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GRAVETTIAN SHOULDERBLADES, THEIR MORPHOLOGICAL VARIABILITY AND OTHER INTERESTING FEATURES

ABSTRACT: In the Upper Palaeolithic scapular morphology the bisulcate type of the axillar border is not the only existing type. Sometimes the dorsal sulcus type, frequent in neanderthals, exists. Also the general shape of this bone is fairly variable and the existence of scaphoid shape of the shoulderblade is not surprising. Other varying morphological features demonstrate large variability which warns against the use of these features for premature conclusions in ontogenetical as well as phylogenetical evolution.

KEY WORDS: Gravettian – Morphological variability – Physical anthropology.

INTRODUCTION

During the last decades several papers were published about scapular morphology, especially about its evolutionary significance (Trinkaus 1977, Stringer, Hublin, Vandermeersch 1984, Jelínek 1989, Frayer 1992). The axillar rim was especially considered because its dorsal sulcus for the *m. terres minor* was claimed to be frequent in neanderthals whereas the costal sulcus for *m. subscapularis* was claimed typical in modern man (Trinkaus 1977, 1979). Transitional types were reserved for Upper Palaeolithic Homo sapiens sapiens individuals. Dorsal sulcus being prevalent in neanderthals was possibly an important evolutionary feature. Vlček (1973) when studying neanderthal child remains from Kiik-Koba says: „A very important diagnostic feature, the *sulcus axillaris* on the axillar border is not fully developed in such a young child. The axillar border in the Kiik-Koba individual is about one quarter thicker than in the recent child. In its whole length the axillar border is rounded and without an edge. Five mm below the lower border of cavitas glenoidalis there is a suggestion of a ridge, which turns in the caudal direction to the dorsal aspect of the scapula. In the recent child there is a sharp edge on the axillar border. On the whole the scapula of the Kiik-Koba find is more robust and finally the axillar border is thicker and there is a suggestion of the development of sulcus marginalis (Boule 1911 – 13)." Vlček settled the age of this child as 5 – 7 months. Heim, when studying neanderthal child remains from La Ferrassie (1982) of similar age has not found any trace of dorsal sulcus.

Martine Madre Dupouy describes the neanderthal scapula from Roc de Marsal (Madre Dupouy 1992, p. 175 – 178) belonging to a child aged probably of 3 – 3 1/2 years. „La partie conservée du bord latéral ou axillaire est plutôt arrondie, aplatie, peu saillante, surtout plus épaisse (4.5 mm dans sa partie moyenne) comme chez tous les autres enfants néandertaliens. Elle est presque rectiligne mais ne semble pas encore présenter la morphologie particulière connue chez l'adulte néandertalien avec une crête dorsale (*crista dorso-axillaris*) très développée." We are therefore uncertain about the appearance of this feature in the ontogeny of neanderthals. The feature probably does not appear so early as suggested by Vlček.

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Figure 1. Dorsal view of both shoulderblades Dolní Věstonice XIII. Note the absence of the scaphoid shape, the normal shape of scapular inferior angle and the blunt triangular tubercle on the scapular spine.

Figure 2. Dorsal view of both shoulderblades Dolní Věstonice XIV. Note the scaphoid shape and the concave axial and lateral borders and the blunt shape of scapular inferior angle. The scapular spine has a broken triangular tubercle in its lateral part.

Figure 3 a, b. Dorsal view of both shoulderblades Dolní Věstonice XV. No scaphoid shape is seen, the shape of scapular inferior angle is normal. The scapular spine is not preserved. The existence or absence of the triangular tubercle cannot be reconstructed.

