

Anatomical Variations of Elongated Styloid Process in Panoramic Radiographs

Background. The elongated styloid process (SP) on the temporal bone is a highly variable formation, exceeding 30 mm in total length. According to Langlais' classification, there are three types of ESP: Type I, Type II, and Type III.

Objective. We aimed to investigate the anatomical variations of the ESPs within the studied population.

Materials and methods. The present study comprised 6,000 panoramic radiographs of patients who visited Vilnius University Hospital Zalgiris Clinic from 2014 to 2016 for clinical purposes. ESPs were categorized according to Langlais' classification and gender-related differences were assessed. The data were analyzed using Romexis Planmeca Viewer software. SPSS version 27.0 software, the Mann-Whitney U, and Chi-Square tests were used to analyze study variables, with a significance level set at $p=0.05$.

Results. SPs longer than 30 mm were detected in 480 images (8%). For females, ESP type I was observed in 100 (61%), type II in 51 (31%), and type III in 14 (8%) radiographs on the right side; for males, type I ESPs were found in 170 (65%), type II in 83 (32%), and type III ESPs were identified in 8 (3%) panoramic images, respectively, with $p=0.047$. On the left for females, type I ESPs were observed in 121 (76%), type II in 32 (20%), and type III in 7 (4%) cases; for males, ESPs classified as type I were identified on the left in 175 (76%), type II in 47 (20%), and type III in 8 (4%) panoramic radiographs, $p=0.901$.

Conclusions. Type I pattern of ESP elongation was observed most frequently. There were statistically significant differences in the gender-related anatomical variations of ESP on the left side, with type III ESP being more prevalent in the female group. We suggest further studies to investigate the possible relations of ESP type III and clinical symptoms.

Key words: elongated styloid process, temporal bone, radiography