Case Report / *Olgu Sunumu*
DOI: 10.5152/tftrd.2014.99907
Turk J Phys Med Rehab 2014;60:267-70
Türk Fiz Tıp Rehab Derg 2014;60:267-70

Pelvic Digit
Pelvik Kosta

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Abstract

Pelvic digit is an unusual developmental anomaly in which bone develops in soft tissues adjacent to normal skeletal bone. It is an asymptomatic entity that is usually discovered incidentally. The importance of recognizing pelvic digit is in distinguishing it from post-traumatic ossification and avulsion injuries of the pelvis. We report pelvic digits discovered in plain films of two patients who presented with hip pain. One patient has accompanying femoroacetabular impingement on the same side, which may explain the presence of hip pain.
Key Words: Pelvic masses, ribs, ilium, femoroacetabular impingement, magnetic resonance imaging, radiography

Özet

Pelvik kosta normal kemik dokusuna bitişik yumuşak dokuda nadir görülen anomalili kemik gelişimidir. Sıklıkla asemptomatiktir ve rastlantısal olarak tanı konulur. Posttravmatik hasar ve pelvisin avülsiyon hasarından ayırt etmek açısından tanınması önemlidir. Bu olgu sunumunda, kliniğimize kalçada ağrı yakınması ile başvuran iki hastada, direkt grafi ile saptanmış olan pelvik kostayı sunmaktayız. Hastalardan birinde, pelvik kosta ile aynı tarafta femoroasetabular impingement sendromu da bulunması, hastanın ağrı yakınmasını açıklayabilir olması açısından önemlidir.
Anahtar Kelimeler: Pelvik kitle, kosta, ilium, femoroasetabular impingement, manyetik rezonans görüntüleme, radyografi

Introduction

Pelvic digit is an unusual developmental anomaly in which bone develops in soft tissues adjacent to normal skeletal bone (1). It has a typical radiographic appearance. On plain radiographs, a rib or phalanx-like bone with a clear cortex and medulla is related to the pelvis, often with a characteristic pseudoarticulation at its base. It is an asymptomatic entity that is usually discovered incidentally. The importance of recognizing pelvic digit is in distinguishing it from post-traumatic ossification and avulsion injuries of the pelvis (2). Here, we report pelvic digits discovered in plain films of two patients who presented with hip pain.

Case Reports

Case 1

A 25-year-old male patient presented to our outpatient clinic with right hip pain. His pain was aggravated by sitting and standing for long periods of time. His symptoms had first started 1.5 months ago, and he had used over-the-counter painkillers before seeking medical care. His physical exam revealed painless lumbar movements with a full range of motion. There was pain with right hip external rotation and 70° flexion, but range of motion was normal. Sciatic nerve tension tests were negative. His reflexes were normoactive, and no motor or sensorial deficit was

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Received/Geliş Tarihi: November/Kasım 2012 Accepted/Kabul Tarihi: July/Temmuz 2013

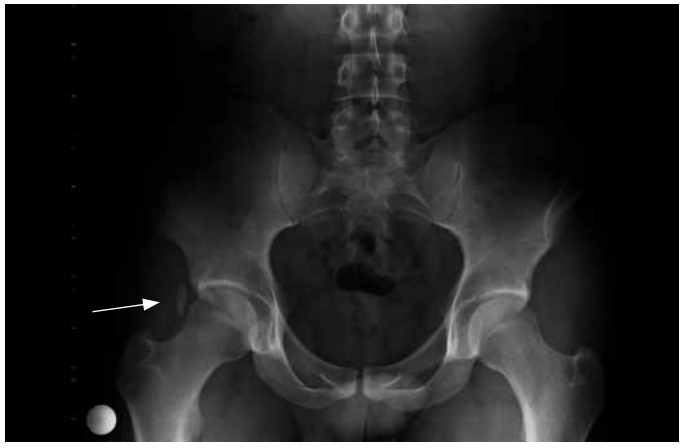

Figure 1. Bony protrusion of 2.5 cm in its craniocaudal axis in the soft tissues lateral to the hip joint, consistent with a pelvic digit (arrow)

