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Case Series

Neglected Total Hip Dislocation

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Abstract

Background: Dislocation of total hip arthroplasty (THA) needs prompt intervention and reduction either closed or open. It is unusual to left THA dislocated. Hence in this study, the outcomes of neglected prosthesis after THA were determined.
Methods: In this case series study, 15 neglected cases of total hips which had been left unreduced for long time (more than 3 months) were assessed. Cause of postponing reduction, femoral side and acetabular side defects, approach and type of revised prosthesis, Harris hip score (HHS), and other complications were studied.
Results: The results in this study demonstrated that financial issues were the cause of delayed attempt for treatment in 5 cases and the other 10 cases had delay for treatment, because they searched for a specialist to accept performing an operating on them. There were some acetabular side and femoral side defects. By Paprosky classification, in femoral side, there were 6 defects: four type 2, one type 3A, and one 3B. In acetabular side, there were 10 defects (three type 1, one type 2a, three type 2b, one type 3a, and two type 3b). In one developmental dysplasia of the hip (DDH) case, previous osteotomy site was revised (distal segment rotated and then refixed)
Conclusion: Totally, according to the obtained results, it may be concluded that outcomes were relatively good in neglected prosthesis cases after THA. However, recognition of high-risk cases and reduction of delay time may improve the outcomes.

Keywords: Total Hip Arthroplasty; Hip; Arthroplasty

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Background

Dislocation of total hip prosthesis is usually painful (1) and should be reduced as soon as possible (2) to decrease the patient's pain and discomfort and prevent damage to the prosthesis (stem, head, cup, and polyethylene). Soft tissue around hip joint may be under tension and there is a risk of wound dehiscence or skin necrosis. At first, closed reduction should be attempted (3). If it is unsuccessful, then open reduction may be necessary (4). Before open reduction, underlying the cause of dislocation should be discovered (5).

Position of the cup, version of the stem, abductor function, and strength should be assessed. There should be a plan before open reduction to solve the underlying cause of dislocation. If the cause(s) is/are not found, open reduction may have no benefit for the patient and re-dislocation may happen several times. In developing countries, where there is no complete insurance support, some patients may refuse to continue treatment and their prosthesis may remain dislocated for a long time. On the other hand, there may be a medical condition that precludes major surgery [recent myocardial infarction (MI), recent deep vein thrombosis, and pulmonary emboli] (6).

This study tries to present some cases of neglected total hip prosthesis and discuss various treatment options along with the final results of revision surgeries. The innovation of this study is that in developed countries the dislocation reduces immediately after that, and they do not have any lasted dislocation.

Methods

This study was a case series performed at Sina Hospital, Tehran University of Medical Sciences, Tehran, Iran. The study exclusion criteria were the patient's dissatisfaction to participate in the study, and the patients that we could not collect enough finding based on the study variables.

From 2005 to 2017, all cases of neglected dislocated total hip arthroplasty (THA) prosthesis for more than 3 months who referred to the Sina Hospital were enrolled. They included some cases of cup loosening which led to dislocation of the head from the cup. The variables included age, sex, type of the primary prosthesis (cemented or cementless), Harris hip score (HHS), cause of delay in treatment, time between dislocation and revision surgery, cup version and inclination, stem version and position, acetabular side defect, femoral side defect, type of prosthesis used for revision, level of constrain of the revised prosthesis (constrained liner, dual mobility cup, etc.), abductor function, need for extended trochanteric osteotomy (ETO) (7), heterotopic ossification (HO) (8), number of closed or open reduction attempts, and leg length discrepancy (LLD) (9).

Results

A total of 15 patients met the criteria to enter the study, including 4 (26.7%) female and 11 (73.3%) male patients. The mean ± standard deviation (SD) of age of the subjects was 52.87 ± 16.64 years (22 to 72 years) (Figure 1).

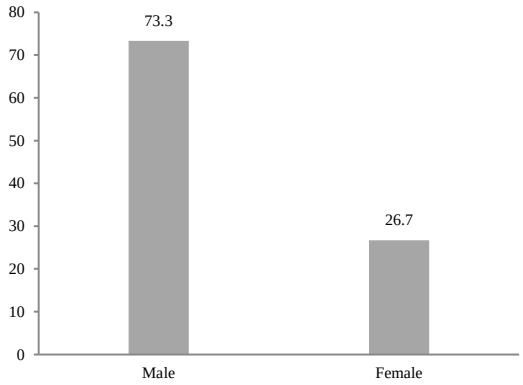

Figure 1. Gender

There were 8 (53.3%) cases of idiopathic degenerative joint disease (DJD), 3 fractures (2 femoral neck and one intertrochanteric fractures) (20%), and 4 (26.7%) DDH (two high-riding DDH) (Figure 2). Financial issues were the cause of delayed attempt for treatment in 5 (33.3%) cases and the other 10 (66.7%) cases had delay for treatment because they had difficulty finding a specialist.

