The Temporal Region and the Supramastoid Ridge in Mesolithic Skulls from Padina in the Iron Gate Gorge of the Danube

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Studies of the morphological features of the temporal region of mesolithic skulls from Padina in the Iron Gate Gorge of the Danube revealed a very prominent and large supramastoid ridge which is the most striking feature in skulls of both sexes. Mastoid processes were larger in male skulls, but in 25% of the cases there was an overlap between the size of the processes in male and female specimens. The mastoid ridge was prominent in both sexes. The digastric fossa was always well defined in both sexes and in the two thirds of the skull specimens it was deep. The posterior root of the zygoma was prominent in all the skulls, but it was better developed in the male specimens. The parietotemporal suture in both sexes rises above the level of the pterion. There were no morphological or anthropometrical differences between the left and the right side of individual skulls outside the limits of natural asymmetry. All these morphological characteristics of the temporal region may help in racial and sexual diagnosis of the Mesolithic skulls from the Iron Gate Gorge.

Introduction

Extensive archaeological excavations in the Iron Gate Gorge of the Danube, which commenced in 1966, revealed a number of skeletal remains at the Padina site (44°40’N, 22°30’E). Skeletons at Padina have been unearthed during the 1968-1970 campaign (Jovanović, 1968, 1969, 1972; Živanović, 1975). Detailed osteological and anthropological studies of the skeletal remains followed (Živanović, 1974, 1975, 1976, 1979). Direct radiocarbon dating of the collagen samples from the femora of these skeletons, performed in the British Museum Radiocarbon Laboratory in London, has shown them to belong to the early Holocene period c 8-9000 BP (Burleisch & Živanović, 1980). Detailed studies of the skulls concentrated first on the masticatory apparatus (Živanović, 1976) and in this study the specific morphology of the temporal region of the Padina skulls has been described and discussed to complement the previous reports.

Material and Methods

Most of the skeletons recovered at Padina were in a very poor state of preservation (Živanović, 1974, 1975) and only one complete skull has been found. All the other skulls were fragmentary. Nevertheless, the temporal bones, being the strongest parts of a skull, remained in the majority of cases so that the temporal region of 14 skulls could be studied on both sides. In describing the morphology of the temporal region in general, and the supramastoid area in particular, it was important to observe and compare the left and the
right side of each skull because of the natural and acquired asymmetry of the skulls. Temporal regions of 8 male and 6 female skulls belonging to adult, mature or senile individuals were studied in detail. Diagnosis of sex was based on the sexual characteristics of hip bones and femora (Table 1).

In studying the morphology of the temporal region of the skulls the following features were observed:

**Mastoid process** — The size of the mastoid process was assessed by comparison with three standard specimens of recent skulls from the same area representing small, medium and large processes. The respective lengths of the processes in these three standard specimens were 21 mm, 28 mm and 35 mm. Using sliding calipers the length was measured from the cross point on the line which runs horizontal across the upper part of the mastoid process on a level with the upper border of the external auditory meatus and the vertical line going downwards to the apex of the process at the right angle to the horizontal line. In measuring the size and the length of the mastoid process a method developed by Keen (1950) was adopted, because it gives a satisfactory guidance in assessing the length and the size. It has been well known for quite some time that there are sexual differences in the size of the mastoid process, but the previous statements (prior to Keen, 1950) have not been quite proven.

**Mastoid ridge** — The line of the attachment of the sternocleidomastoid, splenius capitis and longissimus capitis muscles may be marked in recent skulls by a roughened ridge, which may be prominent, slight or absent. The size and shape of the line was observed and noted.

**Digastric fossa** — The digastric fossa is situated on the medial side of the mastoid process and gives attachment to the posterior belly of the digastric muscle. The posterior part of the fossa may be either expanded beyond the mastoid process and thus apparent on the lateral side, or it may not be expanded and concealed by the mastoid process. Looking from below the digastric fossa may be shallow, medium or deep, with smooth or with ridged walls and the well defined, moderate or not clearly defined margins. Attention was paid to these points and all observations were recorded.

**Temporosphenoidal swelling** — The temporal fossa may be diminished in depth postero-inferiorly and this may be caused by the relative enlargement of the temporal lobe of the brain, which extends the pressure on the temporal squama and forms a protrusion into the external temporal fossa.

**Posterior root of the Zygoma** — The posterior root of the Zygoma forms a ridge at the upper border of the external auditory meatus which may be described in three categories, namely slight or hardly visible, intermediate and very prominent or marked.

**Supramastoid crest or process** — The supramastoid crest serves for the attachment of the temporalis fascia and in recent skulls may be of either slight moderate or marked development. In some skulls it may form a torus or a process. A definite supramastoid groove is associated with moderate or with marked supramastoid ridges and processes.

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**Table 1 - Sex and State of Preservation of the Temporal Region.**

<table>
<thead>
<tr>
<th>Sex</th>
<th>Male</th>
<th>Female</th>
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<tbody>
<tr>
<td>State of preservation</td>
<td>Male</td>
<td></td>
<td>Female</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Good</td>
<td>Poor</td>
<td>Fragments</td>
<td>Good</td>
<td>Poor</td>
</tr>
<tr>
<td>Right</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Left</td>
<td>1</td>
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