

## Study of Pterion in skulls of awadh area-in and around Lucknow

Saxena RC<sup>1</sup>, Bilodi AKS<sup>2</sup>, Mane SS<sup>3</sup>, Kumar A<sup>3</sup>.

<sup>1</sup>Professor and HOD, Dept of Anatomy, Nepalgunj Medical College (formerly Prof. and HOD King George Medical College, Lucknow. India) <sup>2</sup>Assoc. Prof. Dept of Anatomy, <sup>3</sup>Interns, Nepalgunj Medical College Nepal

**Abstract:** - Two hundred and three skulls of known sex (100 male and 103 female) were studied to find out the variations of Pterion. Sphenoparietal variety of Pterion was seen predominantly along with frontotemporal and stellate varieties.

**Key Words:** Pterion, Sphenoparietal, frontotemporal, stellate.

**P**terion is a point seen on either side of the skull in norma lateralis. At this point the frontal, parietal, temporal and sphenoid bones meet. This point is an important landmark for (a) Anterior branch of middle meningeal artery (b) Broca's area 44,45(c) Insula (d) Stem of lateral sulcus.<sup>1</sup> Pterion was first Classified into three types (Broca 1875)<sup>2</sup>

1. "enH" type Pterion: where greater wing of sphenoid bone articulates with the parietal bone in the form of letter H. This variety is also known as sphenoparietal type. (Fig 1)
2. "Retourne" Pterion where squamous part of temporal bone articulates with frontal bone. It is also known as frontotemporal variety.
3. En k Pterion: All bones articulate in the form of letter K. It is also called as stellate Pterion. (Fig. 2)

Various patterns of Pterion were studied and classified by various workers: Bilodi et al (2002)<sup>1</sup>,

Broca (1875)<sup>2</sup>, Ashley Montague (1993)<sup>3</sup>, Agarwal et al (1980)<sup>4</sup>. However none of the above workers studied the various patterns of Pterion in the skulls of known sex hence this study was undertaken.

### Materials and Methods

203 dry skulls of known sex constituted the study material for the present study. Out of 203 skulls 100 were the male skulls and 103 were the female skulls. The skulls belonged to the department of Anatomy king George Medical College, Lucknow India and were collected from the cadavers of the nearby area. The Awadh area is the area in and around Lucknow. Each skull was studied for the pattern of Pterion on each side and recorded.

### Observations

In the present study the various patterns of Pterion were observed, which are summarized in Table 1

Table 1

Type of Pterion	Males (200 Sides of Skulls)			Females (206 Sides of Skulls)			%
	Left	Right	%	Left	Right	%	
Sphenoparietal	87	87	87 %	85	85	82.50%	84.72%
Frontotemporal	7	7	7 %	14	13	13.14%	10.01%
Stellate	6	6	6 %	4	5	4.36 %	5.17%

### Correspondence:

Dr. R. C. Saxena, HoD, Dpt. of Anatomy, Nepalgunj Medical College, Nepalgunj, Nepal. Email: kumarannurag@rediffmail.com

Above table depicts that the incidence of sphenoparietal types of Pterion is slightly higher in male skulls (87%) than in the female skulls (82.5%), while the incidence of frontotemporal type of Pterion is higher in the female skulls (13.14%) than in the male skulls (7%).

Interestingly in all the cases the same pattern of Pterion was seen on the both sides of the skull, except in one female skull in which frontotemporal type of Pterion was present on left side and stellate variety of right side.

The variation of Pterion in male and female skulls were found to be statistically insignificant using the chi ( $x^2$ ) test.

### Discussion

Sphenoparietal variety was predominant in Indo Nepalese skulls<sup>1</sup> and in the Asiatic Indians skull study<sup>3</sup>. The present study showed an incidence of 84.72% in skulls of Awadh area (87% in male and 82.50% in female skulls). This is relatively higher than the Asiatic Indian study and Indo Nepalese skull study observations.

Incidence of frontotemporal was 10.01% (7.00% in male skulls and 13.14% in female skulls), which is also higher than study in Asiatic Indians (5.2%) and in North Indian skulls (4.35%) but lower than the study in Indo Nepalese skulls (22.05%). Stellate

variety of Pterion was seen in 5.17% (6.00% male skulls and 04.36% female skulls), as compared to North Indian skulls ( 2.17%) and Indo Nepalese skull (8.82%). Frontotemporal is the type dominant in primates while sphenoparietal is the type is the dominant in Homosapiens. The anterosuperior segment of the squamous part of temporal bone of lower primates got detached from its parents and got incorporated in the posterosuperior angle of the greater wing of sphenoid of Homosapiens during phylogenesis, thereby changing the Pterion pattern from frontotemporal of primates to sphenoparietal of Homosapiens<sup>3</sup>.

### Conclusion

The present study has shown separate incidence of Pterion in known male and female skulls of Awadh area. Sphenoparietal variety was of predominant type of Pterion. This difference of incidence was found to be statistically insignificant and may be due to population differences, numerical differences or racial differences. Hence the present study has been compared and correlated with earlier studies done by previous workers.

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**Fig. 1** Sphenoparietal type of Pterion



**Fig. 2** Stellate type of Pterion



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