MATERIAL

New discoveries of Early Upper Palaeolithic Gravettian burials in Dolní Věstonice contributed to our knowledge with several relatively well preserved scapular remains. In the triple burial Dolní Věstonice XIII, XIV, XV both shoulderblades, right and left are nearly complete in boys No. XIII (age 17 – 21), XIV (age 14 – 17) and with a slightly damaged medial border and spine in No. XV (age 17 – 21). In another burial (No. XVI, male, age 40 – 45) discovered a year later (Svoboda 1987) only the left scapula was conserved with damaged superior scapular angle and spine. If we add the scapulae from Předmostí III (male 34 – 40), IV (female 35 – 40), IX (male 20 – 24), X (female 20 – 30), XIV (adult male), XXII (9 – 10) and XXVII (adult), and their fragments we have a reasonable sample to follow some of the important features like the morphology of the axillar border, shape of the medial border, of the spine and general shape of the shoulderblade.

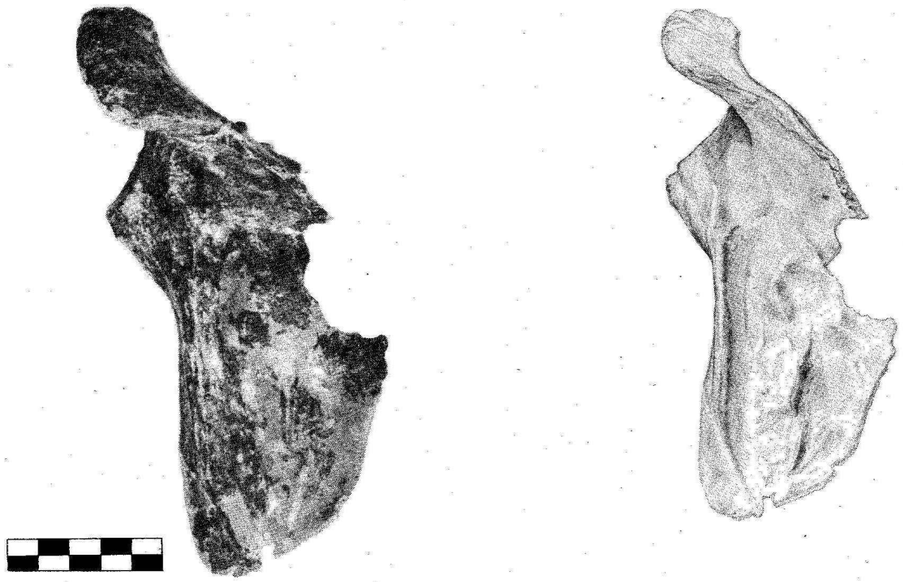

Figure 4 a, b. Dorsal view of the left shoulderblade Dolní Věstonice XVI. No scapoid shape is seen, the shape of the scapular inferior angle is normal. On the scapular spine there is a triangular tubercle.

Axillar Border

In the anthropological literature in the past decade it was generally accepted that the dorsal sulcus representing the attachment of strong *m. terres min.* is frequent with the classical neanderthals whereas the stronger costal sulcus representing stronger attachment of *m. subscapularis* is characteristic of modern man. The intermediate type (bisulcate border) was reserved for the Upper Palaeolithic Homo sapiens sapiens. If this is really the case it signals the intermediate position of Upper Palaeolithic man between neanderthals and modern Europeans. But the axillar morphology demonstrates a far more complex picture. The Upper Palaeolithic scapulae sometimes have a clear dorsal sulcus similar to that of neanderthal scapulae. This is the case with Předmostí XIV, Barma Grande 2 and Dolní Věstonice XV. DV XIII, a young male, has the axillar ridge separating dorsal and costal sulci, but the dorsal sulcus is evidently broader and deeper than the costal one. This is clear in the cross section between the upper and middle thirds of the axillar border because in the lower third, where there is no more *m. terres min.*, the axillar ridge usually oscillates. This is well seen in our detail drawings (*Figures 7 and 8*). If we compare scapular axillar borders of DV XIII, XIV, XV and XVI we see the oscillation of the axillar ridge (*Figures 5, 6, 7, 8*). The scapula of DV XV with the dorsal sulcus belongs to the individual with the weekest traces of muscular attachments from all four above mentioned individuals. Compared to this fact Nos. XIV and XVI, both with stronger muscularity, have an axillar ridge separating the deeper and broader dorsal sulcus from the weaker and narrower costal one. This demonstrates that in DV XV the existence of the dorsal sulcus is not the result of the muscular activity. In four Předmostí individuals Nos. III (male), IX (male) and X (female) the axillar ridge follows the midline of the axial border (Matiegka 1938, Jelínek 1989).

