Recent Advances In Management Of Dislocation After Total Hip Replacement

Essay

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List of Abbreviations

Abbr.	Full-term
ASIS	Anterior Superior Iliac Spine
CoC	Ceramic on Ceramic
MoM	Metal on Metal
PSIS	Posterior Superior Iliac Spine
THA	Total Hip Arthroplasty
TMJ	Two Modular Junction
UHMWPE	Ultra-high-molecular-weight polyethylene
XLPE	Highly cross-linked polyethylene

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Abstract

Dislocation remains one of the most common complications after total hip arthroplasty, regardless of the surgical approach. While multiple reasons as laxity, implant position, improper implant choice, and impingement etc. might be leading factors for dislocation, an exact identification of the exact reason is of major importance, to plan for a proper surgical or nonsurgical correction.

This essay describes the definition, etiology, reduction, and possible treatment options for dislocation after total hip replacement. It furthermore includes an overview of possible surgical treatment options, based on the main pathology leading to dislocation.

Keywords

Dislocation, Surgical approach, Head size, Closed reduction, Anatomy, Biomechanics, Total hip, Prosthesis, Etiology, Risk factors, Hip joint, Soft tissue, Liner, Constrained, Bipolar, Tripolar, Acetabulum, Femur, Impingement.

Introduction

Total hip arthroplasty (THA) is a re-constructive procedure that has improved the management of those diseases of the hip joint that have responded poorly to conventional medical therapy [1].

Dislocation following total hip arthroplasty is one of the most common complications of this procedure that can occur during both early and late postoperative period. Direction of dislocation of a THA is usually posterior (77%), anterior dislocation is much less frequent (23%), whereas superior or Lateral dislocation has also been described [2].

For treatment purposes, dislocation after total hip arthroplasty can be categorized as early or late on the basis of the timing of the onset. Early dislocation usually occurs in the early post- operative period after the arthroplasty and is often successfully treated with nonoperative means. In contrast, late dislocation occurs after five years and generally requires surgical treatment. Dislocations occurring between six months and five years may be categorized as intermediate. This temporal classification is useful because it highlights the differences in the etiology of the dislocation in each category, which in turn determine the type of treatment that is selected [3].

The etiology of hip instability is often multi-factorial. Patient demographics, operative technique and implant design variables have been demonstrated to affect the risk of dislocation [4].

Also, Component malpositioning and abductor insufficiency are two of the most important recognized causes of recurrent dislocation. And hence, Surgeons are well that preventing dislocation is far preferable to having to manage the problem [5].

Some dislocation problems can be avoided by preoperative identification of patients at high risk for dislocation and applying appropriate preventive measures. Also, careful preoperative planning with implant templates helps prevent instability problems. Templating allows the surgeon to predict the optimal location and orientation of implants relative to bony landmarks of the pelvis and femur and predicts the proper level of femoral neck osteotomy importantly, it also allows the Surgeon to choose implants that will restore leg length, femoral offset, and soft tissue tension. Other implant-related factors that affect hip stability include; femoral component offset, femoral component head to neck diameter ratio, femoral component neck geometry, and acetabular component design [6].

Other preventive measures include the proper choice of the approach, hip stability testing, proper soft tissue repair, use of constrained devices (when the surgeon preoperatively or intraoperatively identifies instability problems that cannot be solved with conventional implants). Also, to prevent early dislocation, it is common practice to impose postoperative restrictions. These restrictions include strict advices regarding permissible posture while standing, walking, sitting, or sleeping. Some patients may also benefit from prophylactic postoperative bracing [7].

Treatment of dislocation after THA may be conservative, mostly for early dislocation, or operative, mostly for late dislocation. Conservative treatment after reduction includes cast or brace application for immobilization. Options for operative treatment vary, there may be component exchange, revision arthroplasty, bipolar or tripolar arthroplasty, large femoral head application, soft tissue reinforcement, constrained liners, or resection arthroplasty. Each of them has indications and contraindications depending on the type of the patients and the condition of the hip joint [5].

During the operation, an effort should be made to identify the source of instability and if necessary manage it at the time of the open reduction [5].