

Original Article**Morphometric Study of Length & Thickness of Coracoid Process in Bangladeshi Population**

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For Correspondence*Abstract**

Objectives: Coracoid process is a part of scapula and plays an important role in shoulder function. It arises from the antero-lateral aspect of the scapula. The aim of our study is to record the various morphometric parameters of the coracoid process.

Methods: This cross-sectional, descriptive type of study was performed in Department of Anatomy, Mymensingh Medical College, Mymensingh, from January 2019 to December 2019 on 150 scapulae. Sample collection was done by purposive sampling technique. Any damaged, incompletely ossified and fractured bones were excluded. Data were statistically analyzed using SPSS software.

Results: Mean (\pm SD) length of coracoid process was 38.93 ± 3.98 mm and 38.17 ± 4.70 mm on right and left sided scapulae respectively and mean (\pm SD) thickness of coracoid process were 7.40 ± 1.35 mm on right sided scapulae and 7.26 ± 1.40 mm on left sided scapulae.

Key word: Morphometry, Length, Thickness, Coracoid Process, Bangladeshi Population

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Introduction

The scapula is a large, flat and triangular bone which lies on the posterolateral aspect of the chest wall, covering parts of the second to seventh ribs. It has costal and dorsal surfaces; superior, lateral and medial borders; inferior, superior and lateral angles and three processes, the spine, its continuation the acromion and the coracoid process¹.

The Coracoid process is a bird's beak like projection which arises superolaterally from the upper border of the head and is bent sharply so as to project forwards and slightly laterally. It is often referred to as the 'lighthouse of shoulder' in orthopedic literature. It is involved in many surgical procedures on the glenohumeral joint which forms an important part of the scapular glenoid structure. The detail study of the dimensions of the coracoids process will help the surgeons for surgical procedures like drill hole placement, hardware fixation and prosthetic positioning. This study will also help the Forensic experts in various ways from these parameters².

Since there is dearth of literature regarding the morphometric values of coracoid process in Bangladeshi population, so the present study was planned to study and record various morphometric

parameters like length & thickness of the coracoid process in dry scapula.

Material and methods

This study was carried out on 150 fully ossified dry human scapulae, which were collected from 1st year MBBS students and Department of Anatomy of Mymensingh Medical College, Mymensingh. Within 150 scapulae, 70 belong to right side and 80 belong to left. It was conducted from January to December 2019.

Only fully ossified, dried and thoroughly cleaned scapulae were included in the study while the scapulae which were damaged and those having any deformity or pathology were excluded from the study.

All parameters were measured by using digital Vernier calipers in millimeters. Data was made analysis using SPSS version 27 and mean values presented in tables.

Operational definitions

Length of Coracoid Process: Maximum distance between most anterolateral to most posteromedial extension of coracoid process

Thickness of coracoid process: Measured in supero-inferior direction 1cm posterior to tip of coracoid process



Figure 1: Procedure of measurement of length of coracoid process



Figure 2: Procedure of measurement of thickness of coracoid process

Results

As shown in table I, the length of coracoid process on the right and left side varied from 27.30–46.60 mm with the average 38.93 ± 3.98 mm and 27.50–49.30 mm with the average 38.17 ± 4.70 mm respectively.

Similarly in table I, the thickness of coracoid process was found to be varied from 4.20–10.30 mm with average distances 7.40 ± 1.35 mm and from 3.60–10.20 mm with average distances 7.26 ± 1.4 mm on right and left side respectively.

Table I: Measurement of Length and Thickness of Coracoid Process

Variable	Side	Range (mm)		Mean (mm)	±SD (mm)
		Minimum	Maximum		
Length of Coracoid Process	Right	27.30	46.40	38.93	3.98
	Left	27.50	49.30	38.17	4.70
Thickness of Coracoid Process	Right	4.20	10.30	7.40	1.35
	Left	3.60	10.20	7.26	1.26