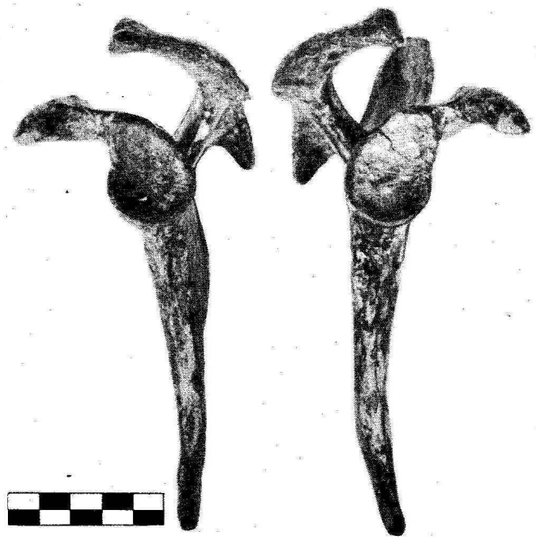

Figure 5. Axillar border of both shoulderblades Dolní Věstonice XIII. Note the size and position of the dorsal and costal sulcus and the bisulcate margin.

Figure 6. Axillar border of both shoulderblades Dolní Věstonice XIV. Note that the dorsal sulcus is larger than the costal one.

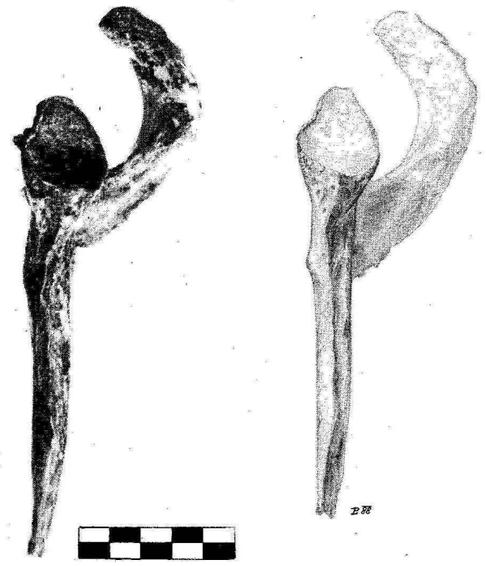

Figure 8 a, b. Axillar border of the left shoulderblade Dolní Věstonice XVI. Note the shape of the dorsal sulcus.

