

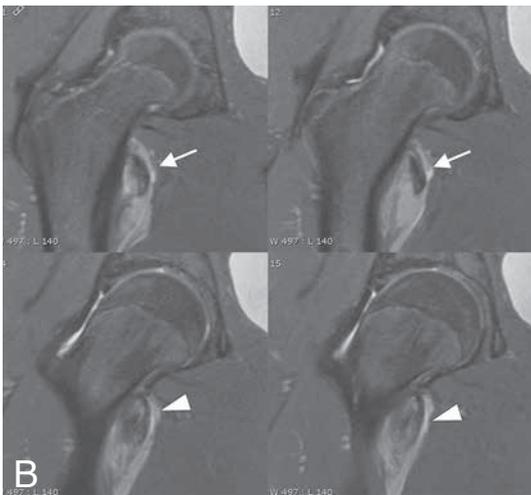
IMAGES IN CLINICAL RADIOLOGY



Traumatic avulsion of the trochanter minor in a 15-year-old boy: an uncommon injury.

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A 15-year-old boy was seen at the emergency department with severe groin pain following an acute soccer injury. The pain irradiated towards the knee region. He was unable to move his right leg, and unable to stand on it. Physical examination revealed an extremely tender groin. Hip function was difficult to assess due to the severe pain. Hip and pelvis radiographs demonstrated a 1.3 cm large bone fragment detached and displaced superiorly relative to the trochanter minor (Fig. A). MR images revealed the retracted bone fragment (arrow) with the iliopsoas tendon (arrowheads) attached to it (Fig. B, C). The tendon, bone fragment and trochanter minor were surrounded by a hyperintense fluid collection. Ultrasound also revealed the bone fragment with the attached tendon, although the relationship to the deeper trochanter minor was difficult to appreciate on ultrasound). Recovery was uneventful. The patient was seen back after 9 weeks and clinical symptoms had completely subsided with entirely normal hip testing.



Comment

MR findings in traumatic avulsion of the trochanter minor have not been previously reported. Avulsions of the trochanter minor are quite uncommon. They may occur in adults or children in a traumatic or non-traumatic setting. In children they commonly occur prior to fusion of the apophysis. In our case this occurred after the fusion of the apophysis, which is even more uncommon. When avulsions occur in adults, without trauma, they typically indicate an underlying neoplasm, metastasis, or other local disorder that weakens the bone, and further investigations such as MR are always warranted. Ruptures of the tendon itself at its attachment are also very uncommon. In a non-traumatic setting disorders that cause chronic changes in tendons should be considered, as they are as common as a traumatic cause. These include corticosteroid use, rheumatoid arthritis, diabetes, hypoparathyroidism, and renal failure. Tears may correspond to myotendinous strain or complete rupture. Stress injuries in runners, with marrow edema in the trochanter minor have also been reported. Clinically groin or hip pain, worsened by flexion and abduction of the hip are seen. In the traumatic setting the onset of pain is acute, often during athletic activity. Radiologic studies may include radiography, MR and ultrasound. On radiography the avulsed fragment or apophysis is seen at a distance of 1-2 cm from the underlying femur and drawn superiorly. On MR, in our case the avulsed fragment with the tendon attached could be seen. The area was surrounded by hyperintense collections corresponding to fluid and hematoma. MR and ultrasound may show the extent of hematoma and associated muscle injury, but are usually not necessary for diagnosis. Clinical treatment is conservative, and recovery may be expected in 6-12 weeks. In the healing phase a hypertrophic bone protrusion may be seen which should not be mistaken for a bone tumor.



Reference

1. Ruffing T., Danko T., Muhm M., Arend G., Winkler H.: Traumatische Apophysenlösung des Trochanter minor. *Unfallchirurg*, 2012, 115: 653-655.

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