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# An unusual cause of hip pain: Pelvic granulocytic sarcoma

## *Kalça ağrısının nadir rastlanan bir nedeni: pelviste granülositik sarkom*

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Sağ kalçada ağrı yakınmasıyla başvuran 27 yaşındaki bir erkek hastanın manyetik rezonans görüntülemesinde, pelviste iliopsoas kası komşuluğunda büyük bir yumuşak doku kitlesi görüldü. Kan sayımında ileri derecede lökositoz saptanması üzerine periferik yayma yapıldı ve kronik miyeloid lösemi (KML) tanısı kondu. Pelvisteki kitle, KML zemininde gelişen granülositik sarkom olarak değerlendirildi. Kronik miyeloid lösemi gibi hematolojik hastalıkların granülositik sarkoma yol açarak kalça ağrısı ile kendini gösterebileceği unutulmamalıdır.

**Anahtar sözcükler:** Kemik iliği neoplazileri; kalça/patoloji; lösemi, miyeloid, kronik/komplikasyon; sarkom, granülositik/komplikasyon.

A 27-year-old male patient presented with right-sided hip pain. Magnetic resonance imaging of the hip joint revealed an extensive intrapelvic mass adjacent to the iliopsoas muscle. Laboratory tests showed severe leukocytosis and a differential WBC count enabled the diagnosis of chronic myeloid leukemia (CML). The pelvic mass was then assessed as granulocytic sarcoma developing from CML. It should be kept in mind that the initial presenting feature of hematological diseases such as CML may be hip pain arising from CML-associated granulocytic sarcoma.

**Key words:** Bone marrow neoplasms; hip/pathology; leukemia, myeloid, chronic/complications; sarcoma, granulocytic/complications.

Hip pain is commonly caused by fractures, avascular necrosis, arthritis, bursitis, tendonitis and lumbar disc disease. Such pain can also arise as a result of disorders causing inflammation or compression of the psoas. Granulocytic sarcoma is an extramedullary tumoral lesion, generally seen during myeloproliferative or myelodysplastic disease, that develops from immature myeloid cells. It is most frequently encountered during acute or chronic myeloid leukaemia.[1,2] Although it is usually found in periorbital and temporal regions, lymph node, laryngeal, bronchial, breast, uterine, vertebral and sternal involvement has also been reported.[2,5] We report on a case of granulocytic sarcoma with unusual pelvic involvement in a patient with Chronic Myeloid Leukaemia (CML).

## Case report

A 27-year old male patient presented with gradually increasing right hip pain of two weeks' duration and an inability to walk. He had no history of recent trauma, nor of any other disorder. In the 24 hours prior to examination, the pain had increased to such a degree that it prevented him bearing weight. On physical examination there was restriction of movement of the right hip. Because of the pain the hip had an angle of 40° flexion contracture, 10° abduction, 15° adduction, 10° medial rotation, and 10° lateral rotation.

No pathological findings were detected on the hip radiographs (Figure 1). Initial magnetic resonance imaging and laboratory tests were done to

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exclude any inflammatory process such as arthritis or synovitis. On the magnetic resonance scans there was no increase in the joint fluid, nor bone oedema in the femur. An intrapelvic tumoral lesion, measuring 20x8x5 cm and extending the hip joint, was detected adjacent to the right iliopsoas and iliac bone (Figure 2).

The erythrocyte sedimentation rate was 38 mm in the first hour (normal range 0-18mm), 76 mm in the second. C-reactive protein was 46.4 mg/l (normal range <5 mg/l) and the leucocyte count was 196,500/mm3, suggesting a haematologic problem. Systemic physical examination revealed a severe splenomegaly. A peripheral smear revealed 22% neutrophil bands, 29% neutrophils, 2% lymphocytes, 4% basophils, 16% metamyelocytes, 2% promyelocytes, 15% myelocytes, 4% myeloblasts, 4% blasts and 2% erythroblasts.

These findings indicated a diagnosis of CML and the tumoral mass was diagnosed as a granulocytic sarcoma. Allopurinol treatment (300mg tb; once a day) was started as prophylaxis for the leucostasis and the patient was directed to the Haematology Department for further investigation and treatment.