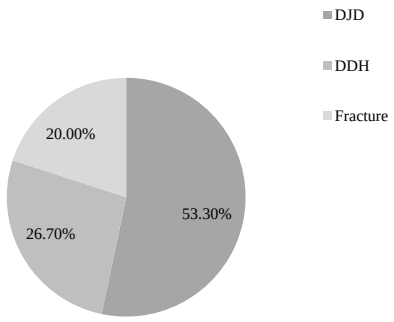

Figure 2. Causes of total hip arthroplasty (THA)
DJD: Degenerative joint disease; DDH: Developmental dysplasia of the hip

They had remained dislocated for an average of 6.6 months (4-16 months) (Figure 3).

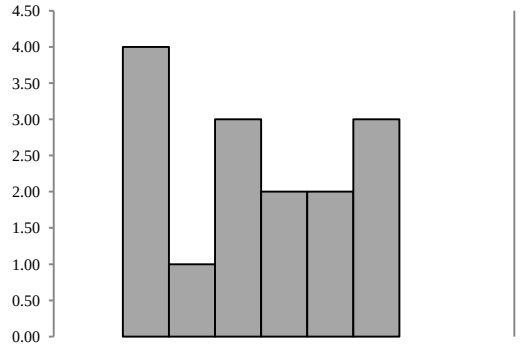

Figure 3. Remained dislocation

4 (26.7%) cases needed ETO (Figure 4).

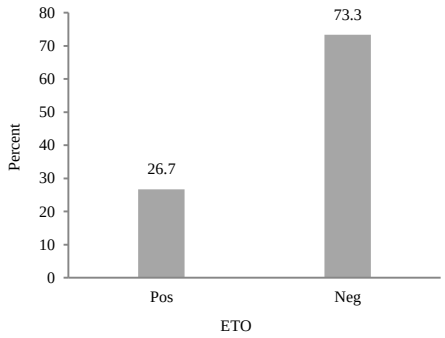

Figure 4. Extended trochanteric osteotomy (ETO)

HO (Brooker classification) was seen in 8 cases, two of them were in grade 4, one in grade 3, two in grade 2, and 3 in grade 1 (Figure 5).

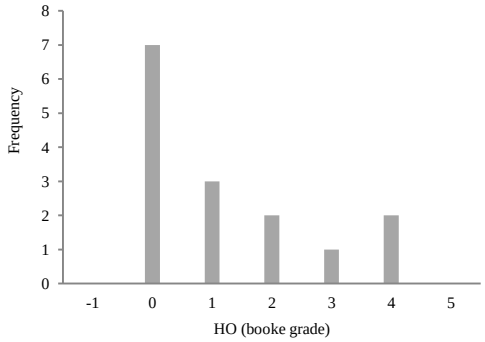

Figure 5. Heterotopic ossification (HO)

Posterior approach arthroplasty was used in 4 (26.7%) cases and lateral approach in 11 (73.3%) cases (Figure 6).

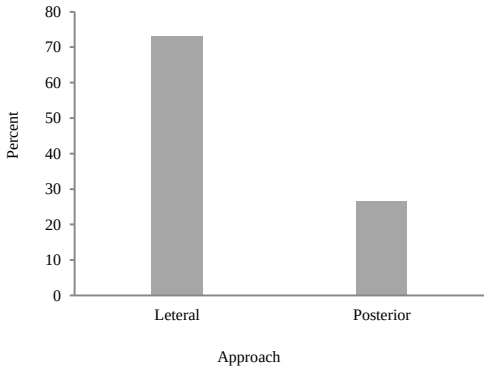

Figure 6. Approach

Constrained liner was used in 4 (26.7%) cases and dual mobility cup in 4 (13.3%) cases. In 10 cases, the revision on the femoral side included inserting a long stem femoral component to gain diaphyseal fixation (53.3%) (Figure 7). In one DDH case, previous osteotomy site was revised (distal segment rotated and then re-fixed). In this case, no

stem and no cup were revised. Before revision, there were 5 cases with head size of 28 and 8 cases with head size < 32.

