

Morphometric Analysis of Sella Turcica for Gender Determination: A Digital Radiographic Study

Priya Singh¹, MK Sunil², Upender Malik³, Lakshya Vishnoi⁴

Post Graduate Student^{1,4}, Professor and HOD², Professor³

*Department of Oral Medicine and Radiology, Teerthanker Mahaveer Dental College and
Research Centre, Delhi Road, Moradabad UP*

ABSTRACT

The sella turcica contains the pituitary gland. Several pathologies can change the shape and size of sella turcica. The study conducted with an aim to evaluate morphometric differences. The cephalometric radiographs of 100 patients, with good quality were selected randomly Chi square test was employed. The percentage of normal shape was common. The present study was conducted to observe morphological aberrations of sella turcica as very few studies have been documented till date

INTRODUCTION

“Saddle-shaped” structure located sphenoid bone. Therefore, the size and shape of the sella turcica might vary due to a variety of gland diseases.¹ Some people with an aberrant sella turcica have hypopituitarism, intrasellar pituitary primary tumours, other underlying illnesses, or syndromes such as Williams or Sheehan's syndrome.^{2,3}

The sella turcica's morphological characteristics are established in the early embryonic structure. Many scholars have long documented variations in the form.⁴

The bulk of the topics had either an oval or circular shape, which was divided into three categories: flattened or saucer shaped, round, and oval.^{5,6}

Variations exist in the morphology of sella turcica among individuals. Therefore, learning more in this area will be very beneficial in identifying anomalies in this anatomic region.^{7,8,9}

If the sella turcica's typical variations change, dentists and orthodontists will be better able to spot anomalies in this region even before clinical manifestations show up.¹⁰

AIM

To evaluate morphometric variations of Sella turcica with respect to sex and age through Digital Lateral Cephalograms

OBJECTIVE

To determine the different shapes of ST

Correspondence address: Dr. Priya Singh, Department of Oral Medicine and Radiology, Teerthanker Mahaveer Dental College and Research Centre, Moradabad, Uttar Pradesh, India.

Email: drpriyasingh.dentist@gmail.com

How to cite this article: Singh P, Sunil MK, Malik U, Vishnoi L. Morphometric Analysis of Sella Turcica for Gender Determination: A Digital Radiographic Study. TMU J Dent 2023; 10(4): 30-34.

Submitted: 1 Aug 2023 Revised and accepted: 7 Aug 2023

Doi: <https://doi.org/10.58358/tmujd.omr10431o>

MATERIALS

The following materials will be employed in the study

1. Extraoral digital Ceph x-ray machine
Company- PLANMECA PROLINE XC
Exposure parameters: 68 kVp, 5Ma, 17 seconds
2. Computer - HP Pro laptop
3. Adobe Acrobat Reader software

SELECTION CRITERIA

Inclusion Criteria

1. Lateral cephalograms of age group between 18-30 Years.

Exclusion criteria

1. Craniofacial congenital deformities will not be included in this study.
2. Evidence of maxillofacial surgery/trauma will not be included in the study

METHODOLOGY

The retrospective study was conducted in the department of OMDR, TMDC & RC Moradabad. Data was retrieved from the computer data base. Permission for the study was obtained from the ethical committee of the college. The lateral cephalometric radiographs of 100 patients with good quality were selected randomly from the department. All the data were further recorded visualized according to the shape given by Axelsson et al in 2004 as shown in figure1

1. Normal
2. Oblique anterior wall
3. bridging
4. Double contour
5. Irregular
6. Pyramidal shape

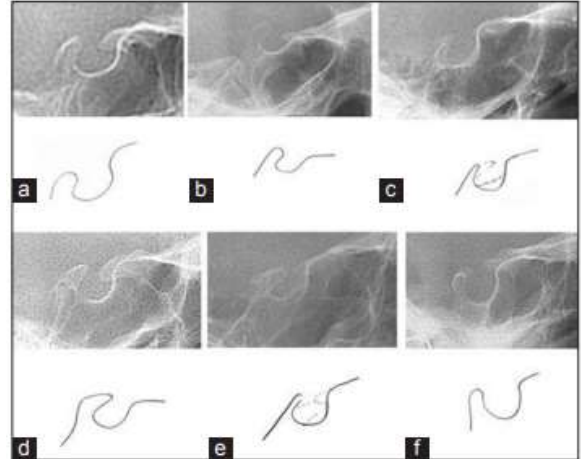


FIGURE 1: Different morphological shapes of sella turcica

STATISTICAL ANALYSIS

Chi Square test was employed.

