

Transarticular Spread of the Sacroiliac Joint in a Chondrosarcoma

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Summary

Primary bone tumours, even in very advanced stages, rarely exhibit transarticular spread. We present a case of chondrosarcoma of the ilium with destruction of the sacroiliac joint, the ipsilateral sacral ala and with sacral nerve involvement.

Key Words: Chondrosarcoma, Primary bone tumour

Case Report

The patient, a 35-year-old man, presented with a two month history of pain and swelling in the right buttock. The pain was initially mild with no radiation. Just prior to admission, he noticed a sudden increase in the size of the swelling. This was associated with severe pain radiating down the right lower limb.

Physical examination showed generalised wasting of his right buttock associated with the development of a firm swelling. A mass of similar consistency, 10cm x 10cm was palpable in the right iliac fossa. The hip was fixed in 45° flexion. Generalised wasting of all muscle groups with patchy areas of hypaesthesia in the lower limb was noted.

Laboratory investigations revealed a haemoglobin of 10.9 gm/dl, a total white cell count of 11,200 cells/ μ l (79% neutrophils), an ESR of 55 mm/hr and an alkaline phosphatase of 90 IU/L.

A plain radiograph of the pelvis showed destruction

of the medial aspect of the right iliac bone (Fig. 1), with involvement of the upper two-thirds of the ipsilateral sacral ala. A computerised tomogram scan



Fig. 1: Plain radiograph showing permeative destruction of the right iliac bone and the adjacent sacrum across the sacroiliac joint

through the ligamentous portion of the sacroiliac joint revealed extensive destruction of the iliac bone with large soft tissue extension both anteriorly and posteriorly (Fig. 2). No calcification was demonstrated. A scan further inferiorly showed extensive involvement of the synovial portion of the joint (Fig. 3).



Fig. 2: CT scan of upper sacroiliac joint revealing extensive destruction on both sides of the sacroiliac joint. Note the large soft tissue extension anteriorly and posteriorly



Fig. 3: CT scan through the synovial portion of the sacroiliac joint illustrating transarticular spread and destruction

An open biopsy was performed. At operation, a tumour deep to the gluteus maximus, arising from the ilium, was found. A brown exudate was present on the surface of the lesion and the tumour itself appeared soft and very friable. This resulted in profuse intraoperative bleeding, necessitating firm surgical packing and tension sutures on closure. The patient was sent on home leave, and did not return for further treatment.

Histopathological examination

Histopathological examination showed the tumour to be composed of large plump cells, with abundant clear cytoplasm. The appearances were consistent with that of a clear-cell chondrosarcoma. Cellular pleomorphism was minimal, and in the periphery, smaller polygonal were noted merging with the clear cells. Mitoses were scanty; spotty calcification and osseous metaplasia of chondrosarcomatous stroma were present in areas (Fig. 4).

Discussion

Chondrosarcoma is the second most common primary bone malignancy, being half as common as osteosarcoma. The commonest site is the pelvic girdle¹. Transarticular spread of a malignant bone tumour seems to be a rare event, and is poorly documented in the literature. Indeed, review of the literature

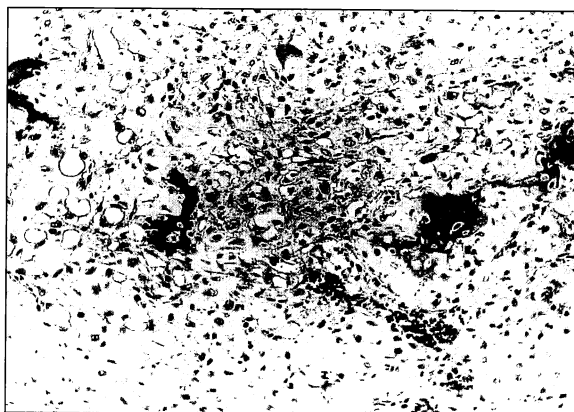


Fig. 4: X200, Haematoxylin & Eosin. Photomicrograph shows clear chondrocytic cells between which is woven bone formation. The tumour cells are plump with vacuolated cytoplasm

CASE REPORT

showed scant reports recording this phenomenon. In an analysis of 113 cases of chondrosarcoma², 79 were located in the pelvis of which 13 cases were classified as "involving" the sacroiliac joint. However, no details of the extent and type of involvement were given. A comprehensive review of the literature published up to 1992 did not yield a single radiologically illustrated case of chondrosarcoma with transarticular involvement of the sacroiliac joint.

Tissues differ in their vulnerability to invasion by cancer. Invading primary and metastatic tumour cells readily destroy collagen fibres and other structural proteins that form the scaffolding for connective tissue. Many cancers in humans and animals destroy the extracellular matrix by producing elevated levels of proteases, especially directed against Type I collagen³ and Type IV collagen⁴, the latter being the major collagen in basement membranes. Elastin is noted to be particularly resistant to destruction by tumour cells; it is also well recognised that densely compacted collagen such as may be present in membranes, tendons and joint capsules resist tumour cell invasion for long periods. Cartilage is probably the most resistant of all tissue to invasion. Some of the factors

in cartilaginous tissue that have been postulated as being contributory to this resistance to invasion are the nature of the physico-chemical matrix; the relative biologic stability and slow turn-over of cartilage itself; the elaboration of anti-angiogenesis factors; and the presence of inhibitors against enzymes and proteases involved in the propagation and spread of malignant cells. It is also doubtful if cancer cells have the ability to elaborate proteases against Type II collagen, the major collagen component in cartilage in a manner that occurs versus Type I & IV collagen. At any rate, the incidence of cartilage destruction must be unusual, as evidenced by the scarcity of reports available. This patient absconded therapy, but the extensive involvement by the tumour of adnexa and the presence of perineurial involvement suggests that the prognosis is guarded.

Conclusion

Primary malignant bone tumours rarely spread across the joint space with subsequent destruction of the adjacent bone. We document an aggressive chondrosarcoma arising from the ilium with invasion of the sacrum and iliac nerves.

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