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Paraplegia Following Cisternal Puncture in Thoracic Osteochondroma

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Solitary spinal osteochondromas are rare lesions. They grow slowly and usually manifest in the second and third decades of life. Recently we came across a case of solitary thoracic osteochondroma who developed paraplegia following a cisternal puncture for myelography. Because of its rare occurrence and rarity of this complication in bony tumor, it is being reported.

Case Report

A 14-year-old male patient was admitted to the neurological service of the hospital with complaints of difficulty in walking and weakness of both lower limbs of 20 days duration. There was no history of backache or root pains. He denied any history of trauma.

On examination, higher functions, cranial nerves and upper limbs were normal. In the lower limbs, tone was increased. Power was Grade III at the hips and Grade IV in all other groups of muscles. Deep tendon jerks were exaggerated. Ankle clonus was present, plantars were bilaterally extensor and abdominals were absent. No deficit was found in the upper thoracocervical region. Hemogram, ESR and urinalysis were normal. Plain *X*-ray showed scoliosis of thoracic spine and mottled calcification on the left side at D2 level. Lumbar myelogram revealed an extradural block at D3 level (*Fig.*) while cervical myelogram one week later through lateral cervical approach revealed the extradural block at D2 level. Following lateral cervical myelography, he developed complete loss of power in both lower limbs and graded sensory loss up to D4. D1-3 laminectomy revealed a bony mass arising from D2

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Fig. AP view of metrizamide myelogram showing complete block with displacement of dye column at the upper border of D3 level. Mottled calcification is seen at D2 level of the left side (Arrow).

pedicel and adjoining area of vertebrae pushing the cord to the right and back. The tumor was removed flush with spinal canal. In postoperative follow up, he had shown considerable improvement. Power has improved to Grade IV, but spasticity is still persisting. The sensations have recovered completely.

Discussion

Osteochondroma is a common benign osseous tomour. It shows predilection for the ends of long bones. Spinal involvement is unusual and in the spine it usually originates from the vertebral arch and rarely it arises from the vertebral body(1). It is discovered most often incidently during childhood and adolescence. Some consider it to be a developmental abnormality rather than a neoplasm. There is no sexual predilection, among solitary osteochondroma cases; however multiple osteochondroma cases show male preponderance.

Spinal osteochondroma may become manifest by any of the following mechanisms: Large lesions may become symptomatic by their size alone presenting as a mass in the posterior, lateral or anterior surface of the spine(2-4). It may present with nerve compression or spinal cord compression. They usually become symptomatic slowly and progressively but may become symptomatic suddenly in relation to minor trauma(5). The overall incidence of neurologic spinal symptoms in spinal osteochondroma is very low (0.5-1%) because they usually do not extend intraspinally(6). Cord compression is common in thoracic and lumbar region and rare in cervical region. Few cases of symptomatic cervical osteochondroma have been reported from India as well (7,9). The tumor may be solitary or multiple. The solitary form is non-familial and multiple form is familial. It has three morphologic appearances: sessile, polypoid and massive (4,10,11). The benign tumour may undergo sarcomatous change in 5-25% cases(4,10). A sudden rapid increase in the size of the tumor or continuous growth in adult patient should arouse suspicion of malignancy(11).

Grossly the tumor appears as a firm lobulated tumour attached to parent bone by a bone pedicel consisting of a cancellous bone interspersed with marrow. Osteochondroma is produced by progressive enchondral ossification of ectopic proliferating cartilagenous cap.

Radiologically characteristic appearances include a projection of medullary bone covered with cortex that is continuous with medulla and cortex of the bone of origin. The base may be sessile, pedunculated or lobulated. It may contain irregular areas of mottled calcification particularly in the cartilagenous cap.

Surgery is indicated if the tumor is unsightly or producing pain or neurological deficit as seen in our case. Recurrence of the tumor is rare even after incomplete removal. Microscopic examination shows normal bone tissue with cartilagenous cap resembling epiphyseal cartilage. Chondrocytes are arranged in clusters within parallel, oblong, lacunar spaces and may be binucleate or multinucleate during acute growth.

Development of paraplegia could be due to vasospasm due to sensitivity to metrizamide or impaction of cord against the bony tumor. The first explanation appears to be unlikely as the patient had undergone lumbar myelography smoothly. However, later development of sensitivity could not be ruled out. The most likely explanation in our patient appears to be impaction of stretched and vascularly compromised spinal cord against the bony tumor following cisternal puncture. Jooma and Hayward(12) also reported four cases of occult spinal tumors which manifested followed relief of hydrocephalus.

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