Conventional Radiography of the Hip Revisited

Correlation with Advanced Imaging

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KEYWORDS

• Hip • Osteonecrosis • Osteoarthritis • Bone marrow edema • Radiography • MR imaging

KEY POINTS

- Conventional radiographs continue to play an important role in the first-line evaluation of symptomatic hip joints despite the advent of MR imaging.
- Comparative anteroposterior and off-lateral views of the hips enable an accurate evaluation of the joint space.
- Radiographs have limited sensitivity in detecting bone changes.
- Radiographs cannot detect joint effusion and bone marrow changes.

INTRODUCTION

Conventional radiography is frequently used as the initial imaging modality to assess hip disorders.[1–4] The aim of this review article is to provide a structured approach to analyze conventional radiography of normal and abnormal adult hips. We will focus on changes in radiological bone density and contours of the femoral head and alterations of the joint space observed in common hip disorders, which include osteoarthritis, femoral head osteonecrosis, transient osteoporosis, and subchondral insufficiency fractures. The findings at radiography are correlated with MR imaging and computed tomography (CT). Pediatric, metabolic, neoplastic, and postoperative hip disorders will not be addressed. Conditions in which correlation with cross-sectional imaging does not bring added value for the understanding of conventional radiography will be out of the scope of this review.

ANATOMY OF THE HIP AND CHALLENGES IN HIP DISORDERS

The hip is a deeply located highly congruent diarthrodial joint. A nearly spherical femoral head articulates with the acetabular cavity, which is reinforced by an acetabular labrum, and the capsular ligaments (the medial and lateral arms of the iliofemoral ligament, the pubofemoral ligament, and the ischiofemoral ligament) (**Fig. 1**). Hip radiographs only demonstrate bone contours to which the x-ray beam is tangent[5,6] (**Fig. 2**).

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