacer loaded with antibiotics targeted to pathogens such as *Staphylococcus aureus* ensures high local antibiotic concentration, which is crucial for managing resistant infections while preserving soft tissue and joint space [5]. The spacer also simplifies the transition to a definitive arthroplasty by maintaining soft-tissue tension, which aids in preserving joint mechanics [6].

In cases with compromised bone stock, as seen in this case, the Wagner SL revision hip stem provides an optimal solution. Its unique, modular design allows for adaptability to femoral defects, offering reliable structural support and reducing the risk of complications

commonly associated with revision arthroplasty [7]. Studies like those by Paprosky et al. (2006) highlight the benefits of the Wagner SL revision hip stem's stability, even in the presence of significant bone loss, by evenly distributing load and minimizing stress on weakened bone [8, 9]. This combination of targeted infection control with antibiotic-loaded spacers and the mechanical stability provided by the Wagner SL revision hip stem underscores the importance of a tailored approach in complex PJI cases [10].

## Conclusion

This chronic PJI case was managed with the two-stage revision using Prostalac spacer and THA with Wagner SL revision hip stem, the infection resolved and gave excellent functional outcome. This protocol is a reliable solution for chronic PJI and a high success rate in infection eradication and implant longevity.

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

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