

myelitic fistulas, developing either upon a hematogenous infection of the bone or upon accidental compound fractures or gun shot wounds (von Brunn; Scheid; Harrison; König; Hobart and Miller; Hellner; Eliason and McLaughlin; Henderson and Swart; Benedict; Devars; Collins; Blanco; Wakeley; Hawkins; Zumhausen; Brunschwig; Placinteanu and Dobrescu; Pohl; and others). Hellner found in the German literature (1838-1934) only 41 such cases. The following data on the incidence of such a complication are available. Hobart and Miller found 3 cases of fistula carcinoma among 108 cases of chronic osteomyelitis (2.6 per cent). Benedict reported 12 cases of epidermoid carcinoma of the fistulous tract in 2,400 cases of osteomyelitis (0.84 per cent). Henderson, on the other hand, found only five cases of this type among 2,396 cases of osteomyelitis (0.208 per cent). A similar incidence figure was given by Harrison (0.27 per cent), who saw only one case with a cancerous complication during 22 years among 365 cases of osteomyelitis.

Osteomyelitic fistulas involving the tibia seem to be most prone to develop malignant complications. In a series of 39 cases of osteomyelitic fistula carcinoma, collected by Harrison, 26 affected the tibia, 5 the femur, 5 the bones of the foot, 2 the bones of the arm, and 1 the knee. Eliason and McLaughlin observed a bilateral carcinoma of the fistulous tracts of both tibias in a man, 34 years old, who had sustained a compound fracture at the age of 6 years. The latency period of this condition varies from 20 to 50 years, but sometimes a shorter period is observed [1 to 3 years (Hobart and Miller; Collins; Devars)]. Hellner found a latency period of more than 40 years in 14 cases, and of less than 20 years in 6 cases. The average age of the individual with fistulous cancer is approximately 50 years, rarely less (Harrison: one case, 13 years old; Hellner: one case, 25 years old).

The onset of a malignant development in an osteomyelitic fistula is indicated by the appearance of severe pain, and of an increased amount of foul, purulent discharge. The diagnosis of the fistulous cancer is relatively easy as long as the tumor involves the visible parts of the sinus, but becomes difficult if the malignant focus is deep-seated. Biopsy and sometimes radiographic examinations must be used then for the establishment of the diagnosis (Benedict). The histological examination of such lesions reveals a diffuse and extensive invasion of the adjacent soft and bony tissues by epithelial cells containing numerous mitoses. Distant metastases, however, are rare (Hellner), as the malignant growth displays a tendency to remain localized for a long time. The prognosis of osteomyelitic fistulous carcinoma is therefore favorable, particularly because of the possibility of its radical removal by amputation of the affected limb.

Chronic irritation cannot be considered as an adequate cause of the osteomyelitic fistulous carcinomas because of the rarity of such a complication in osteomyelitis. Similar objections must be advanced against the conception of a derailment of the regenerative process as the causative factor. It is entirely speculative whether or not aromatic protein degradation products, such as