MUSEUM PAGES

III. Spina Bifida and Epiphysial Displacement

CAMPBELL GOLDING, LONDON, ENGLAND

The orthopaedic problems that occur in spina bifida are the result of the neurological disorder which causes partial paralysis and sensory disturbance. The dysplasia of bones and joints during growth and the development of Charcot's joints are attributed to these factors. The occurrence of fractures with excessive callus, and the peculiar lesions near the knee which are the subject of this report, are ascribed to the same causes, without however a clear understanding of the mechanism which produces them.

A patient born with spina bifida may have normal hip joints, but is prone to progressive dysplasia of the sockets, coxa valga and bilateral dislocation from muscular imbalance (Milch and Green 1936, Nathanson and Lewitan 1944, Müller 1939).

The various deformities of the feet, of which equinovarus is the commonest, are not radiological problems, but the impairment of sensation, which is both exteroceptive and proprioceptive, is followed by ulcers and neuropathic disorganisation of joints. The lesions of the phalanges and metatarsals may resemble the most severe deformities of leprosy (Camera 1955) (Fig. 1), and any large series of cases also contains a few typical Charcot's joints, the ankle being the usual site.

The most complete description of the orthopaedic aspects of spina bifida is that of Carr (1956). Among the patients that he reported was one who was radiographed at this hospital (Royal National Orthopaedic Hospital) (Mr K. I. Nissen's case). The lesion involved the epiphysis and metaphysis of the tibia and was basically a displaced epiphysis. The epiphysial line was much wider than normal; the epiphysis, metaphysis and upper half of the shaft were sclerosed; there was some loose debris in soft tissues; and the appearance suggested a neurotrophic disorder of a Charcot type (Fig. 2). The metaphysis of the opposite tibia was dense but there was no displacement (Fig. 4). It was known that the patient had spina bifida. Biopsy was not done. The patient was treated conservatively with almost complete resolution (Fig. 3).

Only two cases which resembled this have been traced in the literature (Gillies and Hartung 1938). These were described as fractures of the tibia, and in each case a fracture was present 1-5 centimetres below the epiphysial line. These lesions bore some resemblance to a sarcoma and to syphilis. A biopsy excluded sarcoma.
The epiphysis of the left tibia (Fig. 2) is displaced. The epiphyseal line is wide and irregular; there is sclerosis and loose bone producing the appearance of a neurotrophic disorder. After conservative treatment for six months the condition had resolved almost completely (Fig. 3). The right knee showed sclerosis of the metaphysis (Fig. 4). There was no history of injury. (Mr K. I. Nissen's case.)

Figure 5—A case from the Museum. The appearance is much the same as in Figure 2 but there is some resemblance also to sarcoma. Figure 6—Another case in a boy of fifteen. He was known to have had subacute osteomyelitis of the first metatarsal bone in 1953; this was associated with a trophic ulcer. There was no history of injury in 1958 when he was admitted for swelling of the knee. (Mr G. Lloyd-Roberts's case.)
There are now three examples of this peculiar lesion at the knee and one of the lower tibial epiphysis in the Museum of the Institute of Orthopaedics. None of the patients had suffered local injury. In one patient the femoral epiphysis was affected (Fig. 5); the changes closely resembled those in the case illustrated in Figure 2. In another the tibial epiphysial line was involved, with excessive callus formation below the lesion (Fig. 6).

It was once thought that this lesion was confined to the knee; but the case of a patient recently admitted under Mr D. M. Brooks (Fig. 7) shows that the same condition may be found near the ankle, and doubtless any epiphysis or metaphysis may be involved.

These lesions are worth reporting because they may resemble sarcomata or Charcot’s arthropathy. Radiographs of the lumbar spine will indicate the true diagnosis and eliminate the need for biopsy. Mr Nissen’s case shows that conservative treatment may be successful.

REFERENCES