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Original Research

Reliability of ala-tragus line as a guide for orientation of occlusal plane in dentate individuals: A clinical study

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ABSTRACT:

The occlusal plane is defined as the common plane established by the incisal and occlusal surfaces of the teeth (GPT-8). A total of 50 subjects with complete natural dentition and Angles class-I occlusion will be selected between the age groups of 18-40 years. All the subjects were examined in the SIBAR institute of dental sciences, Guntur. The selected subjects will be asked to hold a Fox plane bilaterally with both the hands and to stabilize this position fox plane will be covered with baseplate wax, between their teeth. Profile photographs will be taken with a digital camera, with the subjects standing in natural head position. Then the photographs will be traced. The results of the current study imply that the posterior reference for the ala-tragus line should be the inferior border of the tragus. The occlusal plane is positioned according to, aesthetics, functionality, and denture stability must all be satisfied using mature clinical judgement.

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INTRODUCTION

The occlusal plane is defined as the common plane established by the incisal and occlusal surfaces of the teeth (GPT-8)¹. In the past, a variety of techniques have been used to determine the occlusal plane and record the maxilla-mandibular relationship during the fabrication of complete dentures. But none of these approaches has shown out to be reliable. In order to achieve the best aesthetics and usefulness, the occlusal plane must be correctly oriented. This plane's improper orientation endangers the synchronisation of the orofacial articulatory complex's parts². Clinicians have historically oriented the occlusal plane with the buccinator grooves and the commissure of the lips³, among other features, to establish this plane. The occlusal plane can be terminated posteriorly at the middle or upper third of the retromolar pad⁴. It can also be positioned at the same level as the tongue's lateral border⁵, among many other ideas that have been described in the literature.

AIM & OBJECTIVES

To evaluate the reliability in parallelism of ala-tragus line with the orientation of occlusal plane in dentate individuals. To evaluate the parallelism between superior border of tragus in ala-tragus line for orientation of occlusal plane. To evaluate the parallelism between center of tragus in ala-tragus line for orientation of occlusal plane. To evaluate the parallelism between inferior border of tragus in ala-tragus line for orientation of occlusal plane. To compare & correlate the best posterior reference point of ala-tragus line for orientation of the occlusal plane in dentate individuals.

METHODOLOGY

Materials used were Metal fox plane, SPSS & CAD software Digital camera, Tripod stand. A total of 50 subjects with complete natural dentition and Angles class-I occlusion will be selected between the age groups of 18-40 years. All the subjects were examined in the SIBAR institute of dental sciences, Guntur. The

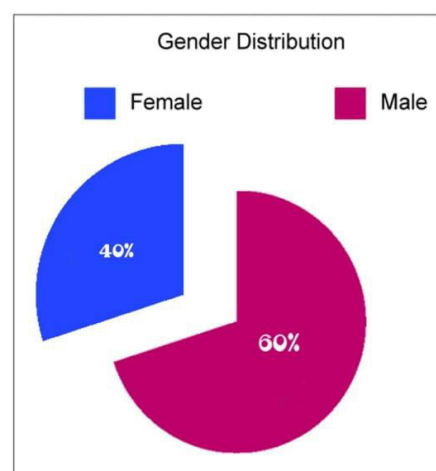
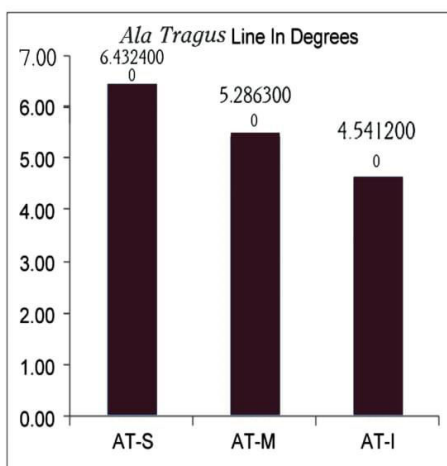
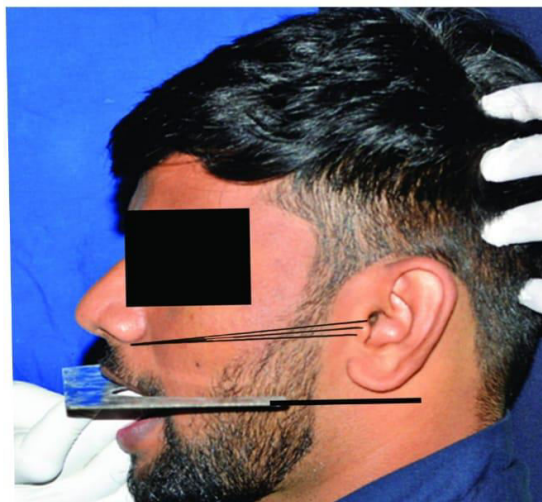
selected subjects will be asked to hold a Fox plane bilaterally with both the hands and to stabilize this position fox plane will be covered with baseplate wax, between their teeth. Profile photographs will be taken with a digital camera, with the subjects standing in natural head position. Then the photographs will be traced. After tracing photographs, angle between Fox plane and superior border of ala-tragus, Fox plane and inferior border of ala-tragus and Center of ala-tragus line will be measured and statistical analysis will be performed using SPSS and CAD software.