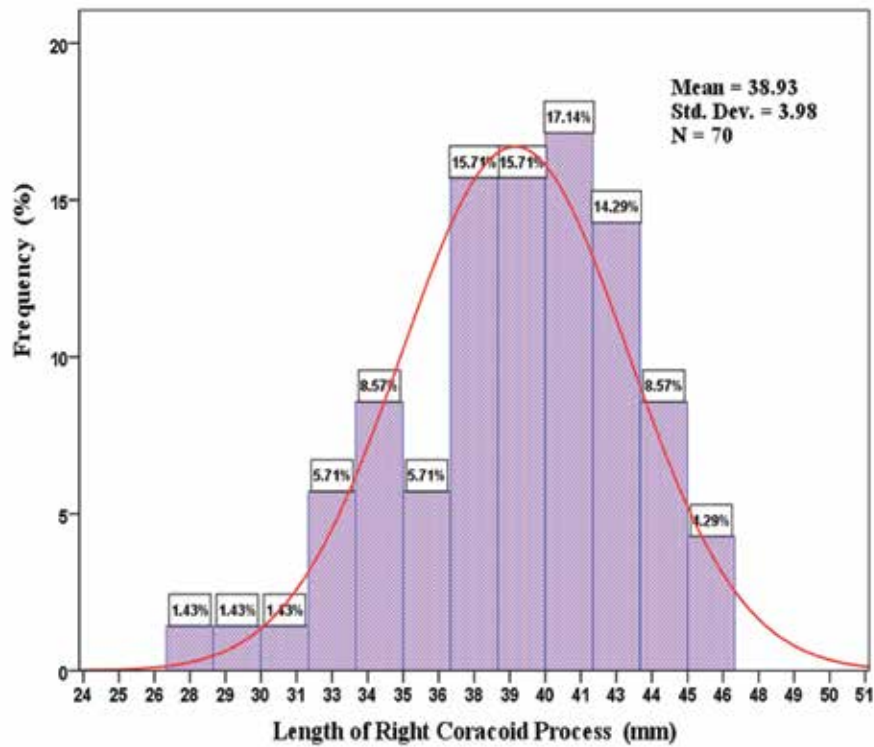


Figure 3: Histogram showing the frequency distribution of length of coracoid process on right side

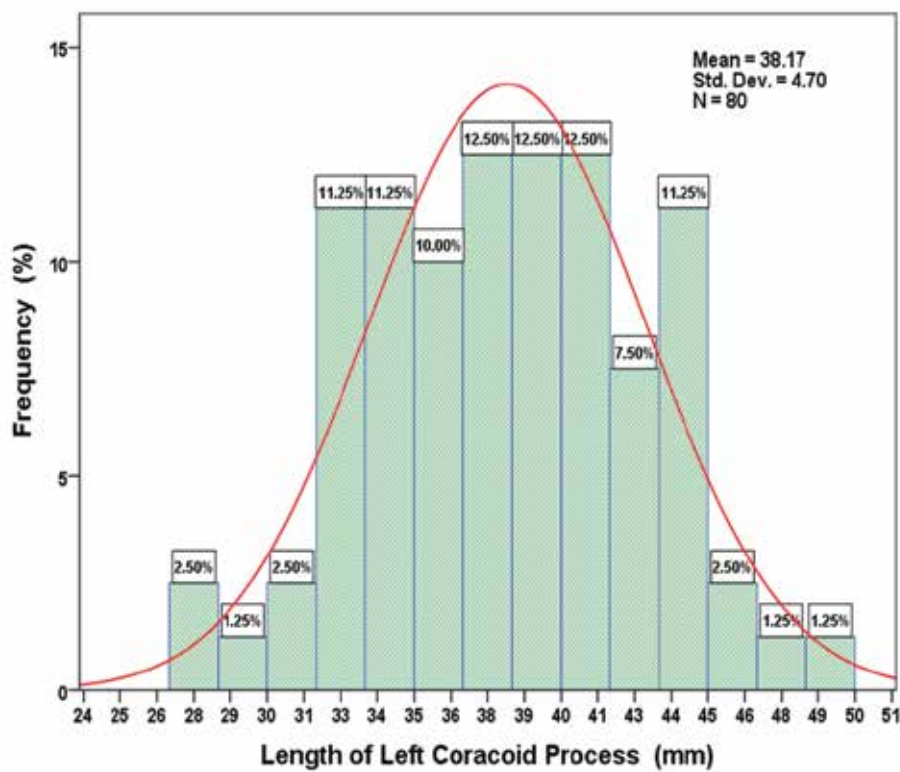


Figure 4: Histogram showing the frequency distribution of length of coracoid process on left side

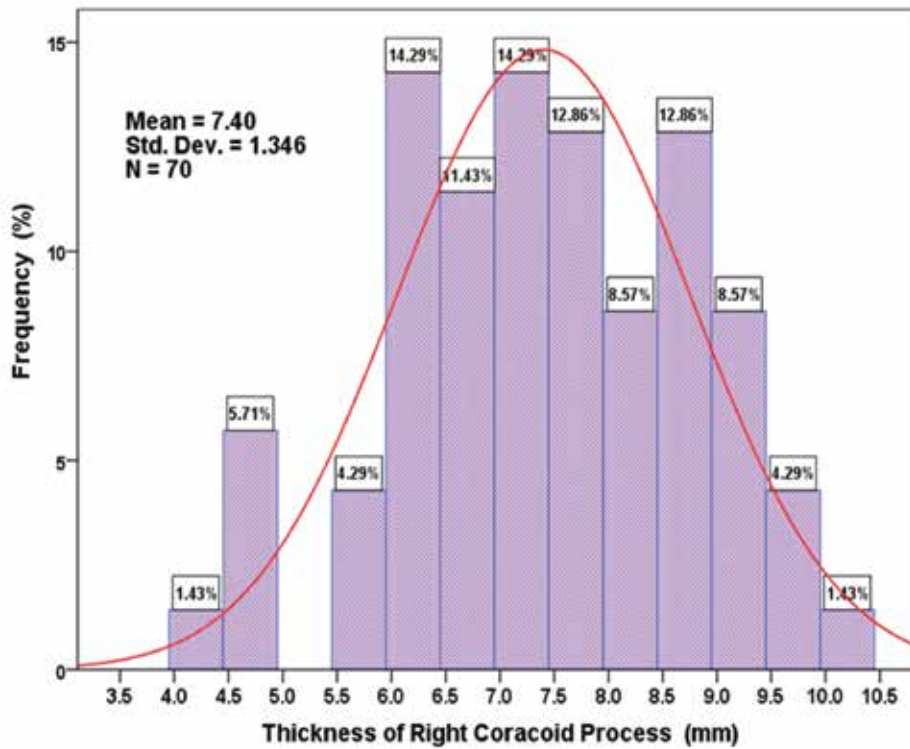


Figure 5: Histogram showing the frequency distribution of thickness of coracoid process on right side