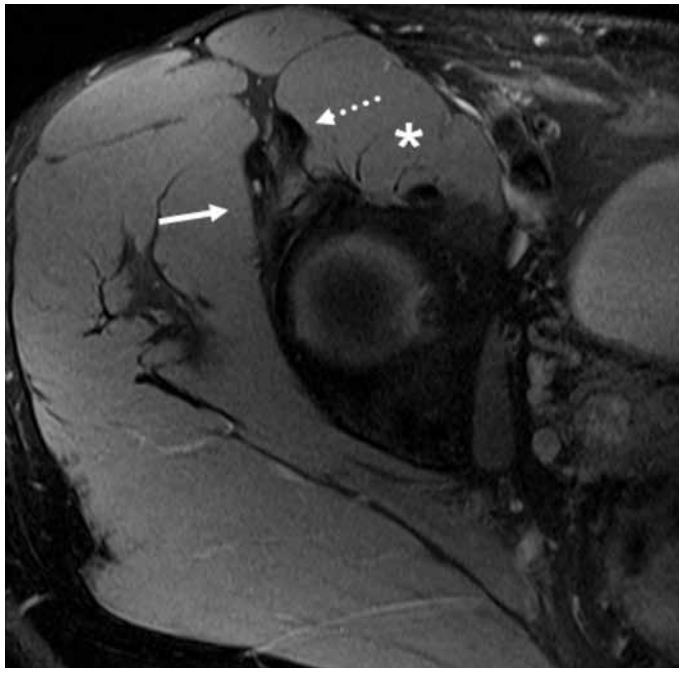

Figure 2. Axial proton density (fat suppression) MRI: Pelvic digit (arrow) situated anteroinferiorly near the right acetabulum and in close proximity to the tendon of the m. rectus femoris (dotted arrow) and lateral fascia of the m. iliopsoas (asterix).

detected. A pelvis X-ray was ordered and showed no pathology, except for a bony protrusion of 2.5 cm in its craniocaudal axis in the soft tissue lateral to the hip joint, which was reported to be consistent with a pelvic digit (Figure 1). The MRI scan that was ordered to further investigate the hip pain revealed a close proximity between the pelvic digit, which lay anteroinferiorly next to the right acetabulum and tendon of the m. rectus femoris and lateral fascia of the m. iliopsoas (Figure 2). T1-weighted coronal MRI showed a bony protrusion, lateral to the head-neck junction of the right femur that was consistent with cam-type impingement (Figure 3). Lumbar MRI was normal except for bulging disk appearances at the L5-S1 and L4-L5 levels.

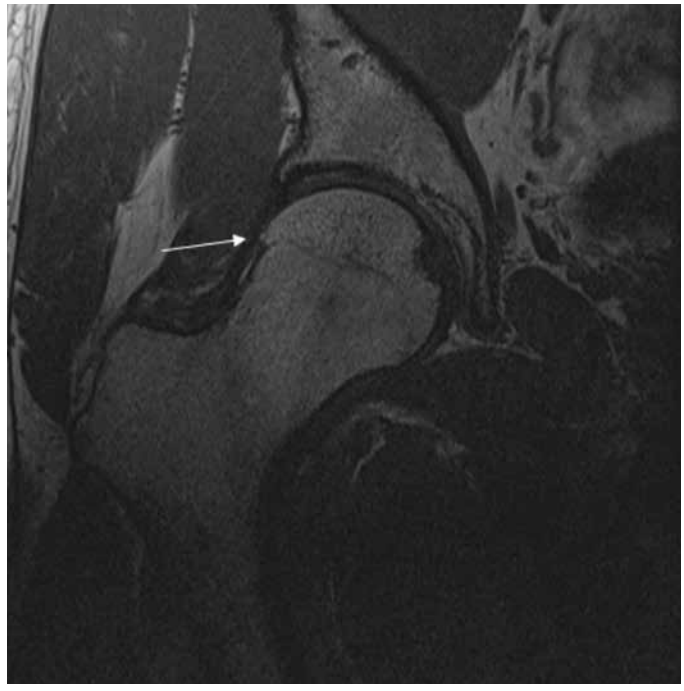

Figure 3. T1-weighted coronal MRI: Bony spur consistent with cam-type impingement lateral to right femoral head-neck (arrow)

Case 2

A 46-year-old man presented with left hip pain that had started 1 year ago and did not spread. He did not report any trauma. Further questioning revealed a history of intermittent back pain for 20 years and right heel pain and bilateral knee pain of 1 month and 2 weeks of duration, respectively. No redness, heat, or swelling was detected on physical examination. A loss of lumbar lordosis and pain with lumbar movements, especially in anterior flexion, were noted. Sacroiliac compression tests were negative. The passive internal and external rotation and abduction of the right hip were painful and minimally limited. The patient had bilateral pes planus. Motor, sensorial, and reflex exams were normal. Pelvis X-ray showed a normal femoral head and coxofemoral joint and a bony spur starting from the lateral corner of the right acetabulum and lying toward the anterior part of the hip joint, which was consistent with pelvic digit (Figure 4). A pelvic CT scan that was ordered in order to further investigate the mass revealed a bony structure with a craniocaudal diameter of 6 cm that started from the right acetabular corner and lay anteriorly along the iliopsoas muscle. There was a pseudoarticulation between the pelvic digit and lateral corner of the acetabulum (Figure 5).

