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ORTHOPAEDIC SURGERY BOARD REVIEW MANUAL

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Nonarthroplastic Treatment of Hip Dysplasia in Adults

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I. INTRODUCTION

Developmental dysplasia is a structural hip disorder that commonly leads to degenerative joint disease. Prior to the development of total joint arthroplasty, the treatment consisted primarily of conservative measures, femoral osteotomies, or pelvic osteotomies to correct joint incongruencies. Hip fusion was used as a last resort to control pain. The advent of total hip arthroplasty was a major step forward in the treatment of this disease, but there are limitations. Hip replacement surgery is very successful in the older, more sedentary patient population, but the results have been less satisfying in younger, more active patients.^{1,2} Younger patients should still rely on conservative measures and osteotomies to help control pain. Various osteotomies have been developed to achieve proper joint mechanics in young patients with symptomatic hip dysplasia. One in particular, the Bernese periacetabular osteotomy (PAO), has shown promising outcomes and has become the procedure of choice at the authors' institution for the treatment of developmental dysplasia of the hip in the absence of severe secondary degenerative changes.

II. ANATOMY AND BIOMECHANICS

- A. **Typical acetabular abnormalities**
1. Poor anterior coverage of femoral head
 2. Poor lateral coverage of femoral head
 3. Reduction of acetabular depth
 4. Excessive lateralization of the hip's center of rotation
 5. Steep inclination of the sourcil (ie, the weightbearing surface of the hip)
 6. Labral pathology
 7. Rim fractures
 8. A secondary acetabulum, which may develop if complete dislocation occurs
- B. **Typical femoral abnormalities**
1. Changes in shape of the femoral head
 - a. May be enlarged in size
 - b. May be reduced in size
 2. Changes in shape of the femoral neck
 - a. Decreased offset
 - b. Increased anteversion
 - c. Increased neck-shaft angle (coxa valga)
 3. Proximally located greater trochanter
 4. Shortened abductors