

PROFEMUR™ Modular Hip System Using Modular Neck Options to Address Limb-Length Deficiency

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PRE-OP | Figure 1



POST-OP | Figure 2



INTRODUCTION

Managing impingement, dislocation, and limb-length discrepancy is a common concern in total hip arthroplasty.^{1,2} Currently, many methods are available to address these issues; including computerized navigation³ and various acetabular and femoral alignment guides.⁴ A more simple, yet effective method of dealing with these issues is available in the diverse modular neck options of the PROFEMUR™ Hip System.

PATIENT PROFILE

This patient is a 62 year-old male, who suffered bi-lateral femoral neck fractures in the remote past which were treated with Austin-Moore prostheses. In December 1986, he underwent a revision with a custom femoral component and an acetabular cage (**Figure 1**). Since that revision, the femoral stem progressively subsided and loosened. This led to a shortening of the limb by approximately 18mm. It was therefore necessary to revise the femoral component and ideally correct the limb-length discrepancy.

SURGICAL METHOD

The patient underwent surgery on February 19, 2001 to replace the existing femoral component (and several wires) with the PROFEMUR™ Modular Hip System. Due to significant bone loss in the calcar region, it was necessary to utilize a prosthesis

that would afford proximal and distal fixation without requiring calcar bone support; and would also make up the limb-length deficit. The preoperative x-rays suggested the acetabular component was well-fixed, and would not require revision. This was confirmed at the time of surgery. It was also determined that approximately 18mm of additional limb-length was required. Distal fixation was achieved with the PROFEMUR™ tapered, splined distal stem. Then, to obtain proximal fixation in the devoid calcar, a large grit-blasted proximal body was utilized.

After the distal stem and proximal body were assembled and implanted firmly in place, different head and neck combinations were trialed until the desired limb-length was achieved. Ultimately a long, valgus modular neck (**Figure 2**) was chosen.

DISCUSSION

The PROFEMUR™ Hip System, with its modular necks, offers solutions for many common issues associated with total hip arthroplasty. Modular necks may be helpful in balancing soft tissues, reducing impingement, or replicating limb-length. Had less limb-length correction been required for this patient, a short modular neck or a varus modular neck might have been employed. In the end, by having this neck modularity available, ideal limb-length was provided with this prosthesis.

- 1) Goldstein WM, et al, Prevalence of Dislocation After Total Hip Arthroplasty Through a Posterolateral Approach With Partial Capsulotomy and Capsulorrhaphy. *Journal of Bone and Joint Surgery Am.* 2001;83 Suppl 2, Pgs. 2-7
- 2) Chandler DR, et al, Prosthetic Hip Range of Motion and Impingement. The Effects of Head and Neck Geometry. *Clinical Orthopaedics and Related Research.* 1982;166: Pgs. 284-291
- 3) Jaramaz B, et al, Computer Assisted Measurement of Cup Placement in Total Hip Replacement. *Clinical Orthopaedics and Related Research.* 1998;354: Pgs. 70-81
- 4) Lovell TP. A Simple, Accurate Guide to Acetabular Component Positioning in Total Hip Replacement. *Program and Abstracts of the 68th Annual Meeting of the American Academy of Orthopaedic Surgeons*; February 28-March 4, 2001; San Francisco, CA. Scientific Exhibit 59.



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