A lumbosacral vertebral X-ray was also taken to investigate the intermittent back pain, and it was normal, except for a decrease in the posterior L5-S1 intervertebral space. A sacroiliac joint MRI was ordered, because a previous sacroiliac X-ray showed increased sclerotic density around the right sacroiliac

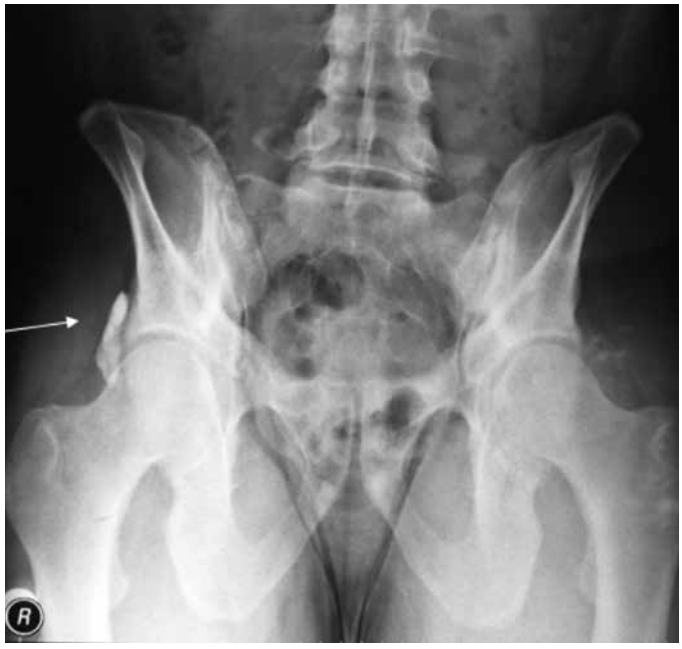

Figure 4. Normal femoral head and coxofemoral joint and a bony structure starting from the lateral corner of the right acetabulum, lying toward the anterior part of the hip joint, consistent with pelvic digit (arrow)

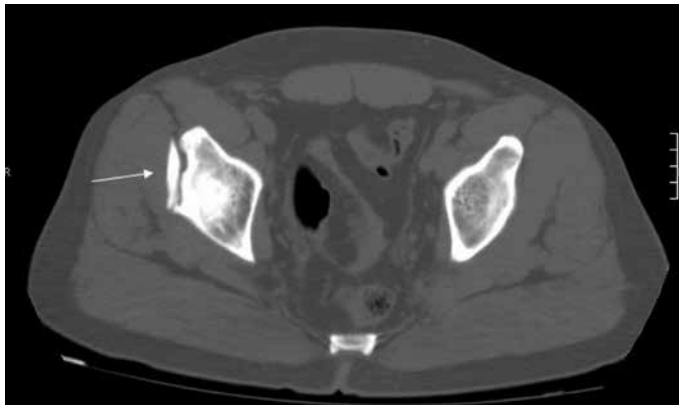

Figure 5. Bony structure with a craniocaudal diameter of 6 cm, starting from right acetabular corner, near the iliopsoas muscle with a pseudoarticulation between the pelvic digit and lateral corner of acetabulum (arrow)

joint and came back normal. Right heel X-ray film detected hyperostosis at the insertion site of the Achilles tendon. Blood test results all came back negative for an inflammatory process.

Discussion

Pelvic digit was first shown and described by Sullivan and Cornwell (1) in 1974 in a 15-year-old girl with a well-defined 'rib' in the pelvis. The abnormal bone curved caudad towards the right side of the distal sacral vertebra but was not directly attached to the sacrum. Histological assessment after removal was consistent with a rib. The authors postulated that the abnormal bone originated embryogenically from the first coccygeal vertebra. Today, the most widely accepted theory is that it originates in the mesenchymal stage of bone growth before the sixth week of embryonic development (2). Normally, the cartilaginous costal primordium of the first coccygeal vertebra joins the vertebral column in early development, and lateral parts get lost through apoptosis, but in some people, they persist and form the pelvic digit (3).

Most cases are asymptomatic and are detected incidentally. McGlone et al. (4) reported seven cases that were identified during intravenous urography; none of the patients had symptoms related to the pelvic digit. Van Breuseghem (5) described a patient with breast cancer whose pelvic digit was detected during screening for metastases; emphasis was placed on the importance of its radiologic recognition.