RESULTS AND DISCUSSION

	N	Percentage
Male	50	50%
Female	50	50%

Table -1 shows the distribution of study subjects based on gender

	N	Percentage
Below 25 yeas	41	41.0
26-30 years	11	11.0
31-35 years	34	34.0
Above 35 years	14	14.0

Table -2 shows the distribution of study subjects based on Age Groups

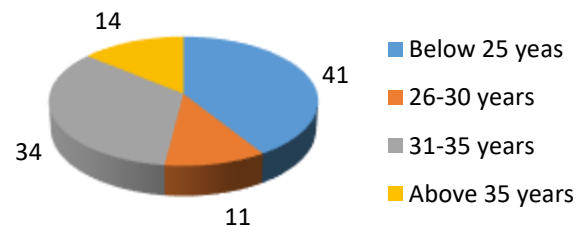


FIGURE 2: Distribution of subjects based on age groups

GENDER WISE DISTRIBUTION OF THE PATTERNS

	Normal	Oblique	Bridging	Double contour	Irregular dorsum sella	Notching	Pyramidal
Male	19 38.0%	4 8.0%	15 30.0%	5 10.0%	4 8.0%	0 .0%	3 6.0%
Female	19 38.0%	6 12.0%	5 10.0%	4 8.0%	5 10.0%	9 18.0%	2 4.0%

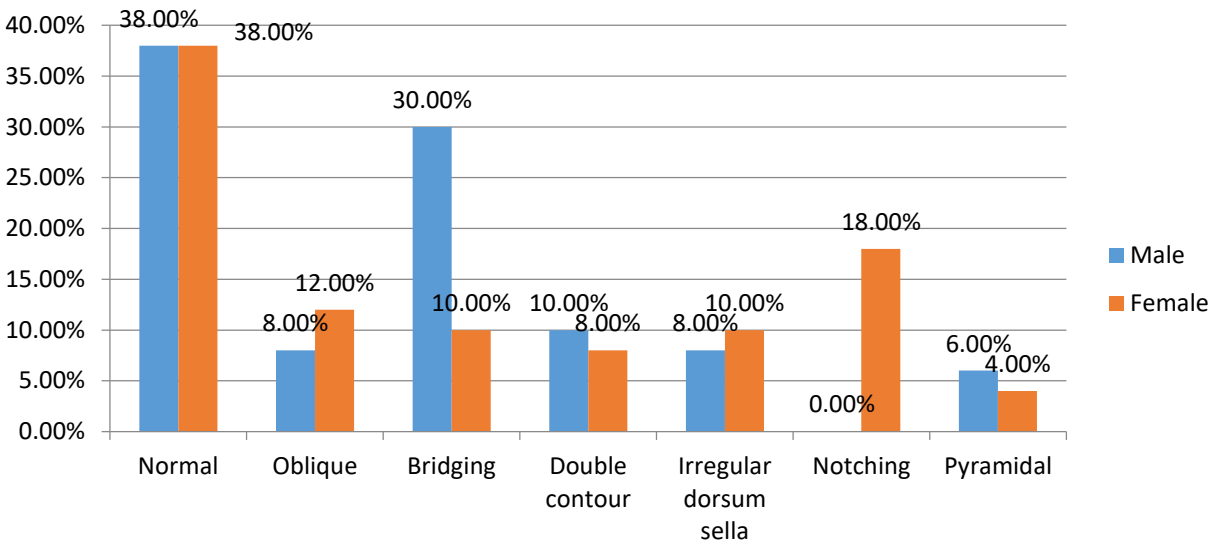


FIGURE 3: Gender Wise Distribution of the Patterns

Chi Square test at p value of 0.014 is significant. Among the males and females 38% were having normal pattern. Among the males 8% were having oblique pattern whereas among the females 12% were having oblique pattern. Among the males, 30% were bridging pattern and 10% were having bridging pattern among the females. Among

the males, 10% were having double contour and 8% were having double contour in females. Among the males, 8% were having **Irregular dorsum sella** and 10% were having **Irregular dorsum sella** in females. Among the females 18% were having notching.

