SOME OBSERVATION ON HUMAN CLAVICLE

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ABSTRACT

The present study was done in the human clavicles that were available from department of Anatomy of Nepalgunj Medical College, Chasapani Nepal. Observations were made on length of the clavicle, mid shaft circumference cornoid tubercle Curvature index of the clavicles were also calculated. Results were analysed and discussed.

Key Words: Mid shaft circumference-conoid-tubercle-curvature index, Subclavian groove, Trapezoid ridge.

INTRODUCTION

Clavicle is morphologically distinct bone. It is the first bone to ossify. Begins its ossification in membrane with two primary centers of ossification. Clavicles are absent from forelimbs in ungolates and carnivores but are well developed in prehensile limbs in primates and in man. Terry (1932) Oliver (1951), Jit & Singh (1966), Jit & Sahani (1983) Singh & Gangrade (1968 a & b) Kaur (1997) have made detail study on clavicle both in India & abroad. In the present study: A random sample of 21 comprising 11 female & 10 males clavicles from bone sets that were available form department of Anatomy of Nepalgunj Medical College, Chisapani were studied. The clavicles were grouped into male and female by the measurement of mid shaft circumference. One pair of the clavicle showed too much of curvature and prominent conoid tubercle. This made us to examine the clavicle as whole and noted the characters in different clavicles.

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METHODS AND MATERIALS

Both right and left clavicles were included in the study. Following measurement of a clavicle was made.

- 1. Length of the clavicle was measured by calipers putting 2 ends of the clavicle inside it and with the help of thread.
- 2. Curvature of the clavicle was measured by distance of curvature from the base line forming the 2 ends of medial 2/3 sternal end of the clavicle to conoid tubercle.
- 3. Mid shaft curvature (minimum circumference) were measured to classify the clavicle into male and female categories by means of thread and calipers.
- 4. The sexing of the clavicle was also done by noting its weight in 2 sexes, where they were heavier in the males and lighter in females.
- 5. Muscular marking were noted in categories of mid, moderate, rough tubercles. Rough tubercle was measured as their height from the surface (bottom) and as regards to it Curvature were also classified into mild, moderate and highly curved by the measurement of curvature index.

Height of the curvature Curvature index = ------ X 100 Length of the base

6. Observations were made and results were tabulated.

OBSERVATION

Male – 3 are on Left side, 7 on Right side Female- 7 on Left side, 4 on Right sides

- A. Conoid tubercle is very much prominent in the following clavicles.
 - Three are having more prominent conoid tubercle on right side in female.
 - Three are having prominent conoid tubercle on left side in female.

- One on right side in male and 18 on right side in female have more prominent conoid tubercle.
- One on left side in male has more prominent conoid tubercle.

Maximum curvature and prominent conoid tubercle are present one on left side and one on the right side of male of same body.

B. Curvature is larger in male and female.



C. Table 2 shows the curvature index on both right and left clavicles.

Tabel II : Curvature index of Clavicle

Length of clavicle is increased by interstitial growth of terminal cartilage, which are zones of hypertrophy and advance endochondral ossification.

Following are length of clavicle both on right side and left side measured by calipers.

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Length of the clavicle Oliver (1951) observed that left clavicle was longer than the right in French clavicles. Jit & Singh (1966) also observed that left clavicle was longer than the right by 0.5mm. to 22.5 cm in Indian clavicles, of Amrithsar zone. Jit and Sahani (1983) made similar observation that left clavicle was longer than right in the 60% and both clavicles were of sane length in 30% of bones in Chandigargh zone. In Kaur etal (1997) studied clavicle in Patialia zone made similar observation in the present study (2000) Average length of right clavicles 144.2 mm are longer than left (124.8 mm).

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Weight of the clavicle Weight of the clavicle also has given good results 36-65% in the study of clavicle by Kaur etal. This was conformed by Jit and Singh (1966), Singh and Gangrade (1968 b) and Jit and Sahani (1983). In the present study (2001) male clavicles are heavier with more muscular marking than in female. In females, clavicles are lighter and less muscular marking. (Table F)

Curvature – Harbir Kaur (1989) observed was that greater curvature in the right bones was responsible for short length than on left. In the present study three clavicles on right side are showing maximum curvatures and two on left side are showing maximum curbatures. There two bones one on each side (15 and 19) showing maximum curvatures with prominent conoid tubercle.

Mid clavicular circumference – Has given good results in male bones (30% right side and 26% left side) but in case of female only 8% on right side and 6% left side were sexed by the study of Kaur etal. Present study the sex on the clavicles are known but it is more on RIGHT side than on LEFT side. (52.38% on right side and 47.62% on left side.)

CONCLUSION

In the present study only 4 measurements are taken to study 21 clavicles of known sex comprising 11 female and 10 males clavicles in this study.

- 1. Right clavicles are longer than left clavicles.
- 2. Male clavicles are heavier with more muscular markings than in female clavicles.
- 3. Mid clavicular circumference is less in female than in males.
- 4. Two clavicles are having maximum curvature and prominent conoid tubercle, which has made us to examine the clavicle as a whole and noted the characters in different clavicles. While other clavicles are having mild to moderate curvature on both sides. Hence the clavicles are studied and reported.

Clavicle may get fractured at junction of medial two third with that of lateral one third. In Cleidocranial dysostosis, there is coincidence of defect of ossification both intra membranous cranial bones as well as in the clavicle. Failure of two primary ossification centres may result in bony defect. This Knowledge of abnormal ossification helps in prevention of diagnosis of fracture in an otherwise normal clavicle.

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