

Lumbosacral and hip tuberculosis in a Migration Period skeleton

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Abstract.

In this paper a possible case of severe skeletal tuberculosis is discussed. The bony remains of an 8th century skeleton present the osteological features typical of an advanced-stage lumbosacral tuberculosis with vertebral fusion and presacral tuberculous abscess. Total destruction of the left femoral head and acetabulum also occurred.

The morphology of the lesions emphasizes the tuberculous origin of the disease.

Introduction.

A paleopathological investigation of the 234 human skeletons from the late Avar-Age cemetery (8th century A.D., Migration Period) of Bélmegyer-Csömöki Hill (Eastern Hungary) was carried out. While looking for the skeletal symptoms of other diseases, osteoarticular features of possible tuberculous infections were detected in some cases. The present paper is a case report on the skeletal remains of grave Nr. 90.

The aim of our study is the paleopathological diagnosis and interpretation of the pathological features detected, through macro-morphological and X-ray methods.

Description.

The anthropological examination shows the well preserved, complete skeletal remains are those of a more than 60 year old male.

The skeletal remains present several pathological changes; in addition to slight hyperostotic changes and caries, it exhibits the signs of a severe infectious disease.

The fifth lumbar vertebra and the sacrum show serious pathological deformations (Figure 1). There is a destructive lesion, with extensive new bone formation on its upper surface, that mainly affected L₅; there is collapsed and fused with the superior sacral segment; finally

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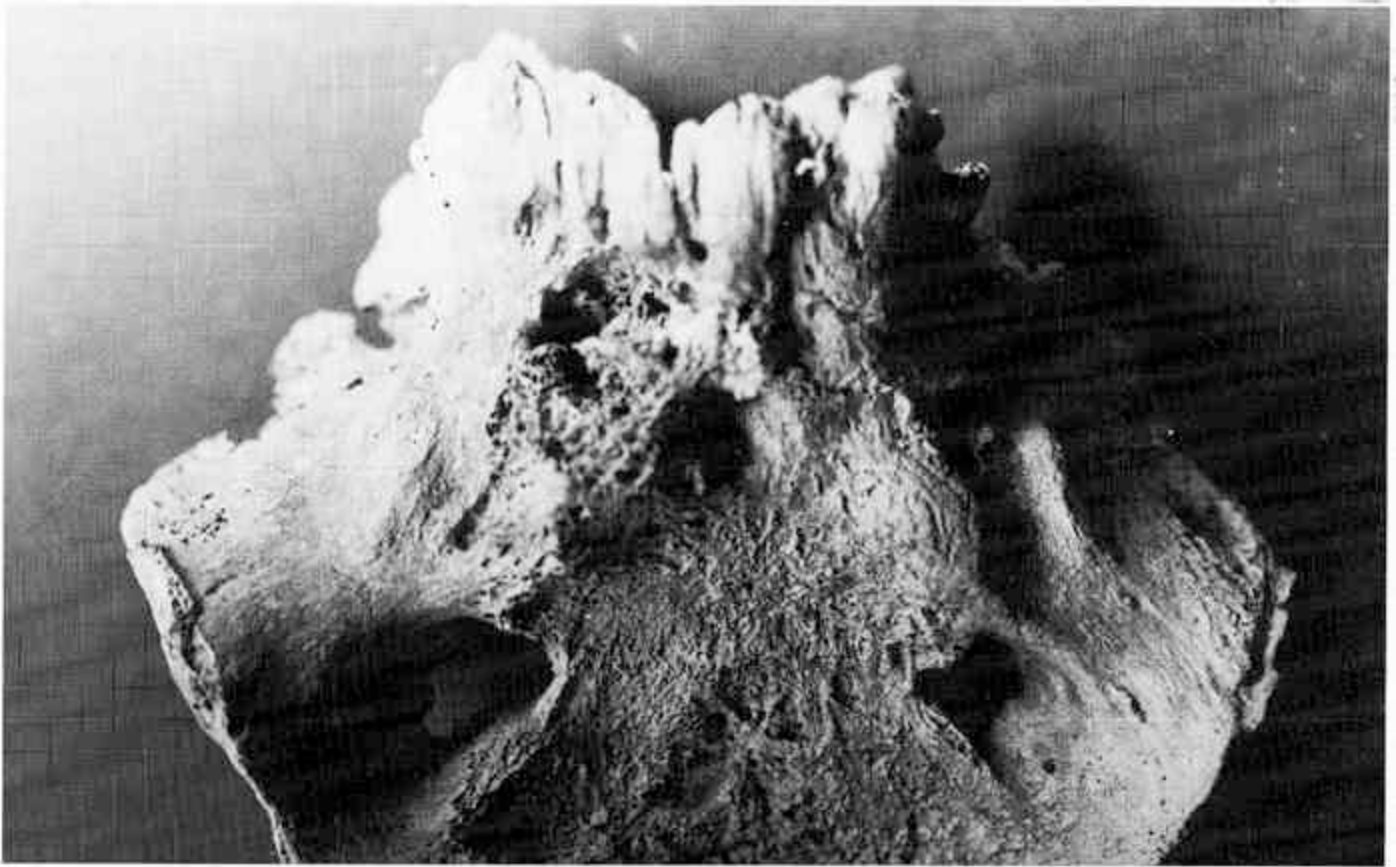


