POPLITEAL ARTERY AND VEIN THROMBOSIS COMPLICATING OSTEOCHONDROMA OF THE FEMUR

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A 28 year-old male patient was presented with chronic left lower extremity swelling and intermittent claudicatio. His symptomatology proved to be a result of complete occlusion of the popliteal artery and vein due to a femoral osteochondroma. Clinical improvement followed tumoral resection and saphenous vein interposition to the popliteal artery, and popliteal vein thromboembolectomy. Searching the literature, fibrosis and thrombosis of the popliteal artery due to tumoral compression could not be encountered. As far as we know this is the first case in literature.

Key words: Osteochondroma, popliteal artery thrombosis.

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Osteochondroma having a metaphyseal origin, is the commonest of the benign bone tumors[1]. Tumors arising from the knee region may sometimes be associated with vascular complications.

Compression of the popliteal artery and vein by a large femoral osteochondroma causing intermittent claudicatio and chronic venous obstruction is being presented.

Case Report

A 28 year-old male patient noticed gradual swelling of his left leg over a period of two years. The swelling worsened with running and partially resolved with rest and elevation of the leg. He had a painless mass in the popliteal fossa and intermittent claudicatio for approximately five years.

On physicial examination, there was a large mass at the left proximal popliteal fossa. Popliteal and distal pulses were absent. At midcalf the girth was 5 cm greater than that of the right leg. There were varicose veins from the knee to the foot along the greater saphenous vein. Neurological examination was normal. Homan's sign was negative.

Figure 1: Plain radiography of the distal femoral region showed a large osteochondroma

Plain radiography, and CT showed a large mass arising from the distal femoral diaphysis (Figs 1 and 2). Femoral angiography showed a total occlusion of the popliteal artery at the level of the mass. Laboratory evaluation revealed an erythrocyte sedimentation rate of 72 mm/hr,(normal 5-10 mm/hr), and an alkaline phosphatase level of 68 I/U (normal 35-125 I/U). Hematocrit, white blood count, SGOT, and lactic dehydrogenase levels were normal.

A combined vascular surgical and orthopedic procedure was undertaken. The entire osteochondroma was resected. The popliteal artery was totally occluded because of fibrosis and organized thrombus for approximately a 10 cm segment. The neighbouring vein seemed to be inaffected except of the external compression. Tumor cells could not be encountered in the occluded arterial segment in microscopic examination. The involved segment of artery was excised and a sapheneous vein graft was interposed.

Completing the sapheneouns vein interposition, control fogarty balloon catheter was sent down to the distal popliteal artery, and satisfactory back flow was found out to be present. Although dorsal pedis and posterior tibial pulses were absent postoperatively, claudication disappeared. Thromboembolectomy was performed to the popliteal vein, but there was no thombus at the distal site.

A control angiogram performed at the postoperative sixth month revealed a patent saphenous vein segment, occlusion of the distal popliteal artery, peroneal and posterior

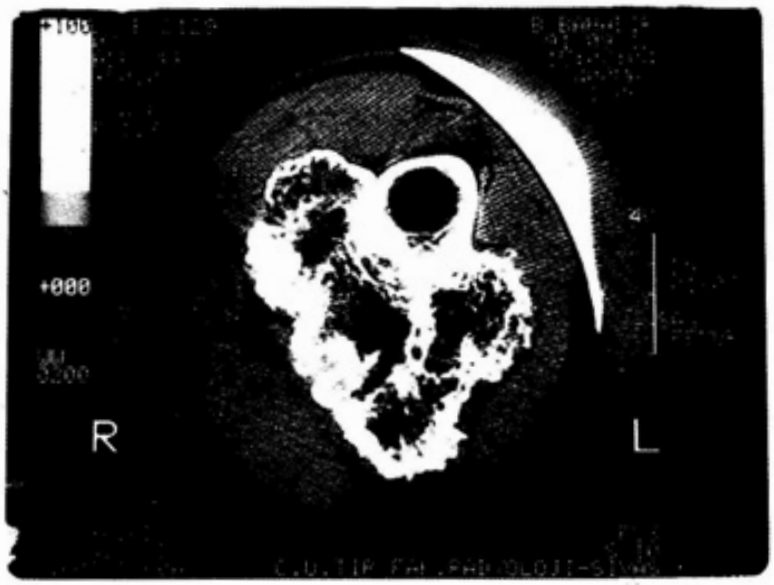

Figure 2: CT of the distal femoral region at the level of the osteochondroma.

Figure 3: Postoperative femoral angiography.

tibial artery refilling via collateral circulation (Fig 3). The patient is symptom free and having an active life at the 15 th postoperative month.

Discussion

Chondromas are benign tumors arising from the cartilaginous elements of the developing bone with slow growth. When ossification does occur, the lesion is known as osteochondroma. If malignancy develops, it does so after the age of thirty-five, and occurs most commonly in tumors of the large bones [1].

The usual localizations of the osteochondroma in lower extremites are distal femur and proximal tibia or fibula[2]. It is generally asymptomatic, and a painless mass may be the only clinical symptom[3]. Signs and symptoms may arise due to a number of well recognized complications, including malignant degeneration to chondrosarcoma and fracture through the tumor stalk. An usual cause of symptoms is false aneursym formation and thrombosis as a result of tumor penetration into an adjacent artery[4]. Osteochondroma arising in the popliteal fossa tend to displace popliteal vessels. They may produce arterial and venous entrapment as well as damage to the vascular walls, this giving rise to thrombus formation or arterial pseudoaneurysms[1].

Vascular complications due to compression by osteochondromas are well recognized.In the literature, cases of osteochondromas arising at the upper and lower extremities causing vascular complications have been reported [1,3,5-7]. In these series 29 patients were investigated. The average age was 17.5 years (9-55 years), with a male dominence of 83%. In 83% of the cases the tumor was arising from the distal femur, in 7% from the proximal fibula, in 7% from the proximal tibia and in 3% from the humerus.

The most common arterial complication of osteochondromas located at the lower extremities is a pseudoaneurysm. Complicating osteochondromas have arisen in the proximal portion of the popliteal artery[3,4].Greenway et al reviewed 26 cases[4] , and Lizama[5] has reported popliteal artery pseudoaneurysm formation of the popliteal artery due to an adjacent osteochondroma. Arterial pulsation or movement of the knee joint result in repetitive trauma to the popliteal artery, producing abrasion and eventually, laceration of the vascular wall, forming pseudoaneurysm[6].

Direct compression of the popliteal vein by an osteochondorma is fairly uncommon, and has been described in only five cases[1,3]. In three cases the osteochondroma arose from the distal femur, and in two cases arose from the proximal fibula. Obstruction of venous flow from the lower leg resulted in these patients similiar to our case, causing chronic leg edema. Searching the literature, we could not find popliteal artery thrombosis as a complication of an osteochondroma, this case is the first in the literature as far as we know, progressing with fibrosis and organized thrombosis.

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