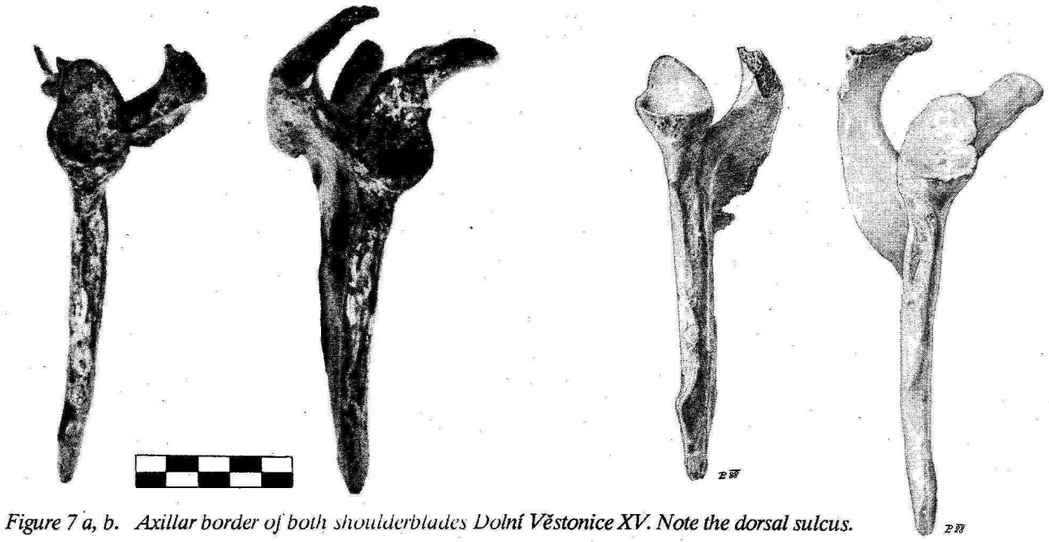

Figure 7 a, b. Axillar border of both shoulderblades Dolní Věstonice XV. Note the dorsal sulcus.

The Shape of the Medial Border, Distal Angle and the Scaphoid Scapula

This is the case with the young boy DV XIV. The scapular medial border is clearly concave and the distal *angulus scapulae* is not angled. It is replaced by a border due to the existence of the *proc. terres.* The scapula has the so-called scaphoid shape (Vallois 1928, Fig. 7/III., Fig. 43/III, Fig. 44). This is bound to the late ossification of the medial border which in later age can be repaired by an additional ossification centre. Vlček (1991, Fig. 51) in a drawing has the concave medial border also in DV XV and uses this feature to support his idea of the relationship of both individuals. But unfortunately his drawing does not correspond to reality. In the triple burial (XIII, XIV, XV) only No. XIV has the scaphoid shape. In DV XV the medial border of the right scapula is damaged (see *Figure 3*) and the left scapula shows the normal, non-scaphoid medial border. The scaphoid shape and replacement of the inferior angle by a transversal border are individual characters and cannot support any kinship idea.

Scapular Spine

In the famous triple burial DV XIII, XIV and XV we find an interesting shape of the scapular spine. On the scapular spine of DV XIII there is a clearly developed triangular tubercle. In DV XIV it is represented by damaged remains (*Figure 2*). In DV XV the spine is nearly completely broken off and its form cannot be reconstructed without speculations. Its presence in three Předmostí individuals, one male and two females (Matiegka 1938, Tab. IV, Předmostí III-male, V-female and X-female) shows that its existence in Gravettian people was not rare. It appeared in males as well as in females and it was evidently premature to use this feature as proof of the supposed kinship in the Dolní Věstonice triple burial (Vlček 1991, Fig. 51).

CONCLUSIONS

In summarizing our observations it is clear that in some Upper Palaeolithic Gravettian scapulae the dorsal sulcus of the axillar border (which is otherwise characteristic for neanderthal scapulae) can be found. This means that it is not an exclusively neanderthal feature and does not support the idea of complete genetic isolation of Upper Palaeolithic Homo sapiens sapiens from neanderthals. The bisulcate type, which is prevalent in Gravettian finds, often demonstrates a stronger dorsal than ventral sulcus. The scaphoid shape of the scapula is only with the No. XIV young boy from the Dolní Věstonice triple burial, not with the other two skeletons (Nos. XIII and XV) and the same is the case with the inferior scapular angle replaced by a transversal border and *proc. terres* (Hrdlička 1942).

The scapular spine with a triangular tubercle is found in two individuals (Nos. XIV and XIII) and not in No. XV where the spine is broken off. Since this feature can be found also in some other Gravettian individuals (Předmostí III-male, IV-female, X-female) it cannot be used as a support to the kinship idea for the three individuals in the Dolní Věstonice triple burial (compare Vlček 1991).

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