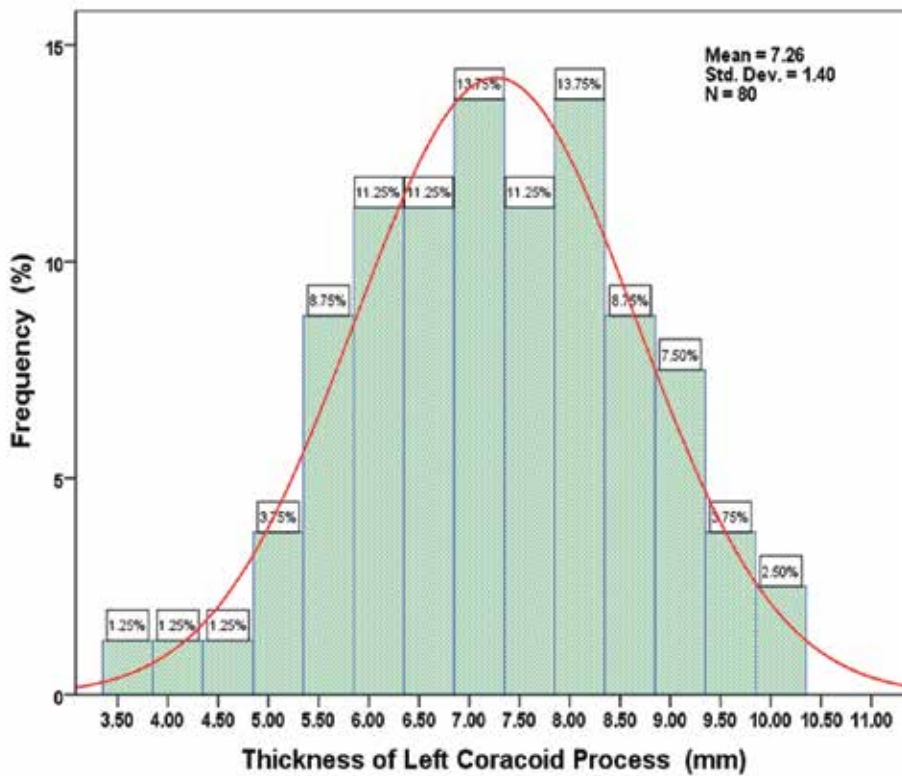


Figure 6: Histogram showing the frequency distribution of thickness of coracoid process on left side

Dicussion

According to the present study, the mean (\pm SD) length of coracoid process was 38.93 ± 3.98 mm and 38.17 ± 4.70 mm on right and left sided scapulae respectively and the mean (\pm SD) thickness of coracoid process were 7.40 ± 1.35 mm on right sided scapulae and 7.26 ± 1.40 mm on left sided scapulae.

Verma et al. performed a study on 100 scapulae and found mean length of coracoid process 35.54 mm. and mean thickness 7.95 mm¹. Kavita, Jaskaran & Geeta observed 129 scapulae and found mean length of the coracoid process 4.10 ± 3.9 mm in total samples while 4.11 ± 4.3 mm on left side and 4.09 ± 3.6 mm on right side and similarly mean thickness of coracoid process 0.74 ± 1.1 mm in total samples and on left sided scapulae and 0.73 ± 1.1 mm on right sided scapulae³. Das et al. carried out a study on 104 scapulae and observed mean length of the coracoid process 39.91 ± 3.16 mm in total samples while 39.66 ± 3.0 mm on right side and 40.27 ± 2.30 mm on left side and similarly mean thickness of coracoid process 8.32 ± 1.27 mm in total samples and 8.09 ± 1.42 on right sided scapulae and 8.64 ± 1.00 mm on left sided scapulae².

The mean value of present study regarding length of coracoid process of both sided scapulae was nearly similar to the value described by Das et al. but higher than those of Verma et al. & Kavita, Jaskaran & Geeta.

The mean value of present study regarding thickness of coracoid process of both sided scapulae was nearly similar to the value described by Verma et al. but higher than those of Das et al. & Kavita, Jaskaran & Geeta.

Conclusion

The results of the present study of 150 scapulae revealed that length & thickness of coracoid process were slightly higher on right side than on left but the difference was insignificant. Though there is a limitation of study about morphometry of coracoid process in Bangladeshi population, this study of the dimensions of coracoid process will help the radiologists to interpret any pathological conditions associated with it. These various scapular dimensions obtained in this study will also be useful in comparative anatomy and manufacturing prosthetic products.

References

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