

**ORIGINAL RESEARCH****Evaluation of papillo-incisal distance with different shapes of incisive papilla**Shraddha Pagia<sup>1</sup>, Samarth Kumar Agarwal<sup>2</sup>, Romil Singhal<sup>3</sup>, Pooja Yadav<sup>1</sup>**Abstract**

**Statement of problem:** Error in placement of maxillary anterior teeth in complete denture contributes to artificial senile appearance, thus not satisfying the aesthetic values that patient deserves.

**Aim:** This study aims to determine the effects of shapes of incisive papilla on the placement of central incisor.

**Method:** For this study 49 samples were taken of age group 17- 40 years having normal dentition and well aligned arches with all incisors, canine, first and second premolar present.

**Result:** The results showed that there were seven shapes of incisive papilla in which cylindrical shape showed maximum distance of 12.63mm and round shaped papilla showed minimum distance of 10.47mm.

**Conclusion:** Shapes of incisive papilla has effect on placement of central incisors

**Keywords:** Incisive Papilla, Central Incisor, Shape of Incisive Papilla, Papillo-incisal distance, mesioincisal point

1. Post Graduate Student,

2. Professor

3. Reader

Department of Prosthodontics and Crown & Bridges

**Correspondence address**

Dr. Pooja Yadav

Department of Prosthodontics and Crown & Bridges

Kothiwal Dental College & Research Centre

Email: poojayadav1000@yahoo.com

changes to round form, its center also changes.

There is a shift in the center of the papilla from the dentulous to edentulous state<sup>8</sup>. In dentulous subjects incisive papilla is seen in various shapes and this change will be more in a long papilla compared to a short papilla. The shape of the incisive papilla in dentulous is investigated since it can influence the center of the edentulous papilla from the dentulous state<sup>8</sup>. Hence the present study will be carried out to investigate the distance between central incisor and different shapes of incisive papilla and to see whether measurements of central incisor to incisive papilla distance in dentate patients with different shapes of incisive papilla will affect average distance of maxillary anterior teeth arrangement while dealing with prosthodontic patients in dentulous arches in Moradabad population.

**Introduction**

Consideration of appearance plays a important part in patient seeking prosthodontic treatment<sup>1</sup>. To achieve this, the dentist must know Nature's scheme for upper anterior teeth<sup>2,3</sup>.

The horizontal relationship between the incisive papilla and the maxillary central incisors in the dentulous is a guide to position the central incisor teeth as nearly as possible in their original location to restore labial contour in edentulous subjects<sup>4-7</sup>. The center/middle or the base/posterior border of the papilla are mostly used as reference for papilla incisor measurements. During edentulous transformation as the papilla

**Materials And Method**

This cross sectional study was carried on 49 patients. Inclusion criteria were of 17-40 years having normal healthy dentition, well aligned arches excluding third molars. Maxillary

impressions were made with irreversible hydrocolloid and cast was poured using dental stone. The shape of incisive papilla was marked on the cast and recognized according to its shape. Then the mesioincisal point angle of central incisor and posterior border of incisive papilla was also marked on the cast and measured. All data were collected and statistically analyzed.

**Results**

Results of the study are shown in table 1. Seven shapes of incisive papilla were seen, out of which cylindrical shape was most common. Cylindrical shaped incisive papilla showed maximum distance with mean of 12.63mm whereas round shaped papilla showed minimum distance with mean of 10.47mm.

**Table 1**

	Range	Mean	Standard Deviation
Cylindrical shape	12.9-12.93	12.63	0.23
Pear shape	10.33-11.97	11.14	0.48
Flame shape	11.1-11.78	11.56	0.24
Dumbel shape	11.02-12.64	11.97	0.58
Round shape	9.87-11.53	10.47	0.61
Double shape	10.43-11.75`	11.18	0.59
Bowling shape	11.3-12.88	12.19	0.67
F value - 17.742; p value <0.001, significant			

post-hoc Tukey HSD Test - p values						
	Pear shape	Flame shape	Dumbel shape	Round shape	Double shape	Bowling shape
Cylindrical shape	0.0010053*	0.0010053*	0.106	0.0010053*	.0010053*	0.628
Pear shape		0.577	0.026576*	0.122	0.9	0.00693*
Flame shape			0.629	0.0013326*	0.837	0.266
Dumbel shape				0.0010053*	0.144	0.9
Round shape					0.236	0.00100*
Double shape						0.04549*
<ul style="list-style-type: none"> <li>*Significant</li> </ul>						

The p-value corresponding to the F-statistic of one-way ANOVA is lower than 0.05, suggesting that the one or more groups are significantly different. The Tukey HSD test comparisons identify which of the pairs of groups are significantly different from

each other. It is significant between cylindrical shape and other shape i.e. pear, flame, round, and double shaped papilla. It is also significant between pear shape and dumbel, and bowling shape papilla. It is also found significant between dumbel and

round shape, and round and bowling shape, and double and bowling shape papilla.

### Discussion

An average position of the maxillary anterior teeth to stable landmarks such as maxillary central incisor to incisive papilla distance has been mentioned as an important anthropometric tool facilitating prosthetic teeth arrangement in prosthodontics<sup>8</sup>. In the present study an effort was made to measure this distance in dentate patients with different shapes of incisive papilla. It was observed that the cylindrical shaped papilla had maximum central incisor to incisive papilla distance while the round shaped papilla had minimum distance. The shape of the incisive papilla was significantly affecting the average papilla- incisor distance. This is because the posterior border of incisive papilla changes with the shape of incisive papilla<sup>9</sup>. Round shaped papilla had border near to the central incisor while cylindrical shaped incisive papilla had border far from central incisor. Another reason for this difference may be arch form. Distance between incisive papilla and central incisors vary in different arch form. So, further studies are needed to combine different arch form with shapes of incisive papilla<sup>10</sup>.

### Conclusion

The shape of the incisive papilla affects the distance between central incisor and incisive papilla affecting the placement of maxillary central incisor in edentulous patient. This can use as a guide for placement of anterior teeth with different shapes of papilla.

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