

A Cephalometric Study on the Relationship between the Occlusal Plane and Both Lines, the Ala-Tragus Line and Nasal Base-External Auditory Meatus Line in Malaysian Population

Mohd Farid MS¹, Nordin DF¹, Buzayan MM², Sivarajan S³

1. Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.
2. Department of Restorative Dentistry, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.
3. Department of Paediatric Dentistry and Orthodontics, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.

Objectives: To assess the parallelism of the ala-tragus line (ATL) to the occlusal plane (OP) in Malaysian population, and to evaluate whether the proposed line (Nasal Base-External Auditory Meatus or NBEM) could be used as an alternative guideline for prosthetic construction of the posterior occlusal plane.

Methods: In this cross-sectional study, 56 dentate patients in the age range of 16 to 41 years were selected. Patients with any history of orthodontic treatment, trauma and dental anomalies were excluded. Cephalograms of these patients have been retrieved from the radiology unit at University of Malaya. The OP-ATL and OP-NBEM angles were then measured. Using the measured angles, the relationship between ATL and NBEM lines to each other and to the OP was assessed. The data was collected and analyzed using SPSS Version 25.0. The statistical analysis was performed using an independent sample t-test and $p < 0.05$ was considered significant.

Results: There was a significant difference in the angle degrees formed between OP-ATL and the OP ($p < 0.001$), between OP-NBEM and the OP ($p < 0.001$) and between OP-ATL and OP-NBEM angles ($p < 0.05$).

Conclusions: Both the ATL and NBEM lines are not parallel to the OP in the Malaysian population. However, the NBEM line had the lowest mean angle, making it more parallel to the OP than the ATL line. Thus, NBEM line can be considered as an alternative guideline to establish OP.

Keywords: Occlusal plane, ala-tragus line, camper's line, cephalometric, parallelism, complete denture