ORIGINAL PROF-642

LATERAL RECTUS SPINE OF THE SUPERIOR ORBITAL FISSURE; INCIDENCE OF DIFFERENT TYPES

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ABSTRACT

The spine of the lateral rectus muscle is found at the lower border of the superior orbital fissure, at the junction of the broad medial and narrow lateral portions. **OBJECTIVE:** The present study was made to assess the frequency of occurrence, various shapes and position of the spine in the orbits. **MATERIAL & METHODS:** Four hundred dried human orbits from 200 well preserved skulls selected from the Anatomy Department of Punjab Medical College Faisalabad and K.E. Medical College Lahore, were examined by naked eye and by hand lens examination. **RESULTS:** Frequency: Bilateral spine present 15%, unilateral spine RT 65%, LT 57.5%, Bilateral spine absent 16%. Shape: Spine 64%,, Tubercle 20%, Tongue shape 2%, Two spines 1.5%, Irregular spine 6.5%. **CONCLUSIONS:** There is variation in the frequency , shape and position of different types of lateral rectus spine of the superior orbital fissure, this may be due to different regional and racial differences.

INTRODUCTION

The spine of lateral rectus muscle is found at the lower border of the superior orbital fissure at the junction of the broad medial and narrow lateral portions of the greater wing of sphenoid bone. Presence of spine has not been mentioned in most of the literature[1-10].

First it was pointed out that it is a small tubercle at the lower margin of the superior orbital fissure[11,12]. It was commented that it is simply a bony projection situated on the greater wing of sphenoid[13,14]. This bony projection was claimed as a spine without commenting on other shapes[15]. A somewhat rectangular projection in the left orbit in a figure without any description in the text was claimed[16].

Recently a study was undertaken to establish the different configurations of the spine and possible explanation as to its development[17]. Present study

was designed to assess the frequency and various shapes and positions of lateral rectus spine of the superior orbital fissure in the orbits of our local population.

MATERIAL & METHODS

Four hundred (200 right & 200 Left) dried well preserved, adult orbits of both sexes were randomly selected out of 200 skulls from the Department of Anatomy of Punjab Medical College Faisalabad and K. E. Medical College, Lahore during 1997-2000.

Superior orbital fissure, specially its lower margin in each orbit was carefully examined for the presence of any projection with the naked eye and magnifying lens examination. The frequency, site, shape, and direction of bony projections were recorded.

RESULTS

Figure-1. Bilateral Spine present, Rt. Spine at lower 1/3, Lt. Tubercle

Out of 200 right orbits, bony projection was found absent in 70 orbits (35 %) (Fig 5). Whereas out of 200 left orbits no bony projection was noted in 85 orbits (42.5%). Bony projection was observed in 245 (61.2%) orbits out of 400 orbits examined.

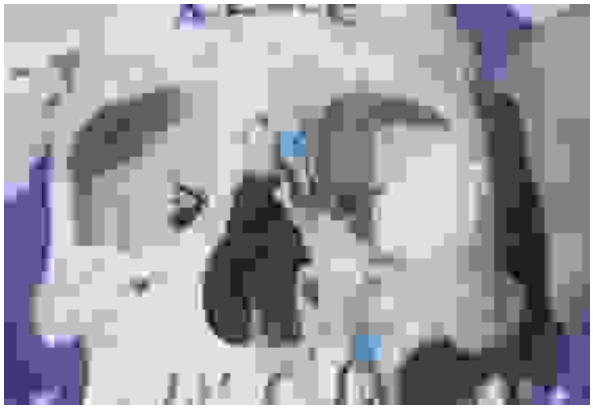

Figure-2. Rt. Unilateral spine present, Tongue shape spine

Figure-3. Lt. Unilateral spine. Rectangular shape

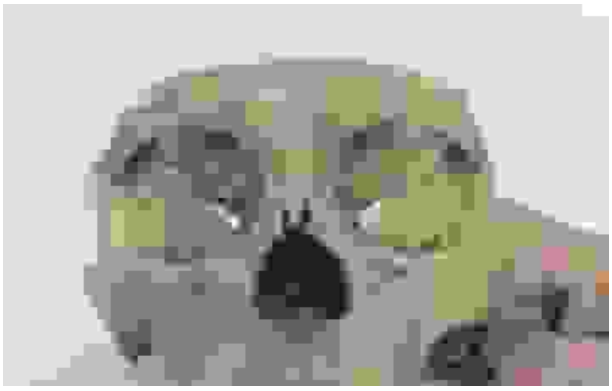

Figure-4. Bilateral absent spine

Out of 200 skulls bony projection was found present bilaterally in only 30 (15%) skulls (Fig-1), while it was found if present unilaterally in rest of the skulls. The bony projection was found absent bilaterally in 32 (16%) skulls (Fig 4), out of 200 (table I). As regards the variations in shape, the results are given in table-II.

Table-I. Incidence of occurrence of lateral rectus spine.

Character	Incidence (%)	Fig No
Bilateral spine present	15	1
Unilateral spine present		
Right	65	2
Left	57.5	3
Bilateral absent	16	4
Unilateral spine absent		
Right	35	5
Left	42.5	
Total No f skulls: 200	Total No of orbits:400	

Figure-5. Unilateral spine absent (Rt)

Table-II. Incidence of different types of lateral rectus spine (as regards shape) (n=200)

Shape	Incidence (%)	Fig
Spine	64	1
Tubercle	20	1-4
Tongue shape	2	2
Rectangular	6	3
Two spines	1.5	6
Irregular spines	6.5	-

Table -III(a). Incidence of occurrence (comparison)

(%)	Basiria KK et al N = 424		Present study N = 400	
Bilateral spine Absent	37.3		16	
Bilateral spine present	NAD*		15	
	Right	Left	Right	Left
Unilateral spine absent	NAD	NAD	35	42.5
Unilateral spine present	NAD	NAD	65	57.5

NAD*= No available data

Figure-6. Rt. Double spine

Table -III(b). Incidence of shape (comparison)

	Spine %	Tubercle %	Tongue shape %	Rectangular %	Two spines%	Irregular spine %
Bisaria KK et al N=424	60.1	18.9	2.3	12	1.5	5.2
Present study N=400	54	20	2	6	1.5	6.5

DISCUSSION

A bony projection or a spine was thus found absent in 16% of the case. When present it was noted to adopt different shapes i.e spine, could be a tubercle, a tongue shaped projection, a rectangular shape, in few cases two spines were present. The attachment of lateral end of common tendinous ring or some fibers of lateral rectus muscle has been attributed to such a projection or spine[14]. An additional tendinous slip from the lateral rectus muscle has been found attached to the orbital surface of greater wing of sphenoid lateral to common tendinous ring[15]. The finding of different shapes or sometimes double spines may be because of attachments of the two limbs of the common tendinous ring separately, or some fibers of lateral rectus muscle may be attached to one and lateral end of common tendinous ring to the other spine noted.

The results of our study are comparable to the results of a similar study carried out by Bisaria KK et al[17], as regards the incidence of shape of lateral rectus spine/ tubercle of superior orbital fissure, but they differ from it as regards the incidence of occurrence (table IIIa,). This may be due to racial or regional differences. The results of our study are more comprehensive as regards the incidence of occurrence of lateral rectus spine of superior orbital fissure than Bisaria KK et al, as is clear from Table-IIIa. It is desirable that if research is carried out at other centers, a comparison of the results can be made as regards the frequency of occurrence and variation in shapes of lateral rectus spine of superior orbital fissure in our local population.

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