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DIFFUSE IDIOPATHIC SKELETAL HYPEROSTOSIS (DISH) ON A MALE SKELETON FOUND IN ŽEROTICE, MORAVIA (JEVIŠOVICE CULTURE)

ABSTRACT — *A new find of diffuse idiopathic skeletal hyperostosis (DISH) is described from Eneolithic period (Jevišovice culture burial) in South Moravia.*

KEY WORDS: *Skeletal hyperostosis — DISH — Eneolithic — Moravia.*

Degenerative diseases of the big joints and of the vertebral column — arthrosis and spondylosis, are the most frequent affections of the locomotion system in modern man. In palaeopathology the finds affected by arthrosis, and especially by spondylosis, are unusually frequent (Hanáková, Vyhnánek 1981) and they form a rather varied picture. When Forestier detached in 1950 "the ankylosing vertebral hyperostosis" as an independent nosological unit differing from the current spondylosis, soon appeared descriptions of analogous finds also in the archaeological material (in this country by Vyhnánek, Stloukal and Kolář 1970). In the year 1975 Resnick at al. emphasized that Forestier's ankylosing vertebral hyperostosis has sometimes hyperostotic manifestations also in other parts of the skeleton and this disease is called *diffuse idiopathic skeletal hyperostosis — DISH*.

It should be emphasized that it is not a real nosological unit in the proper sense of the word. It is a syndrom — it is a group of changes of hitherto

unclear and evidently also heterogeneous etiology, characterized by increased readiness of the connective tissue to get transformed into bone metaplastically. It happens so that the muscle and ligament attachments ossify into the bones. In case of inborn disposition the triggering moment can be microtraumatization, a trauma or an inflammation. Large ossifications forming up to overbridging "osteophytes" (or better syndesmophytes) appear especially in the spine, forming on the front right side large relief areas. Their formation is typical around the acromion, elbow, knees, at the calcaneum, etc. Affected are most often people in their fifties and sixties and belong to the obese and muscular types. Many of them suffer from diabetes mellitus or gout. In differential diagnosis it is possible to differentiate it from Bekhterev's disease. On the other hand it is sometimes very difficult to differentiate it from not very clear forms of spondylosis.

The basic difference is that in spondylosis there are always lowered degenerated intervertebral discs. Their degeneration is in fact the cause of spondylosis. With DISH the intervertebral discs may be preserved, of normal thickness, although their lowering cannot be excluded.

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	DISH	Spondylosis
vertebrae	hyperostosis, large ossified areas, large osteophytes	sclerosis of covering areas smaller osteophytes
intervertebral discs	slightly lowered or not at all	heavily lowered
periferies	periostosis, ossified muscle tissue attachments, prickly outgrowths	sometimes arthrotic changes, especially of the big joints

Changes that can be regarded as typical DISH were observed on a skeleton in the Moravian Museum found in the excavations of an Eneolithic Jevišovice Culture site in Žerotice by Dr. Kovárník. The skeleton is dated into the third millennium B.C.

It is a well preserved skeleton of a male of 45–50 years, of robust type. The big joints, as far as preserved, show not serious arthrotic changes. Very conspicuous are the hyperostotic changes in the spine, especially in the cervical, and lumbar parts, and especially in the acromioclavicular joints. Vertebral column: in its cervical part (*Fig. 1*) there are well perceptible large osteophytes on the front side of vertebral bodies C 3–4, C 4–5 and C 5–6.

At the transition to the thoracic and lumbar



FIGURE 1. Cervical vertebra with characteristic DISH changes. Osteophytes on the ventral side of the vertebral bodies. Eneolithic period, Žerotice, Moravia.

