INTRAOSSEOUS GANGLIA

Report of Two Cases

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Woods (1961) described seven cases of cysts in bone in close relationship to normal joints, having appearances similar to those of ganglia in soft tissues. Previously Hicks (1956) reported four cases of "synovial cysts," two of which may well have been the same entity as that later described by Woods. Crabbe (1963, 1966) also described subchondral cysts having similar features. This paper describes a further two cases.

CASE REPORTS

Case 1—A farmer of forty-two gave a six months' history of aching pain in the right ankle, present only on exercise. There was no history of injury. On examination the ankle was found to be normal.

Radiographs showed a well defined cyst in the lower tibia with a surrounding zone of sclerosis immediately above the articular surface (Fig. 1).

FIG. 1

Case 1—Antero-posterior and lateral radiographs of the ankle before operation.

Operation—At operation the periosteum was reflected from the medial malleolus and a trap-door of cortical bone was cut out over the lesion. A fibrous-walled cyst was encountered (Fig. 2). It was about one centimetre in diameter and contained clear glairy fluid. The cyst was easily removed from the surrounding bone (Fig. 3) leaving a cavity which was packed with cancellous bone from the immediate vicinity. A careful search did not reveal a communication with the ankle joint.

FIG. 2

FIG. 3

Case 1. Figure 2—The cyst exposed at operation. Figure 3—The excised cyst with the bony cavity.

FIG. 4

FIG. 5

Case 1. Figure 4—Photomicrograph showing the fibrous wall of the cyst and its mucoid content. ($\times 55$.)
Figure 5—A higher-power view of a section of cyst wall. ($\times 100$.)

Histology—The photomicrograph (Fig. 4) shows the essential features of the lesion, namely the fibrous wall of the cyst without any definite synovial lining, the tendency to loculation and the mucoid content of the cyst as represented by indefinite strands. Figure 5 is a higher power view of a section of the cyst wall showing an area of mucoid degeneration within the wall. At one corner of the field the stringy material, which is all that remains of the cyst contents, is visible, and again the absence of a synovial lining is apparent.

Progress—The patient's symptoms disappeared after operation. Radiographs fourteen months later showed no recurrence.

Case 2—A woman of forty-five had had pain in the right ankle for ten years, particularly after walking and occasionally at rest. Examination revealed tenderness over the lower tibia and just above the medial malleolus. There was no soft-tissue swelling. Radiographs showed a cystic lesion with a sclerotic margin in the subchondral bone of the lower end of the tibia (Fig. 6). The ankle joint was radiologically normal.

FIG. 6

Case 2—Antero-posterior and lateral radiographs of the ankle before operation.

Operation—At operation the cyst was exposed by lifting a trap-door of bone from the medial malleolus. The fibrous wall was incised and gelatinous material, like the contents of a typical ganglion, was found. The fibrous wall was curetted out and the resulting cavity of about one centimetre diameter was packed with cancellous bone obtained from the lower tibia. No communication was found between the cavity and the ankle joint.

Histology—Histological examination showed a poorly cellular fibrous wall without a distinct lining layer of cells and with areas of mucoid degeneration. Fibrinoid material was adherent to parts of the inner surface of the wall.

Progress—The symptoms were completely relieved after the operation. Radiographs three months later showed the graft to be incorporated.

DISCUSSION

The lesion characteristically occurs in the young and middle-aged and presents with pain made worse by use of the limb. Examination may reveal slight tenderness and perhaps swelling

over the site of the cyst, or there may be no abnormal findings. Radiographs show a well defined cyst with a surrounding zone of sclerosis adjacent to the articular surface. In older patients there may be degenerative changes in the adjacent joint, but this is thought to be coincidental. The tibia is most frequently involved but ganglia have now been described in many other limb bones (Crabbe 1966).

The etiology of intraosseous ganglia is not clear. A common factor in soft-tissue and intraosseous ganglia is the possibility of access to synovial fluid. Landells (1953) presented evidence that cysts in osteoarthritis arose from the intrusion of synovial fluid into bone at the joint surface. He found it possible to demonstrate an opening, usually a linear fissure, between the cyst and the joint. However, Ondrouch (1963) pointed out that even in healthy joints there exist physiological defects of the terminal lamella, and these do not lead to cyst formation. Naked-eye and histological examination does not reveal a communication between ganglion and joint, but this does not rule out the possibility that there has been or is a small connection. The fact that the pain develops on exercise suggests that there is an increase in tension within the cyst, possibly from synovial fluid being pumped into it. On the other hand an increase in tension in the cyst could take place if the surrounding tissue tension rose, as is likely on exercise. Other theories as to the cause of intraosseous ganglia include degeneration in intramedullary connective tissue (Woods 1961), and metaplasia of the skeletal connective tissue (Hicks 1956).

SUMMARY

The features of two cases of intraosseous ganglion in the lower tibia are described.

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