



Case report

An unusual presentation of catastrophic failure of hip arthroplasty with a thigh mass

Florian Dibra, MD ^{a,*}, Hari Parvataneni, MD ^b^a Department of Orthopaedics and Rehabilitation, University of Florida, Gainesville, FL, USA^b Division of Arthroplasty, Department of Orthopaedics and Rehabilitation, University of Florida, Gainesville, FL, USA

ARTICLE INFO

Article history:

Received 22 January 2016

Received in revised form

12 March 2016

Accepted 17 March 2016

Available online 8 April 2016

Keywords:

Total hip arthroplasty

Catastrophic failure

Polyethylene wear-through

Thigh mass

ABSTRACT

In the advent of increasing demand for total hip arthroplasty, surveillance of these patients is imperative to identify potential complications requiring revision surgery. This is especially important in the young population, as revision is usually necessary during their lifetime. We present a case of a young female patient with a history of total hip arthroplasty 17 years prior, who presented with left hip pain and anterior thigh mass. The prosthetic hip had progressed to catastrophic failure with the cobalt-chrome femoral head having eroded through the polyethylene and acetabular socket. This was associated with significant metal debris and large fluid collection in the thigh. The patient required complex revision surgery but could have had a much lesser procedure with earlier intervention.

Copyright © 2016 The Authors. Published by Elsevier Inc. on behalf of American Association of Hip and Knee Surgeons. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Total hip arthroplasty is a common orthopaedic procedure with approximately 400,000 operations per year [1]. While typically, an operation predominantly performed for the elderly population, there are well-documented studies showing good outcomes in the younger population [2–5]. However, when compared with the elderly population, the excellent results are not often replicated because of their high activity levels [6]. Regardless of the age group, frequent reasons for revision surgery are bearing surface wear, aseptic loosening, instability, and infection [7–9]. Polyethylene bearing surface is the gold standard for hip replacement, and subsequent wear is a phenomenon often encountered with long-term follow-up of the patients. Polyethylene wear is often associated with osteolysis and implant loosening contributing to midterm to late revision in total hip arthroplasty, especially in young patients [9–11].

We present an unusual presentation of catastrophic failure of a total hip arthroplasty, with complete wear-through of the femoral head through the polyethylene liner and the acetabular socket with a large associated soft tissue thigh mass. Complete wear-through of

the polyethylene is a well-described in literature. Heck et al. [12] in their 1995 survey of the American Association of Hip and Knee Surgeons found that complete polyethylene failure was seen in 172 metal-backed sockets (29 of 10,000). There are also a few case reports in literature highlighting complete wear-through of the femoral head through the polyethylene and metal-backed acetabular component, although this is a much more uncommon event [13–15].

Significant advances have been made with the advent of ultra-high-molecular-weight polyethylene, especially with highly cross-linked polymers, regarding improvement in wear rate [16]. To date, there does not seem to be a reported case of complete wear-through of highly cross-linked polymers. However, studies have shown decreased fracture toughness and resistance to fatigue crack propagation of highly cross-linked polyethylene, which can lead to a different kind of failure mode [17–19]. This highlights the need for discussion with the patient during the preoperative period of such possible event in the future. Close radiographic follow-up is helpful to identify and monitor any mode of failure to prevent a catastrophic wear and potential need for more complex surgery. This becomes important as prevalence of arthroplasty in the younger population increases [20].

Case history

The patient was informed that data concerning the case would be submitted for publication, and she provided informed consent.

No author associated with this paper has disclosed any potential or pertinent conflicts which may be perceived to have impending conflict with this work. For full disclosure statements refer to <http://dx.doi.org/10.1016/j.artd.2016.03.001>.

* Corresponding author. 3450 Hull Road, Gainesville, FL 32607, USA. Tel.: +1 610 420 554.

