

OFP-01

Association between Skeletal Facial Patterns and Third Molar Impaction: A Retrospective Radiographic Study among Three Major Asian Ethnicities

Manasa Anand Meundi¹, Jordan Low Qian Han^{2†}, Sumithra Kumar^{2†}, Voon Hou Yin^{2†}, Visvam Rathinam^{2†}, Ann Mary George³, Htoo Htoo Kyaw Soe⁴

¹Department of Oral Medicine and Oral Radiology, Faculty of Dentistry, MUCM.

²Faculty of Dentistry, MUCM.

³Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, MUCM.

⁴Department of Community Medicine, Faculty of Medicine, MUCM.

Third molar impaction is the most common dental impaction, often related to inadequate retromolar space and growth direction, which define skeletal facial patterns (mesofacial, brachyfacial, dolichofacial). Accurate prediction of eruption potential is important for planning prophylactic extractions and preventing associated pathologies. This retrospective radiographic study evaluated 90 patients (≥ 25 years) of Malay, Chinese, and Indian ethnicity. Orthopantomograms were assessed for the presence of third molar impaction, while lateral cephalograms were analyzed to classify skeletal facial patterns using cephalometric landmarks (Ba-Na and Pt-Gn angles) in Romexis 3.0.1R software. Measurements were performed by four calibrated examiners, and data were analyzed using the Chi-square test (Epi-Info v7.2). Among the 90 patients, 62.2% exhibited impacted third molars. Distribution by facial type showed impaction in 60% of brachyfacial, 61.1% of dolichofacial, and 63.6% of mesofacial patients ($p=0.882$). By ethnicity, prevalence was 70% in Malays, 66.7% in Chinese, and 50% in Indians ($p=0.231$). No statistically significant association was found between skeletal facial type and third molar impaction or across the three ethnic groups. Interobserver reliability was excellent ($ICC=0.947$). Although statistical significance was not established, brachyfacial individuals demonstrated a relatively higher prevalence. These findings suggest that skeletal facial morphology and ethnicity may not play a decisive role in third molar impaction. Larger multicenter prospective studies with advanced imaging modalities are recommended to validate these results and provide further insight into the influence of craniofacial growth patterns on third molar eruption.

Keywords: Ethnic variation, Lateral cephalogram, Orthopantomogram, Skeletal face types, Third molar impaction

***Correspondence:** Manasa Anand Meundi
manasa.meundi@manipal.edu.my

[†]These authors have contributed equally to this work.