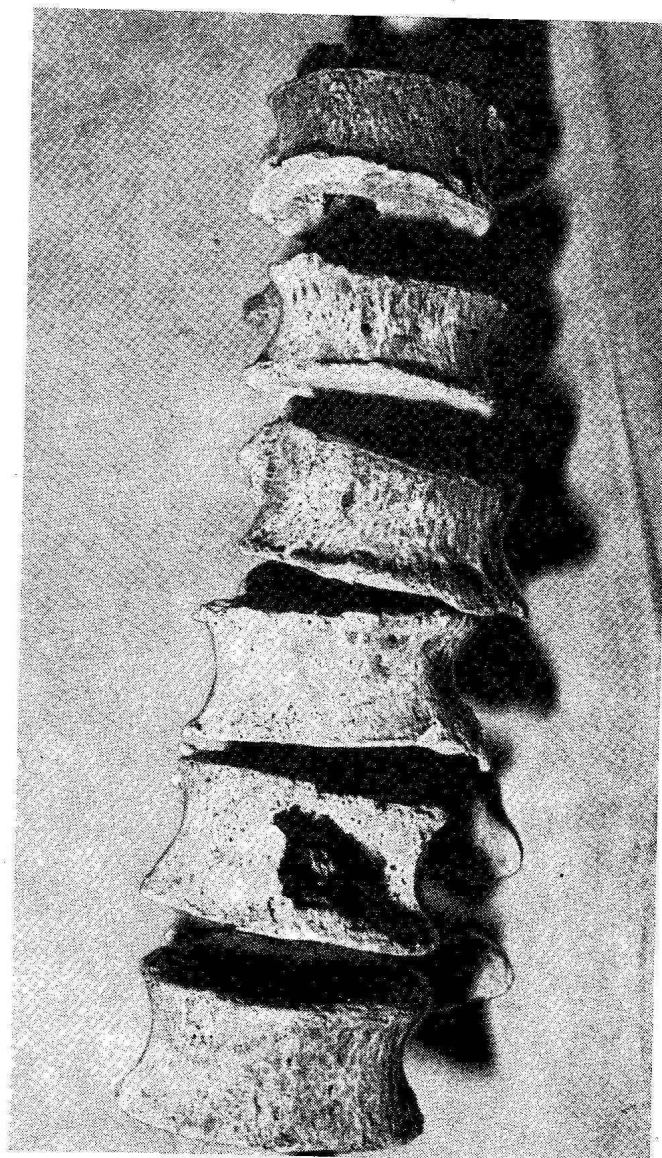


FIGURE 2. Massive osteophytes situated on the right side of the thoracic and lumbar vertebral bodies. Eneolithic period, Žerotice, Moravia.

part (*Fig. 2*) there are also massive osteophytes situated typically on the right side of the vertebral bodies. The most conspicuous finds are at the two acromioclavicular joints. On *Fig. 3* we can see from cranial view massive hyperostotic changes on both acromia, especially on the left side. On the preserve processus coracoides on the left there are typical prickly processes at its base (the attachment of the coracoclavicular ligament and the transversal ligament of the scapula). There are matching changes also on the left clavicle (the right clavicle has not been preserved) — *Fig. 4*.

Viewed from the caudal side there are well visible ossifications with an attachment of tissues, both on the sternal and scapular end.

On the rest of the skeleton (on the pelvis, proximal parts of the femurs) there are also hyperostotic changes, but of much more conspicuous extension. The interesting thing is that no pathological ossifications were found on the heel bones.



FIGURE 3. Massive hyperostotic changes on both scapular acromia. Eneolithic period, Žerotice, Moravia.

