

CASE REPORTS

Bilateral Complications of Hemiarthroplasty after Displaced Femoral Neck Fracture Treatment

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Summary

Hemiarthroplasty (HA) of the hip joint is a commonly used treatment method for displaced femoral neck fractures (FNF) in the elderly population. The revision rates following hemiarthroplasty for trauma are 4-24% (2), but there are few studies in the literature presenting bilateral complications of HA following FNF treatment. We present a 67-year-old female with migration and angular deformity of the left unipolar prosthesis followed by malposition and subluxation of the right unipolar prosthesis after sixteen months, which are not common complications and they are even less frequent to occur in one patient.

Key words: femoral neck fracture, complications, hemiarthroplasty, total hip arthroplasty

AIM OF THE DEMONSTRATION

The aim of this article is to demonstrate the importance of determining the best treatment option in each FNF case by showing the outcome of a patient who had bilateral complications of HA following FNF treatment.

CASE REPORT

A 67-year-old female patient was admitted to the hospital with severe pain in left hip region and reduced leg mobility. There was no history of recent trauma. Collecting anamnesis, the patient had a left FNF after a fall on her left side one month ago and a right FNF after a fall one year ago which both were treated with unipolar HA (*Austin Moore*). X-ray of the pelvis showed migration and angular deformity of the left unipolar prosthesis (Figure 1). Her routine analyses were within normal range. Left hip revision surgery was performed with the conversion to total hip arthroplasty (*Excia*). The total blood loss during operation was 800mL. The patient received 2 units of packed red blood cells postoperatively due to posthemorrhagic anaemia (haemoglobin- 101g/L). She had a slow physical activation period and learned to walk with crutch assistance and was discharged from the hospital. The overall hospital stay was 25 days.

After sixteen months the patient was repeatedly admitted to the hospital with severe pain, reduced right leg mobility, deformation and oedema in the right hip region. X-ray of the pelvis showed malposition and subluxation of the right unipolar prosthesis (Figure 2). Right hip revision surgery was performed with the conversion to total hip arthroplasty (*Excia*) (Figure 3). The total blood loss during operation was 1000mL. The patient received 2 units of packed red blood cells postoperatively due to posthemorrhagic anaemia (haemoglobin- 80g/L). Due to fear of pain in the right hip region during movement despite receiving pain relief therapy, the patient refused to start postoperative rehabilitation. She was discharged from the hospital after 26 days with recommendations to continue physical activation to the possible extent to

regain walking function.

DISCUSSION

While closed reduction and internal fixation is a routine treatment of FNFs for the younger patient group (20-50 years), treatment of older patients (60 years and older) with dislocated FNF depends on patient's mental status, living arrangement, level of independence and activity, bone and joint quality, prosthesis availability and cost. In our demonstrated case the patient had a normal level of independence and activity before the FNF. As comorbidities she had second stage primary arterial hypertension, coronary heart disease and second functional class chronic heart failure by New York Heart Association. Since the patient was older than 60 years, had cardiovascular comorbidities, but no activity limitations, it would be discussable whether the patient should have had HA or total hip arthroplasty (THA). In various meta-analyses it has been stated that although HA is a fast and standardized procedure that allows early weight bearing and recovery (5), it is associated with a higher revision rate and lower Harris Hip Score in comparison with THA. In a review by *Nikitovic* (4) evaluating the effectiveness of THA in comparison with HA for the treatment of FNF, there was a significantly lower revision rate in THA patients comparing with HA and several hip functional status measuring scales (Harris Hip Score, Oxford Hip Score, Hip Rating Questionnaire) were in favour with THA. Therefore, authors of various studies have concluded that HA is inferior to THA as a choice for treatment of displaced FNFs. As described in literature, HA should only be used in patients with multiple comorbidities, limited life expectancy and/or very low functional demands (3).