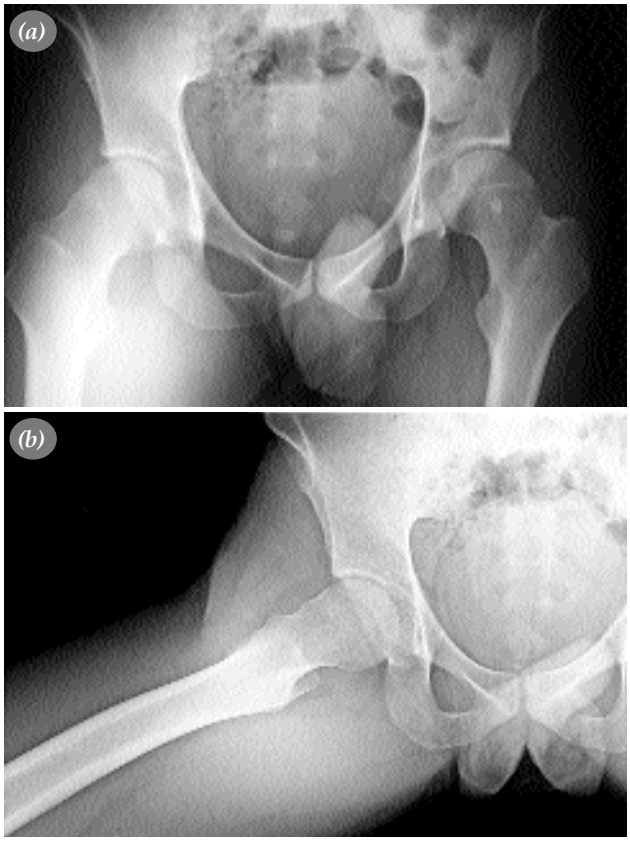


**Figure 1.(a)** The right hip radiograph did not reveal any pathology apart from a soft tissue radio-opacity due to the flexion contracture of the hip. **(b)** Lateral radiographs of the right hip.

## Discussion

Granylocytic sarcoma, also termed myeloblastoma or chloroma, is a solid tumoral lesion arising from granulocytes at different stages of maturation.[3] It can arise in any organ, but is most frequently seen in the head and neck regions during childhood. Periorbital and temporal regions are the most frequent sites of involvement.[4,5] Skin, subcutaneous tissue, lymph node, laryngeal, bronchial, pleural, breast, uterine, vesical, intestinal, testis and retroperitoneal involvement has also been reported.[2,3,6-8] Skeletal involvement is most frequently seen in the orbita, sinus, vertebrae and sternum, although mandibular, scapular and temporal involvement has also been reported.[1,3,9,10] Our case showed an intrapelvic localisation, adjacent to the iliopsoas muscle.

Granulocytic sarcoma is most frequently associated with acute and chronic myeloid leukaemia.[1,2] It can also be seen in other myeloproliferative disorders such as polycythaemia vera and myeloid metaplasia.[2,4] In our case it was associated with CML.

Bone involvement can manifest itself as a lytic bone lesion with an irregular border when seen on a radiograph.[1] Sclerotic and lytic lesions can be seen together, but sclerotic only lesions are very rare. No visible bone involvement was detected on the radiographs, nor on the MRI scans of our case.

Granulocytic sarcoma has no distinctive appearance on an MRI. Moderate heterogeneous signal intensity is seen on $T_1$ weighted scans, and high signal intensity on $T_2$ weighted ones. These findings are normal in bone tumour and osteomyelitis cases.[9,11]

Masses and inflammation adjacent to the psoas muscle can cause flexion contracture of the hip joint associated with severe hip pain (Cope or Psoas sign).[12] Our case presented with hip pain associated with psoas irritation due to a granulocytic sarcoma with an atypical intrapelvic location. A biopsy and subsequent pathological and microbiological examinations had initially been planned, but due to the high leucocyte count the patient was instead referred to the haematology department and the blood smear taken revealed a diagnosis of CML.