Figure 1. Destructive lesion affecting the lumbosacral area. Superficial erosion on the ventral surface of the sacrum.

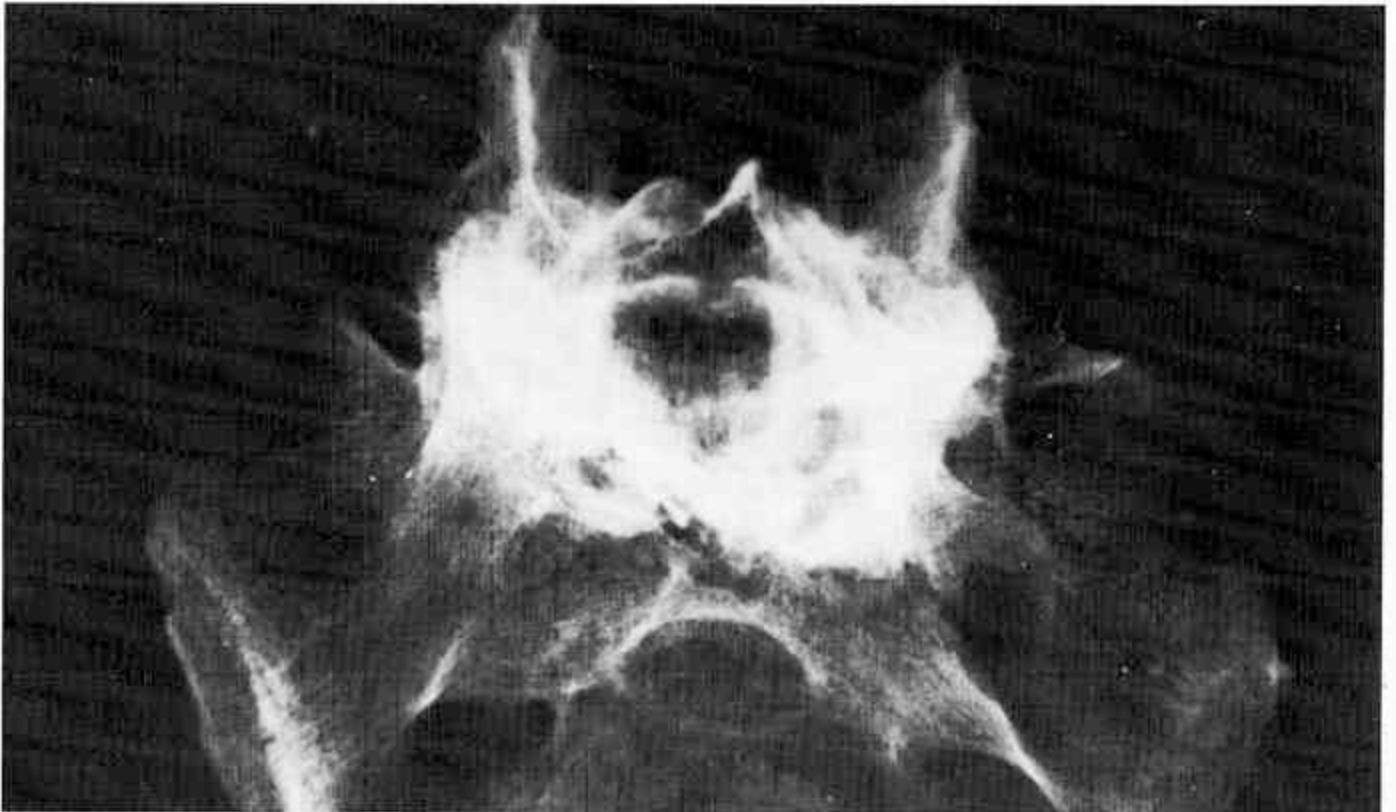


Figure 2. X-ray showing vertebral fusion of L5-S1.

there is erosion and irregular periosteal apposition on the ventral surface of the sacrum.