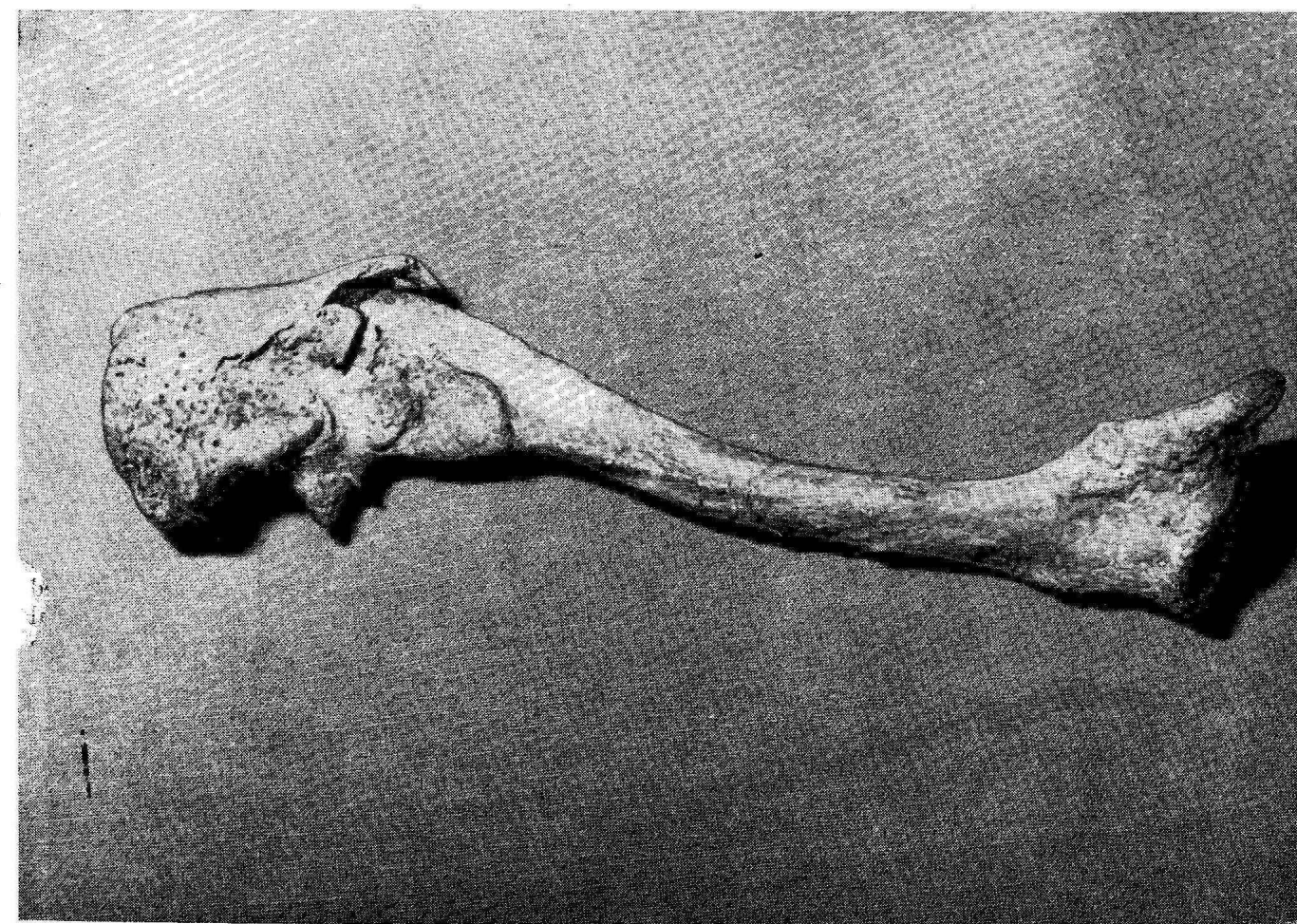


FIGURE 4. Pathological (DISH) changes on the right clavicle. Eneolithic period, Žerotice, Moravia.

CONCLUSION

The above described changes are typical of the DISH, this applies especially to the symmetry of the affection of the acromioclavicular joints. The relatively small changes on the pelvis and in the heel bones can be explained by the relatively low age of the individual: as a rule clinically fully developed DISH is diagnosed at about 55—60 years. There is no doubt at all that the palaeopathological finds documenting diffuse idiopathic skeletal hyperostosis (DISH) were observed many times also earlier. In most cases, however, they were interpreted as Bekhterev's disease or spondylosis. In view of the fact that DISH has its undisputable clinical importance in the modern medicine, it is necessary

to make more accurate the DISH diagnostics also in the palaeoanthropological skeletal material.

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