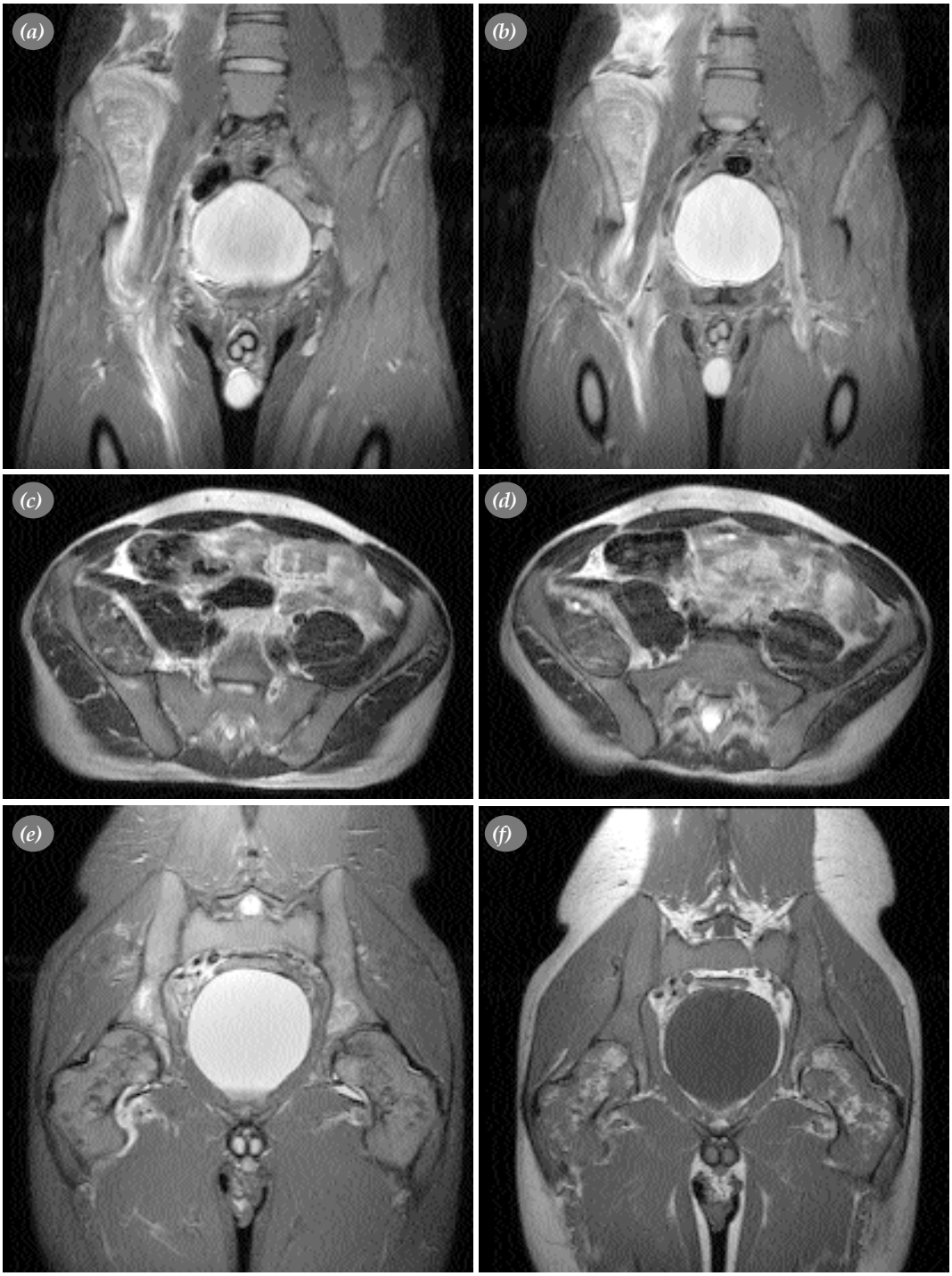


**Figure 2.** **(a, b)** An intrapelvic tumoral lesion, measuring 20x8x5 cm and extending the hip joint, was detected adjacent to the right iliopsoas and iliac bone on $T_2$ weighted coronal MR images**.** **(c, d)** $T_1$ weighted transverse images of the lesion. **(e, f)** $T_1$ and $T_2$ weighted coronal MR images showing no pathology, except a minimal increase in joint fluid.

When evaluating a patient with hip pain, once common causes such as fracture, avascular necrosis and arthritis have been excluded, one should consider the possibility of septic and haematological disorders that can result in psoas irritation. However, it must be borne in mind that disorders like CML which cause granulocytic sarcoma can also first present as hip pain.

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