The most frequent complications for HA are aseptic loosening, acetabular erosion and infection. In this case the patient had migration and angular deformity of the left prosthesis followed by malposition with femoral stem subluxation of the right prosthesis. Improper femoral canal preparation, cementation and

stem position are contributing factors for HA failure. These factors mechanically cause loss of cement-bone contact surface, subsequent debris formation and aseptic loosening of the prosthesis. Loss of support by the cement and bone leads to femoral stem migration and subjection to cantilever forces that fatigue and bend the metal (1). Malposition of the right prosthesis (seen in Figure 1) led to joint instability and was the most likely cause of subluxation. Intraoperative implantation errors can lead to various mechanical complications and should be detected in the early postoperative period.

In a study by *Sierra et al.* (6), they evaluated outcomes of failed HA conversion to THA operations in patients with FNF and concluded that conversion of prostheses is associated with high intra- and postoperative complication and loosening rates. It is discussable if the patient had THA as the primary treatment of both FNFs would she have a more successful postoperative outcome and had any revision surgeries. A thorough assessment of patient physical and mental health status, level of independence and activity is required to determine the best primary treatment method for FNF.

Conflict of interest: None

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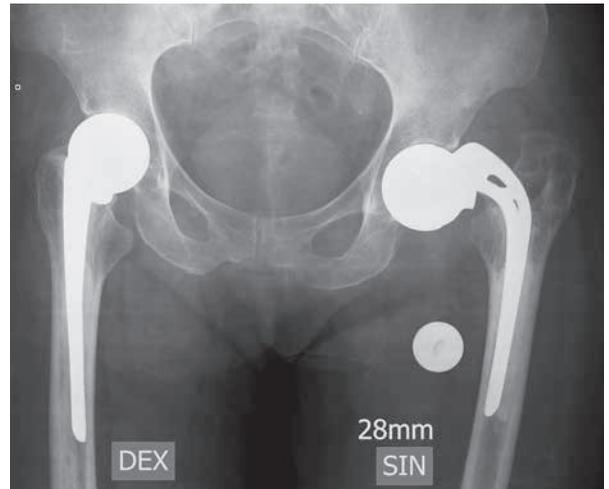


Fig. 1: Pelvic X-ray- migration and angular deformity of the left unipolar prosthesis and malposition of the right prosthesis

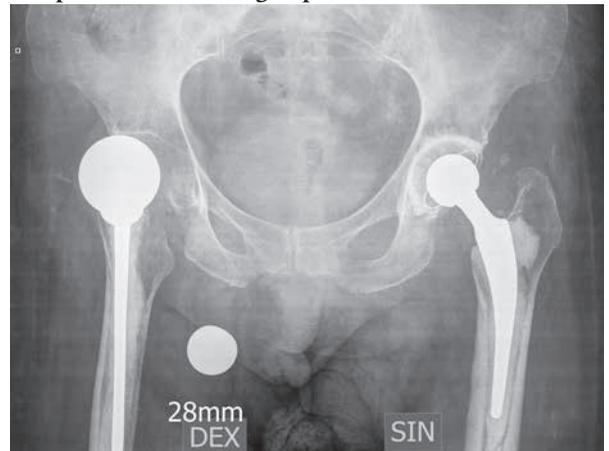


Fig. 2: Pelvic X-ray- malposition and subluxation of the right unipolar prosthesis and cemented total left hip prosthesis

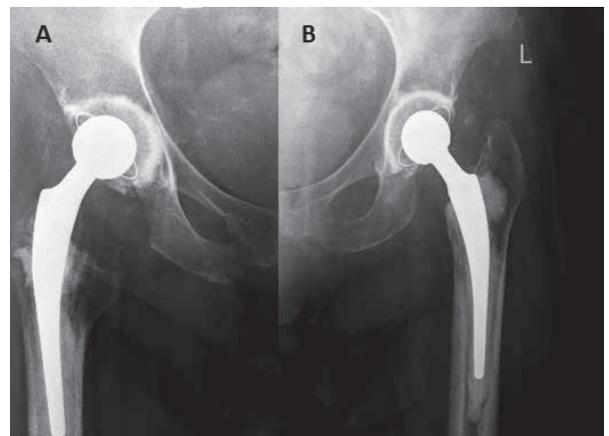


Fig. 3: Pelvic X-ray- cemented total right (A) and left (B) hip prosthesis