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Excision of a pelvic benign osteoblastoma with preserved hip stability

A case report

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A benign osteoblastoma of the anterior part of the pelvic ring was excised with the pubic rami ischium and lower part of the acetabulum. The patient recovered with normal hip funtion. This case confirms the resectability of large pelvic lesions.

We removed a benign osteoblastoma in the anterior pelvis, which is an exceedingly uncommon location for this rare tumor. Our case confirms that resection of the anterior pelvic ring does not affect the functional pelvic stability (Nilsonne et al. 1982, Karaharju & Korkala 1985).

Case report

A 26-year-old woman, mother of 2 children, was seen in our department in February 1983 because of severe pain of 1 year's duration in her left thigh. She described the pain as continuous, dull, most severe at night, not related to effort or hip position, with marked exacerbation during the last 2 months and not relieved by nonnarcotic analgesics or nonsteroidal anti-inflammatory drugs.

She was in good health with normal findings, except that she walked with a marked antalgic gait and limp of her left lower limb. The left hip had flexion 20–80 degrees, with painful abduction of 20 degrees, adduction of 15 degrees and practically no rotatory movements. Chest radiographs were normal. The ESR was 20 mm/h, blood count normal, alkaline phosphatase level 173 IU, reference below 85 IU.

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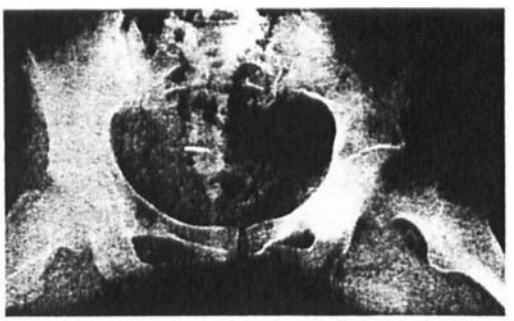
On pelvic radiographs (Figure 1) a huge, well-circumscribed, round sclerotic lesion was observed, located in the left ischiopubic region, with soft tissue expansion. The inferomedial part of the acetabulum was also suspected of being involved. The gynecologic examination revealed a solid pelvic mass, palpable beyond the left vaginal wall, tender and not adherent to surrounding soft tissues.

Intravenous pyelography demonstrated a mild displacement of the lower third of the left ureter and bladder wall, with no uromechanical obstruction. A bone scan with ^{99m}Technetium phosphonate showed an increased uptake in the pelvic lesion area. On angiography, the pelvic mass was found to be highly vascular with feeding rami from the left hypogastric artery, principally from an enlarged obturator artery. The external iliac artery was displaced laterally. On computer tomograms the pelvic mass was clearly delineated, having a solid consistency and showing a protrusion into the pelvic cavity with displacement of the colon and bladder.

An open biopsy was performed by a Ludloff's medial approach that was planned to be included in the future definitive surgical incision. The specimen was characterized by osteoid tissue with proliferation of osteoblasts and osteoclasts, with no mitotic or atypic figures. The histologic diagnosis was benign osteoblastoma.

The incision began at the anterior superior iliac spine, directed medially paralleling the pubis reaching to the pubic symphysis and then ex-



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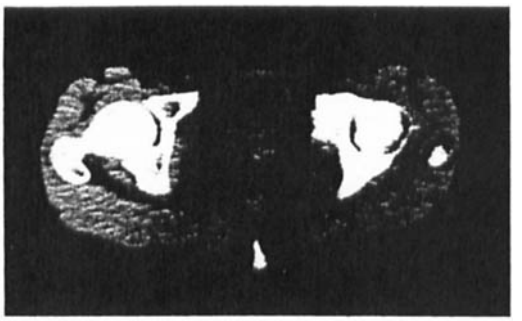

B

C

Figure 1. A 26-year-old woman with an osteoblastoma in the pelvis.
A. Mass in left ischiopubic region (arrow).
B. Mass in left ischium.
C. Three years after surgery. Full abduction with stable joint.

tended to the ischial tuberosity, inferiorly to the gluteal fold (Milch 1935, Radley et al. 1954, Steel 1978). Through a retroperitoneal approach beyond the inguinal ligament, the internal iliac artery was ligated. A careful dissection of the posterior thigh muscles followed; the sciatic, pudendal, and obturator nerves were protected. The perineal muscles were protected and spared as much as possible. The tumor was a protruding solid mass, reddish brown, friable, and bleeding easily; the tumor protruded into the pelvic cavity and obturator foramen, including the superior ramus pubis, the superior part of the ischium, and the inferior part of the acetabulum. A resection of the involved area included an osteotomy of the pubic bones 1 cm lateral to the symphysis and continued to the ischium, pubic rami, and the inferior acetabular wall. The weight-bearing dome and part of the posterior wall of the acetabulum were preserved. No dislocation of the hip was necessary. Histologic studies confirmed the biopsy diagnosis. The margins of the specimen were normal. The microscopic features of the tumor again showed trabeculae of osteoid tissue with prominent vascularity and benign giant cells.