E-mail address: dibraff@ortho.ufl.edu

<http://dx.doi.org/10.1016/j.artd.2016.03.001>

2352–3441/Copyright © 2016 The Authors. Published by Elsevier Inc. on behalf of American Association of Hip and Knee Surgeons. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



Figure 1. Anteroposterior radiograph of original left total hip arthroplasty in the immediate postoperative period.

She is a 44-year-old woman with no medical history, nonsmoker, and with a body mass index of 19.9 kg/m^2 , who presented to our office in 2014 as a referral with left hip pain. Her medical history is significant for a car accident in 1996, in which she sustained a left femoral head and neck fracture as well as ipsilateral femoral shaft fracture. She underwent open reduction and internal fixation for the femoral head and percutaneous screw fixation of the femoral neck fracture. She also underwent a retrograde intramedullary nailing for the femoral shaft fracture. Owing to persistent pain in the left hip, she underwent total hip arthroplasty 1 year later (Fig. 1). Components included DURALOC titanium cementless acetabular shell size 48 mm (Depuy, Warsaw, Indiana), ENDURON polyethylene liner with a 5.9-mm thickness at the dome (Depuy, Warsaw, Indiana), and press-fit anatomic medullary locking femoral stem with a 28-mm cobalt-chrome head (Depuy, Warsaw, Indiana). Gas plasma was the sterilization process used for that particular polyethylene liner. Postoperative course was



Figure 2. Anteroposterior radiograph of original left total hip arthroplasty with impending polyethylene wear-through (12 years from surgery).



Figure 3. Anteroposterior radiograph of left total hip arthroplasty with complete wear of the polyethylene liner and the acetabular socket. The femoral head is mostly contained within the socket (17 years from surgery).

unremarkable, and she resumed normal activity and work as a guidance counselor in an elementary school.

Patient had excellent clinical results with her hip replacement, until she was seen in 2009 for left hip pain. Radiographs revealed polyethylene wear with impending wear-through; however, no surgical treatment was offered at that time (Fig. 2). She had no further follow-up until 2014, when she returned with a 3-month history of left hip pain and a progressively enlarging painful anterior thigh mass. She denied any infectious signs and symptoms. As a result of the pain, she was dependent on a walker for ambulation. Furthermore, she was unable to work and severely limited even with activities of daily living. Radiographs revealed left total hip prosthesis with complete wear-through of the femoral head through the polyethylene liner and the acetabular component (Fig. 3). Infectious workup resulted negative (normal C-reactive protein and estimated sedimentation rate). She underwent a computed tomography (CT)-guided hip aspiration. CT scan of the hip confirmed the acetabular protrusion of the femoral head and an anterior thigh fluid-filled mass (Fig. 4). Fluid aspiration was noted to be “dark/motor oil” in color and consistency. Samples from the hip joint and mass aspiration were negative for infectious etiology.

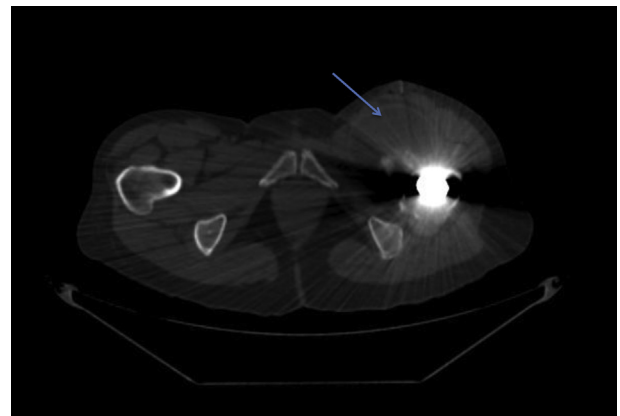


Figure 4. Axial computed tomography scan image demonstrating homogenous fluid collection in the anterior compartment of the left thigh (arrow).

Download English Version:

<https://daneshyari.com/en/article/4041635>

Download Persian Version:

<https://daneshyari.com/article/4041635>

[Daneshyari.com](https://daneshyari.com)