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RESEARCH ARTICLE

EVALUATION OF CORRELATION BETWEEN FACIAL MIDLINE AND DENTAL MIDLINE

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ABSTRACT

Introduction: Objective of this study was To determine the role of facial midline as a guide for positioning maxillary dental midline for patients during fabrication of prosthesis. Furthermore the study will help in indicating character as well as perception of discrepancies between dental and facial midline. **Materials and methods:** A total of 40 dentate patients with the age range 18 to 28 years were selected randomly. No fixed proportion was proposed. The patients having permanent dentition from 2nd molar to 2nd molar in maxillary arch were included. However patients having midline diastema, orthodontic treatment, or any cranio-facial anomaly were excluded. The patients were observed to check if the maxillary dental midline coincides with the facial midline. The facial midline was examined by marking points between nasion till pogonion including centre of philtrum. **Result:** The results of the present study showed that 65% patients had their maxillary dental midline coinciding with facial midline. **Conclusions:** From the results of the present study it was concluded that the facial midline was in coincidence with the maxillary dental midline. This result can act as a reliable tool for establishing maxillary dental midline while fabricating fixed prosthesis or during oral rehabilitation in edentulous patients.

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INTRODUCTION

Smile is the first introduction of your personality and it has been accepted that it is the best gift any one can give (Muhammad Farhan Khan, 2014). People are concerned with their joyful smile, the way they feel about it, and its effect on other persons. The dentist's responsibility to preserve, create, or enhance a pleasing smile without impairing function is foremost in the patient's mind, since the patient takes function for granted (Maethews, 1978). The mouth is one of the focal points of the face, it should come as no surprise that the smile plays a major role in how we are precise ourselves, as well as in the impressions we make on the people around us. If you feel good about your smile, you are much more likely to flash it on others in a pleasing and perhaps even disarming manner.

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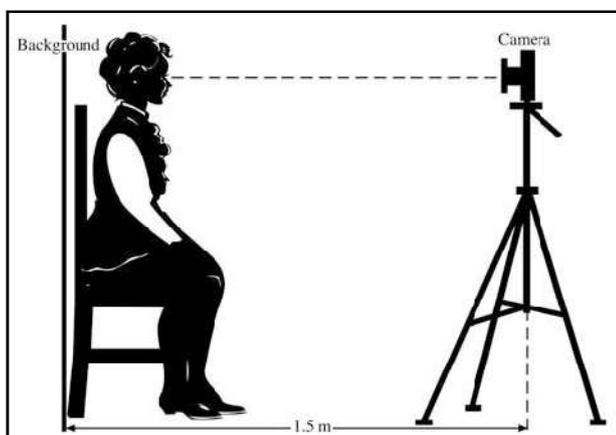
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A charming smile can open doors and knock down barriers that stand between you and a fuller, richer life (Ronald, 1996). Centre axis line which contributes in symmetry is known as the midline (Amotojsingh, 1996). The facial midline is defined by the landmark such as nose, philtrum, and chin aligned in straight line (Muhammad Farhan Khan, 2014). The dental midline is the midsagittal line of maxillary and mandibular arches when teeth are in maximum intercuspation (Muhammad Farhan Khan, 2014). The maxillary dental and facial midlines have an important role in esthetics and occlusion in many disciplines, including removable and fixed prosthodontics, implant prosthodontics, orthodontics, and facial plastic surgery (Avinash, 2009). Lombardi noted that proper location of the dental midline is necessary for stability of the dental composition, as improper placement of the midline makes it impossible to balance the elements on either side of it (Cardash, 2003). The location of the maxillary dental midline relative to the face is often an important factor in restorative and /or orthodontic diagnosis.³ Coincidence of

dental midlines are an important component of functional occlusion and provide a useful guide to the clinician in establishing good buccal inter-digitation (Chris, 1999). By making dental midline coinciding with the midline of the mouth may be adequate, as patients find easier to relate their dental midline to proximal structures than landmarks which are away from the mouth. A key element in smile design pivots around the midline as it unites the face and its features with dentition and the anterior teeth in particular (Muhammad Farhan Khan, 2014). Complete dentures must be pleasing and natural in appearance. An important consideration in arrangement of the anterior teeth is the matter of symmetry; a key factor being the establishment of the dental midline (Ernest, 1979). Establishing dental midline parallel to that of face is the initial step while fabricating fixed or removable prosthesis (Muhammad Farhan Khan, 2014). The primary function of the anterior teeth in maxillary complete dentures is to fulfill esthetic needs. For this reason the central incisors could be positioned coincident with the midline (George, 1988).

