Bilateral round lucent iliac defects

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The two well-circumscribed ovoid lucencies in the bilateral iliac bones demonstrated on the AP pelvis radiograph are evidence of surgical augmentation from posterior lateral iliopsoas transplantation (PLIT).

It is performed to prevent recurrent hip dislocation and improve mobility in patients with chronic conditions such as ours with arthrogryposis multiplex congenita (AMC), a congenital development of multiple joint contractures at birth.

AMC is a rare condition with an estimated prevalence of 1 in 3000 live births [1]. In 84% of cases, all joints are affected, and in 15% of cases, only the legs and/or arms are involved [2]. The typical presentation of AMC includes clubfoot, clenched hands, and flexed, abducted, externally rotated, dislocated hips [3]. The exact cause of AMC is not clear but it is known to involve both genetic (such as trisomy 18) and environmental factors.

AMC is non-progressive and surgery can help in this patient population. One of the now rarely performed techniques is PLIT. It was first performed in 1958 to treat paralytic dislocation of the hip. The purpose of the transplantation is to balance flexor and extensor forces, thus preventing dislocation. This is accomplished by transferring the iliopsoas to the posterior lateral proximal femur at the tip of the greater trochanter to assist with extension and abduction. The remaining muscles including the sartorius, rectus femoris, and pectineus are left as the primary flexors [4].

The technique also has some success in improving mobility. In a long-term follow-up study, twenty-five out of thirty-three pediatric patients were able to perform some form of independent gait after surgery [5]. However, it is now uncommonly performed secondary to the complexity and invasiveness of the technique and more common alternatives including femoral osteotomy and total joint arthroplasty [6].

On imaging, the two well-circumscribed ovoid lucencies in the bilateral iliac bones demonstrated on the radiograph are evidence of surgical augmentation from bilateral PLIT (Fig. 1). The patient also subsequently had a right total hip arthroplasty. On CT (Fig. 2), the classic imaging appearance of PLIT is evident by the ovoid surgically created foramen in the iliac bones with “pull through” of the iliopsoas and fixation to the posterolateral greater trochanter of the femur. The selected images highlight the operative tract on the left side of the patient. The provided 3D construction and sagittal image also depict the course of the transplantation (Figs. 3 and 4).

In conclusion, PLIT is a now rarely performed surgical procedure for the treatment of recurrent hip dislocation; however, it remains important for the interpreting radiologist to recognize its expected post-surgical findings and report them accurately to referring physicians.

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