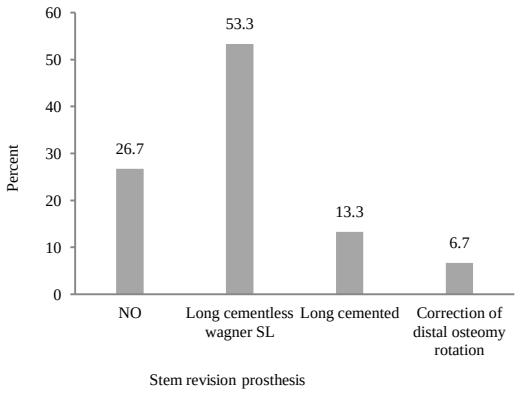

Figure 7. Stem revision

Discussion

Neglected dislocation of THA is rare. The most common cause of this phenomenon in our study was searching for a surgeon who accepted to perform the operation (10 cases). It shows that there is no network to link the patients with special problems to the national revision centers. In other 5 cases, financial problems for operation were the cause of this delay for treatment. This means that insurances should work better and be effective to solve the problems. 10 cases needed stem revision because of malpositioning (Figure 7). Attention to landmarks when inserting the femoral stem is necessary to avoid dislocation and prevention of recurrent dislocations. In 4 cases of stem revisions, by extended trochanteric osteotomy, stem was removed and revised with a long stem femoral component. There were 7 femoral side defects which needed to be handled: 4 type 2, 1 type 3a, and 1 type 3b. All of them were revised with long stems (Figure 8). It is necessary to have long stems as back up in every revision. Stems of primary operation were remained in 5 cases. In one of these five cases, distal osteotomy site was used to rotate the femur and stem to correct the anteversion. All cases needed cup revision. It means that cups were non-functional and their revision were necessary.

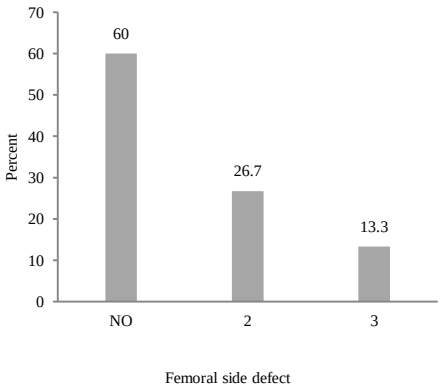

Figure 8. Femural side defects

There were some acetabular side and femoral side defects. Based on Paprosky classification, there were 6 significant femoral side defects: 4 (26.7%) type 2, 1 type 3a, and 1 type 3b (13.3%). In acetabular side, there were 10 defects [3 (20.0%) type 1, 1 (26.7%) type 2a defect, 3 (26.7%) type 2b, 1 (20.0%) type 3a, and 2 (20.0%) type 3b. Cup malpositioning (7 cases) and acetabular side defects were the main causes of cup revision. Acetabular defects were seen in most cases (3 type one, one 2a defect, three 2b, one 3a, and two 3b) (Figure 9).

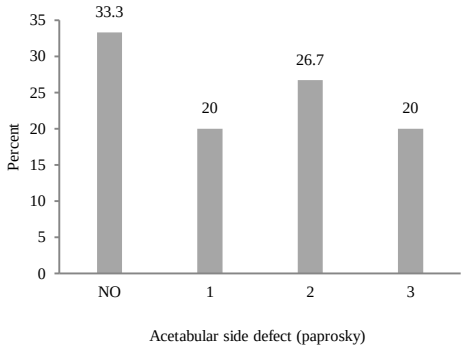

Figure 9. Acetabular side defects

It means that for revision, preparation for reconstruction of acetabular defects is obligatory. It is obvious that HHS and LLD improve significantly after revision. Compensation of abductor insufficiency with constrained liner or dual mobility cup were performed in 6 cases. Therefore, it is recommended that in revision surgeries for neglected THA dislocations, constrained liner or dual mobility cup be available. There were 8 cases of HO, but three were high grade (3 and 4) in 3 cases. It is necessary to be ready for excision of heterotopic bone in these cases. Head sizes in primary THAs were 28 in 5 cases and 32 in 8 cases (Figure 10).

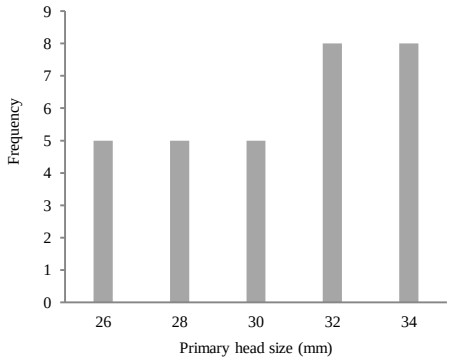

Figure 10. Primary head size

There was no large head (36 and 40) in this group, which is a significant result. The most common approach was lateral approach in supine position for revision surgeries (Figure 11). As it is not any paper in the literature about lasted dislocation prosthesis, we cannot comparison this finding to another on.

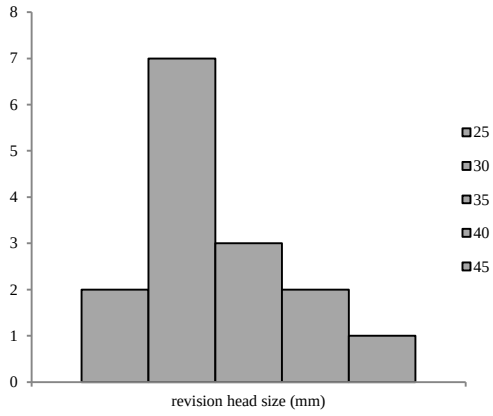

Figure 11. Revision head size

Conclusion

Given the results, it may be concluded that outcomes are relatively good in neglected prosthesis cases after THA. But recognition of high-risk cases and reduction of delay time may improve the outcomes.

Conflict of Interest

The authors declare no conflict of interest in this study.

Acknowledgments

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