The pelvic digit is most frequently attached to the ilium but also to the sacrum, coccyx, abdominal wall, and, rarely, to the symphysis (6,7). In both of our cases, the pelvic digit was unilateral and at the level of the acetabulum. Bilateral occurrences have occasionally been reported (8). Morphologically, pelvic digits may present as rib-like and phalanx-like structures with one or more (pseudo)joints within. One of our cases had pseudoarticulation. Pelvic digit has also been called pelvic rib, iliac rib, and pelvic phalanx (9).

Radiological differentiation from post-traumatic myositis ossificans and from avulsion fractures can usually be made with the well-corticated appearance of the pelvic digit and the absence of a history of trauma, and it is differentiated from osteochondroma by the lack of continuity with the underlying bone (7,10-12). Fong disease, which is characterized by horns arising posteriorly from the iliac bones, should also be kept in mind during the differential diagnosis (12). In the absence of additional pathology, surgical intervention for this generally asymptomatic anomaly is rarely required. Maegele reported a case of pelvic digit causing hip pain and limitation of abduction and external rotation, which responded well to surgery. Surgical resection may be helpful when pelvic digit causes functional limitation (13).

Femoroacetabular impingement (FI) is a major cause of early osteoarthritis of the hip, especially in young and active patients (14). It is characterized by early pathologic contact during hip joint motion between skeletal prominences of the acetabulum and the femur that limits the physiologic range of motion of the hip-typically flexion and internal rotation. Cam, pincer, and mixed types have been described. All types cause damage to the subchondral bone, labrum, and cartilage and osteoarthritis by repetitive anterosuperior contact (15).

Our patients' lack of a history of trauma and typical X-ray and MRI findings led us to the diagnosis of pelvic digit. The first patient also had accompanying mixed-type FI. Other findings were the presence of pain during hip flexion and MRI showing a pelvic digit located anteroinferiorly next to the right acetabulum and in close proximity to tendon of the m. rectus femoris and fascia of the m. iliopsoas. The patient's right hip pain may be due to FI syndrome, or because of the lack of typical pain on internal rotation and adduction and worsening of pain on hip flexion and external rotation, it may be interpreted to be due to contact between the pelvic digit and the close lying tendons

and fascia of the rectus femoris and iliopsoas muscles. While reviewing the literature, we did not come across another case with coexistent pelvic digit and FI syndrome.

The second patient had pain on his left hip, while the pelvic digit was detected on the right side. This led us to think that the digit was an incidental finding and had no part in causing the patient's symptoms. No sign of pelvic digit was found during the physical examination. No surgical intervention was planned, and this approach is consistent with other case presentations in the literature, where this anomaly remains asymptomatic.

Conclusion

Pelvic digit is a rare, usually asymptomatic developmental anomaly that is often detected incidentally. No treatment is required, as long as it does not cause any pain or discomfort to the patient. In the rare case of resistant symptoms, surgical resection may be employed. Although pelvic digit is clinically silent most of the time, it is important for both the clinician and the radiologist to differentiate it from other pathologies, such as myositis ossificans, osteochondroma, or fractures.

Informed Consent: Written informed consent was obtained from patients who participated in this case.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - S.H, K.Ç.; Design - S.H., K.Ç.; Supervision - S.H., K.Ç.; Data Collection and/or Processing - S.H., K.Ç.; Analysis and/or Interpretation - S.H., K.Ç.; Literature Review - S.H., K.Ç., E.Ç.; Writer - S.H., K.Ç., E.Ç., B.İ.; Critical Review - S.H., K.Ç.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this case has received no financial support.

Hasta Onamı: Yazılı hasta onamı bu olguya katılan hastalardan alınmıştır.

Hakem değerlendirmesi: Dış bağımsız.

Yazar Katkıları: Fikir - S.H., K.Ç.; Tasarım - S.H., K.Ç.; Denetleme - S.H., K.Ç.; Veri toplanması ve/veya işlemesi - S.H., K.Ç.; Analiz ve/veya yorum - S.H., K.Ç.; Literatür taraması - S.H., K.Ç., E.Ç.; Yazıyı yazan - S.H., K.Ç., E.Ç., B.İ.; Eleştirel İnceleme - S.H., K.Ç.

Çıkar Çatışması: Yazarlar çıkar çatışması bildirmemişlerdir.

Finansal Destek: Yazarlar bu olgu için finansal destek almadıklarını beyan etmişlerdir.

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