AGE WISE DISTRIBUTION OF PATTERNS

	Normal	Oblique	Bridging	Double contour	Irregular dorsum sella	Notching	Pyramidal
Below 25 years	19	5	7	3	3	3	1
	46.3%	12.2%	17.1%	7.3%	7.3%	7.3%	2.4%
26-30 years	4	2	1	2	1	0	1
	36.4%	18.2%	9.1%	18.2%	9.1%	.0%	9.1%
31-35 years	8	2	10	4	4	3	3
	23.5%	5.9%	29.4%	11.8%	11.8%	8.8%	8.8%
Above 35 years	7	1	2	0	1	3	0
	50.0%	7.1%	14.3%	.0%	7.1%	21.4%	.0%

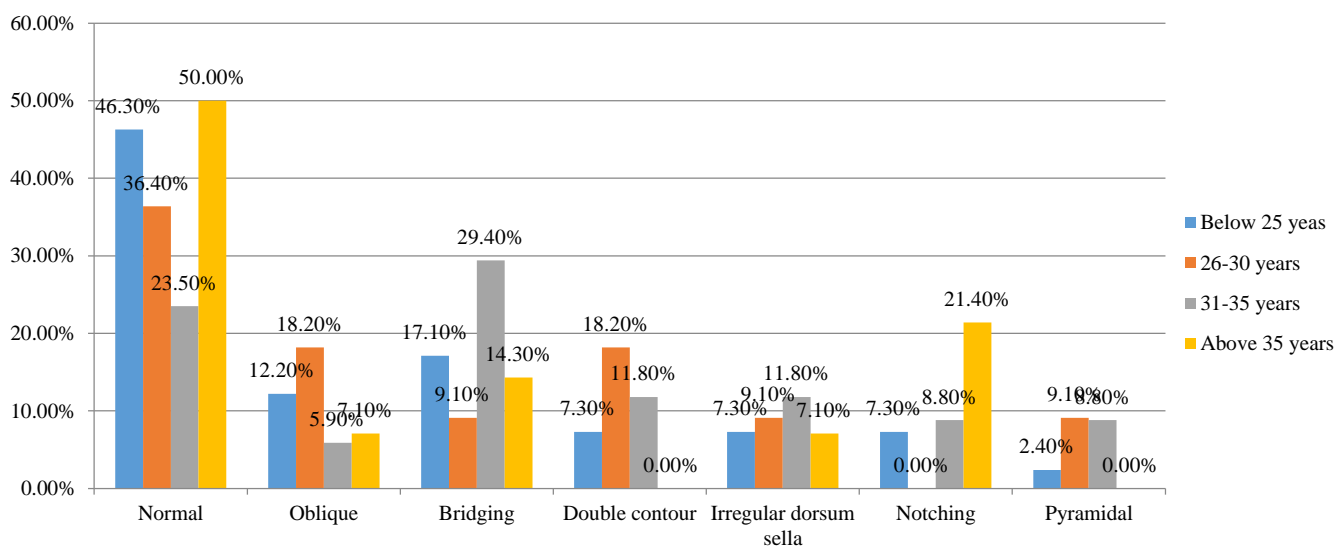


FIG. 4: Age Wise Distribution of the Patterns

Among the Below 25 years age group 46.3% were having normal pattern, 17.1% were having bridging and 12.2% were having Oblique pattern among the 26-30 years age group, 36.4% were having normal pattern, 18.2% were having Oblique pattern and 18.2% were having Double contour. Among the 31-35 years age group study subjects 23.5% were having normal pattern, 29.4%

were having Bridging pattern and 11.8% were having Double contour and Irregular dorsum sella Among the 31-35 years age group study subjects 23.5% were having normal pattern, 29.4% were having Bridging pattern and 11.8% were having Double contour and Irregular dorsum sella Among the 35 years age group study subjects 50.0% were having normal pattern, 14.3% were

having Bridging pattern and 21.4% were having notching pattern.

CONCLUSION

Among the study population, normal shape sella turcica was the most prevalent shape. As one gets older, the sella turcica gradually gets bigger. Since they frequently go unnoticed during treatment planning, the study of the various morphologies of sella turcica is essential for early diagnosis, prevention, and enhanced diagnostic accuracy, all of which are crucial for assuring better patient care and treatment outcomes.

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