RESULTS

After statistical analysis, the results were tabulated and following results were drawn [Graph 1]: The angles formed by the occlusal plane and the ala tragus superior, middle, and inferior all deviate significantly from baseline. This indicates that there is no parallelism between the occlusal plane and the alatragus line. In both sexes, the inferior border of the ala-tragus line had the lowest mean value and a stronger tendency to be parallel to the Fox plane, despite the fact that there is no parallelism between the Fox plane and the ala-tragus with three posterior point locations.

Variable	n	Mean	Range	Minimum	Maximum	Standard deviation
AT-S	50	6.432400	8.1230	3.0300	11.1020	1.4230524
AT-M	50	5.286300	6.6300	2.2300	8.8200	1.3127565
AT-I	50	4.541200	5.2200	1.7500	6.9700	1.2136757

Figure 1: Case Details



DISCUSSION

The orientation of the occlusal plane during complete denture fabrication is a source of contention. Some existing views regarding the orientation of the occlusal plane in edentulous patients believe that the occlusal

plane is related to Camper's line. It is the oldest, simplest, and most often utilised approach. It appears desirable to precisely place it and spread its use while constructing the occlusal plane. The definitions of the alatragus line have caused confusion. The precise

points of reference for tragus and ala are not specified. Boucher defines it as “The line is running from the inferior border of the ala of the nose to the superior border of the tragus of the ear⁶.” Karkazis and Polyzois showed in a cephalometric study that natural and artificial occlusal planes are not parallel to the ala-tragus line⁷. van Niekerk et al. used the inferior border of tragus as the posterior end of the ala-tragus line because it could provide sufficient space for the arrangement of maxillary posterior teeth⁸. Safoura Ghodsi et al stated that ala-inferior border of tragus line was the most parallel, and ala-superior border of tragus line was the least parallel line to the occlusal plane^{9,10}. Bandari G et al studied a cephalometric analysis and concluded that the inferior point marked on the tragus with superior and middle points is the most appropriate point for marking the ala-tragus line¹¹. Nayar et al concluded in his study that the inferior border of the tragus is suggested as the best posterior reference for the ala-tragus line¹².

CONCLUSION

The results of the current study imply that the posterior reference for the ala-tragus line should be the inferior border of the tragus. The occlusal plane is positioned according to , aesthetics, functionality, and denture stability must all be satisfied using mature clinical judgement.

REFERENCES

1. The glossary of prosthodontic terms. J Prosthet Dent 2005;94:10-92
2. Chaturvedi S, Thombare R. Cephalometrically assessing the validity of superior, middle and inferior tragus points on ala-tragus line while establishing the occlusal plane in edentulous patient. The journal of advanced prosthodontics. 2013 Feb 1;5(1):58-66.
3. Boucher CO, Hickey JC, Zarb GA, Bolender C. Boucher’s Prosthodontic Treatment for Edentulous Patients. 9th ed. St. Louis; CV Mosby; 1985. p. 243-91
4. Lundquist DO, Luther WW. Occlusal plane determination. J Prosthet Dent 1970;23:489-98.
5. Ismail YH, Bowman JF. Position of the occlusal plane in natural and artificial teeth. J Prosthet Dent 1968;20:407-11.
6. Boucher CO. Occlusion in prosthodontics. J Prosthet Dent 1953;3:653-6.
7. Karkazis HC, Polyzois GL. Cephalometrically predicted occlusal plane: Implications in removable prosthodontics. J Prosthet Dent 1991;65:258-64
8. van Niekerk FW, Miller VJ, Bibby RE. The ala-tragus line in complete denture prosthodontics. J Prosthet Dent 1985;53:67-9
9. Ghodsi S, Omrani SS, Mogharrabi S, Valizadeh S. Evaluating the relation of posterior occlusal plane to ala-tragal line according to age and sex. Folia Medica. 2022 Oct 31;64(5):787-92.
10. Nayar S, Bhuminathan S, Bhat WM, Mahadevan R. Relationship between occlusal plane and ala-tragus line in dentate individuals: A Clinical pilot study. Journal of Pharmacy & Bioallied Sciences. 2015 Apr;7(Suppl 1):S95.
11. Bandari G, Kota SP, Dhubankunta S, Smriti C, Devi D, Jyothisri M. Evaluation of the Posterior Reference Point of Ala Tragus Line in Relation to Occlusal Plane and Frankfort Horizontal Plane Through Cephalometry in Sangareddy (Telangana) Population.
12. Nayar S, Bhuminathan S, Bhat WM, Mahadevan R. Relationship between occlusal plane and ala-tragus line in dentate individuals: A Clinical pilot study. J Pharm Bioall Sci 2015;7:S95-7.