The use of elliptical head hemiprostheses in young patients – evaluation of acetabular protrusion

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1. Introduction

In the present paper, the authors evaluated the extent of acetabular protrusion of the hip joint in young patients treated with hemiarthroplasty using cementless elliptical head prosthesis. The authors analyzed a population of 28 patients treated with cementless hemiarthroplasty using elliptical head prostheses mostly for the reason of AVN and false joint of the femoral neck. A special consideration was given to patients BMI, the level of physical activity and the degree of possible lengthening and lateralization of the limb after surgery. These parameters were assumed to have a fundamental influence on the interaction of metal head and acetabulum. The study will allow elaborating a standard for management of young patients requiring hip joint arthroplasty.

2. Methods

Study population consisted of 28 patients (16 females, 12 males) suffering from fracture of the femoral neck, AVN or false joint of the femoral neck. Patients age ranged from 21 to 87 years with the mean of 53.5 years. The BMI values ranged from 16 to 36 with the mean of 28.2. For the purpose of evaluation of acetabular protrusion the authors used the radiographic method developed by R. G. Wetherell [1].

![Fig. 1 Obturator / brim line](image)

3. Results

Early acetabular protrusion was for the most part the result of surgeons mistakes such as incorrect level of femoral neck cut and choice of the oversized head. The protrusion caused by limb elongation occurs mostly in the acetabular roof in the cephalad direction. Lateralization of the limb results in protrusion towards acetabular bed in the midline direction (only 2 cases). In cases of proper placement of the implant, the elliptical head prosthesis proved its usefulness in young patients with f. ex. AVN. Patients suffering from AVN stage III and higher
according to Arlet-Fickat, as well as patients suffering from lingering diseases weakening the articular cartilage should not be qualified for hemiarthroplasty.

4. Discussion

The study confirmed, that the most common reason for early acetabular protrusion is incorrect selection of hemiprosthesis head. At the same time, no significant correlation between limb elongation and protrusion was evidenced.

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References