METHODOLOGY

A total of 40 dentate patients were selected from Sharad Pawar Dental College, Sawangi, Wardha. The criteria for selection of patients include patients with age range from 18 to 28 years. All of them had permanent dentition from 2nd molar to 2nd molar in maxillary arch. There was random selection for male and female patients, no fixed proportion was proposed. The patients with midline diastema, congenital or acquired maxillofacial deformity were excluded. The patients undergone any orthodontic treatment were also not included in the study. An informed written consent was obtained from each selected patient. The patients were observed to check if maxillary dental midline coincides with facial midline. The facial midline was examined by marking points between nasion till pogonion including centre of philtrum. Whole procedure of the study was explained to the patient and informed consent was obtained from each of them. Now, while capturing photographs, patient was seating in upright and head positioned normal, then at a distance of 150cm digital camera positioned in tripod device. "Nasion" was used as extraoral anatomical landmark and lence of the camera was kept in one plane.



1. Schematic illustration showing methodology of obtaining standard digital images of subject in natural head position.

The same procedure was repeated for 40 patients. Each of them named as 1, 2, 3,...40

Then the photos were transferred to computer. "Image processing software" was used for marking the facial and dental midline. For differentiating blue color was used to mark facial midline and red line was used to mark dental midline. These lines were marked on each photographs.

RESULTS

The statistical analysis obtained has shown that the midline of the majority population was coincident with the facial midline that is 65%. However 35 % patients were showing non coincident maxillary dental midline with facial midline (Table-1) (Fig 1.).

Table 1. Correlation of maxillary midline with facial midline

		Frequency	Percent	Valid Percent	Cumulative percent
Valid	Coincide	26	65%	65%	65%
	Non coincide	14	35%	35%	
Total		40	100%	100%	

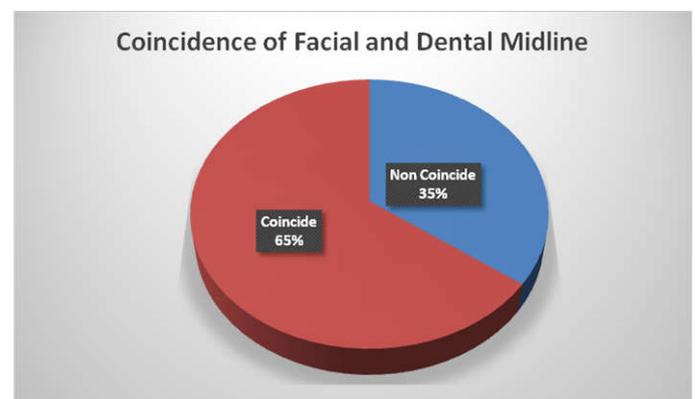


Fig. 1. Coincidence of facial and dental midline

DISCUSSION

Facial symmetry is one of the facial aesthetic characteristic. According to the golden proportion, beauty of the face depends on alignment, symmetry and proportion of face (Eskelsen, 2009). To achieve a balance smile while fabricating fixed or removable prosthesis is mandatory (Shyagali, 2008). The maxillary dental midline harmony with facial component significantly contributes to the aesthetic (Isa, 2010). The purpose of the study was to evaluate relation of facial midline with maxillary dental midline. The facial midline can be used as a guide for establishing maxillary dental midline while replacing anterior teeth (Zhang, 2010). We found 65% coincidence of facial and maxillary midline, While 35% showed none coinciding. During this study nasion, centre of philtrum and pogonion were used to determine the facial midline (Harold, 2003). The results of the present study are in agreement with the results obtained in the study conducted in city of Riyadh, Saudi Arabia (Rhodes, 2006). They have found 88.10% subjects showing coinciding maxillary dental midline with facial midline. Similar results were obtained in another study done by Miller (Shyagali, 2008). He observed the midline situated exactly in the middle of the mouth in approximately 70% of people. David R (Hasanreisoglu, 2005), has also suggested that the coincidence of facial midline with dental midline is a reliable method during fabrication of prosthesis. However Frush and Fisher (Kokich, 1999), have stated that "an eccentric midline in a denture, if not too

exaggerated, is acceptable and may lead to an illusion of a natural dentition". In clinical dental practice, while complete denture treatment facial and dental midline coincidence contributes in the esthetics. So the reference facial midline needs to be carefully identified and transferred to denture.

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