The X-ray (Figure 2) shows radiological signs of vertebral fusion, as well as obliteration of the disc space involved and the posterior intervertebral joints. Signs of bone regeneration and sclerosis are also evident.

The pathological changes of the left hip joint are also considerable (Figures 3 & 4). The acetabulum is completely destroyed, as are the femoral head and neck, while the periosteal new bone formation on the proximal shaft of the femur (Figure 5) is slight. The radiograph shows the same alterations.

Discussion.

The above mentioned lesions make the occurrence of a healed osteo-articular disease of infectious origin probable. As we know from the literature (Ryckewaert, 1980; Martini, 1988), tuberculous changes of the spine and the hip can produce very similar lesions.

Tuberculosis can produce severe destruction of bones in untreated patients, especially in the absence of chemotherapy (Martini & Ouahes, 1984).

There are many reports of lesions attributed to tuberculosis in osteo-archaeological samples (Steinbock, 1976; Ortner & Putschar, 1981).

Osseous tuberculosis results from the metastatic spread of the disease from elsewhere in the body, usually the lungs. In most patients, bony foci of infection coexist with arthritis. Multiple skeletal lesions are not uncommon. Skeletal manifestations of tuberculosis occur most often in the spine (Bullough & Vigorita, 1984).

Tuberculous spondylodiscitis can le-

ad to vertebral destruction and collapse. Healing may occur with permanent preservation of the deformity by means of bony fusion of the vertebral body remnants involved (Horváth & Forgács, 1984).

Untreated lumbosacral tuberculosis usually leads to the destruction of vertebrae (L4)-L5-S1. A common complication of vertebral tuberculosis is the formation of a paravertebral abscess. If L5-S1 are involved, the abscess extends downward, following the piriformis muscle (de Séze & Ryckewaert, 1976). The abscess may become an important source of contact infection, especially below the original focus. The tuberculous process erodes the cortical surface and may produce irregular periosteal appositions (Buikstra & Cook, 1982).

Tuberculosis of the hip is the second most frequent skeletal lesion after tuberculous spondylitis. In addition to the usual hematogenous route, direct extension to the hip joint can also occur by contact with long-standing abscesses from vertebral or pelvic tuberculosis. In severe cases, destruction of the bones may be very extensive, with total destruction of the acetabulum, femoral head, and neck (Martini, 1988).

In developing a differential diagnosis, the tuberculous features should be separated from non-specific spondylitis and septic arthritis. In case of a pyogenic infection, the septic process is rapid and the bone destruction is much more limited (Bullough & Vigorita, 1984); paravertebral abscesses are less frequently observed, and, if present, may extend above the lesion as well as below because they form rapidly. Statistically tuberculous coxitis is much more common than septic arthritis of the hip, especially with the complete destruction of the femoral head and neck (Ortner & Putschar, 1981).



Figure 3. Severe pathological changes of the left acetabulum.



Figure 4. X-ray of the left hip joint, showing the total destruction of the acetabulum and femoral head and neck.



Figure 5. Proximal shaft of the left femur with new periosteal bone formation.

Conclusions.

The above mentioned morphological and radiological changes record the occurrence of a severe lumbosacral and hip tuberculosis. It is possible that the primary focus of the skeletal involvement was the lumbosacral area and the tuberculous arthritis of the left hip may have been caused by direct contact with a long-standing cold abscess.

The skeletal manifestations observed are the results of a healed and probably long-standing infectious process.

Our specimen may have lived many years after healing: the left femur shows considerable atrophic changes as a possible consequence of its decrease in function (perimeter at the middle of the right femur: 102 mm, one of the left femur: 79 mm).

In the same series three other possible tuberculous cases were found - the descriptions of two of them have already been published (Pálfi & Csernus, 1990; Pálfi, 1991). Although it is known (Marcsik, 1972; Farkas & al., 1976; Marcsik, 1977) that tuberculosis was present in the Avar-Age populations, the relatively high prevalence of the disease in the Bélmegeyer-series is remarkable.

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