Postoperatively, the wound healed uneventfully. Skin traction to the operated on lower limb was applied for 4 weeks and afterwards, non-weight bearing for an additional 4 weeks on crutches was recommended.

The preoperative pain dramatically disappeared soon after surgery and the alkaline phosphatase levels gradually returned to normal. On physical evaluation 6 months after surgery, the patient walked freely with a minimal limp and had slight difficulties on running and climbing stairs. The range of hip motion was normal and painless.

Three years after surgery, the patient remains free of symptoms, walks unrestricted, and radiographs (Figure 1) show no recurrence of the disease.

Discussion

Benign ostoeblastoma is only sporadically reported in the literature, with most cases affecting the posterior elements of the spine and long bones of the appendicular skeleton. Huvos (1979) found 364 reported cases with only 1 case in the ischiopubic region. Aggressive and "locally malignant" cases have been described (Kenan et al. 1983, Jackson 1978, Seki et al. 1975, Schajowicz & Lemos 1976). The dispute about the grading and staging of this rare condition seems to be settled. The older name of giant osteoid osteoma is no longer used.

The primary function of the anterior pelvis is protective; Dommisse (1960) has clearly demonstrate the presence of two mechanical arches in the pelvis that correspond to a predominance of posterior pelvic weight-bearing function. Additional proof of this belief is the routine posterior ring stabilization in traumatic cases, which is adequate for the preservation of the pelvic ring stability. In our case the expected and actual gait disturbance was minimal.

It is thus possible to perform massive pelvic resections with preservation of limb movement and stability of the hip joint. The same conclusion was reached by Karaharju & Korkala (1983). The so-called internal hemipelvectomy (Nilsonne et al. 1982, Zatzepin 1981) is a somewhat similar, but more extensive, type of surgery, with inclusion of the weight-bearing area of the acetabular dome. Even so, the postoperative results are encouraging and the invalidity acceptable.

In our case the benign nature of the tumor allowed for adequate resection with minimal acetabular involvement. However, we do not know whether arthrosis may develop eventually.

References

Dommisse G F. Diametric fractures of the pelvis. J Bone Joint Surg (Br) 1960;42:432–43.

Huvos A G. Bone Tumors; Diagnosis, Treatment and Prognosis. Saunders, Philadelphia 1979:33–46.

Jackson R P. Recurrent osteoblastoma: a review. Clin Orthop 1978;(131):229–233.

Karaharju E O, Korkala O L. Resection of large tumors of the anterior pelvic ring while preserving functional stability of the hip. Clin Orthop 1985;(195):270–4.

Kenan S, Floman Y, Robin G C, Laufer A. Aggressive osteoblastoma. A case report and review of the literature. Clin Orthop1985;(195):294–8.

Milch H. Partial resection of the ischium. J Bone Joint Surg 1935;17:166–71.

Nilsonne U, Kreicbergs A, Olsson E, Stark A. Function after pelvic tumour resection involving the acetabular ring. Int Orthop 1982;6(1):27–33.

Radley T J, Liebig C A, Brown J R. Resection of the body of the pubic bone, the superior and inferior pubic rami, the inferior ischial ramus and the ischial tuberosity. J Bone Joint Surg (Am) 1954;36:855–8.

Schajowicz F, Lemos C. Malignant osteoblastoma. J Bone Joint Surg (Br) 1976;58(2):202–11.

Seki T, Fukuda H, Ishii Y, Hanaoka H, Yatabe S. Malignant transformation of benign osteoblastoma. A case report. J Bone Joint Surg (Am) 1975;57(3): 424–6.

Steel H H. Partial or complete resection of the hemipelvis. An alternative to hindquarter amputation for periacetabular chondrosarcoma of the pelvis. J Bone Joint Surg (Am) 1978;60(6):719–30.

Zatsepin S T. Conservative operations for pelvic bone tumours. Int Orthop 1981;4(4):259–68.