

Anatomical peculiarities of the stylomastoid foramen and mastoid segment of the facial canal

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Background. The facial canal comprises three segments and each of them has some specific features. The labyrinthic segment is the narrowest one, and it extends from the bottom of the internal acoustic meatus up to the geniculum canalis facialis, from which starts the tympanic (horizontal) segment and at the level of the second bending of the facial canal, it continues with the mastoid (vertical) segment.

Materials and methods. The study was carried out at the Department of anatomy and clinical anatomy of *Nicolae Testemitanu* State University of Medicine and Pharmacy, Republic of Moldova. The structural peculiarities of the stylomastoid foramen (SMF) and of the mastoid segment of the facial canal (MSFC) and their morphometric parameters were examined on 55 temporal bones. The feasibility of two bony landmarks used in facial nerve surgery was analyzed. One of the landmarks was represented by the distance between the apex of the mastoid process and the posterior margin of the SMF, and the second one was equal to the distance between the anterior margin of the SMF and base of the styloid process (SP).

Results. Out of the total number of samples, 25 temporal bones were from the right side and 30 bones from the left side. The shape of the SMF was variable: round shape, transverse and longitudinal oval shapes, semilunar and irregular shapes. Double SMF and double MSFC were revealed in two cases. The transverse diameter of the SMF had a mean value of 2.6 mm \pm 0.78 (1.5-5 mm); the right/left mean value was 2.7/2.6 mm (p=0.823). The mean value of the longitudinal diameter of the SMF was 3.0 mm \pm 0.99; the right/left – 2.8/3.1 mm (p=0.318). The minimal value of the MSFC length was 5 mm and the maximal length was 25 mm, with a mean value of 15.3 \pm 3.98; the right/left mean was 15.2/15.6 (p=0.718). The angle formed between the course of the MSFC and vertical line traced along the posterior margin of the external acoustic meatus had a minimum value of 10° and a maximum value of 168°, with a mean equal to 111.6° \pm 26.73; the right/left mean was 113.3°/108.7° (p=0.548). The mean distance between the apex of the mastoid process and posterior margin of the SMF was 13.2 mm \pm 3.54 (2-19 mm); the right/left mean was 12.7/14.0 (p=0.208). The distance between the anterior margin of the SMF and base of the SP had a mean of 2.4 mm \pm 1.28 (1-6 mm); the right/left mean was 2.4/2.6 mm (p=0.504).

Conclusions. The shape of the SMF is variable, its transverse diameter was higher on the right side, but the longitudinal one – on the left side. The angle between the MSFC had a wide range of variation and its mean value was higher than 90°. The mean value of the both landmarks were higher on the left side bones.

Keywords: stylomastoid foramen, mastoid segment of the facial canal, landmarks