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Short Communication

Incidence of coracoclavicular joint in adult Nigerian population

Olotu Joy E.[1*], Oladipo G. S.[1], Eroje M. A.[2] and Edibamode I. E.[1]

[1]Department of Anatomy, College of Health Sciences, University of Port Harcourt, Nigeria
[2]Department of Anatomy, School of Medical Sciences, Niger Delta University, Bayelsa, Nigeria

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Coracoclavicular joint is a diarthrotic synovial joint occasionally present between the conoid tubercle of the clavicle and the superior surface of the horizontal part of the coracoid process. We investigated the prevalence of the coracoclavicular joint using 1637 antero-posterior chest and shoulder radiographs of adults in a Nigerian population, comprising 963 males and 674 females, aged 18 – 88 years. We found nine with coracoclavicular joint, one of which was bilateral and eight unilateral. Of the unilateral coracoclavicular joint, five were present on the right and three on the left. Furthermore, five of the coracoclavicular joint occurred in men while four were in women, giving an overall prevalence of the coracoclavicular joint in our studied population as 0.55% at 95% confidence interval of 2.16 – 12.67. The prevalence when compared with previously reported studies indicated that the frequency of the joint is low and its occurrence is rare among most populations, but significantly higher among Asians. This study documents, probably for the first time, the prevalence of coracoclavicular joint in a Western Africa population.

Key words: Coracoclavicular joint, prevalence, clavicle, joint.

INTRODUCTION

Coracoclavicular joint is the articulation between the coracoid process of the scapula and the inferolateral surface of the clavicle. It is a diarthrotic synovial joint between the conoid tubercle of the clavicle and superior surface of the horizontal part of the coracoid process of the scapula (Gumina, 2002). A meticulous description of this joint was published at the end of nineteenth century (Bennet, 1873). Subsequently, few reports of this rare joint were published (Giongo 1927; Slocum, 1941) Investigation on skeletons and cadavers (Lewis 1959; Ray 1959; Fischer, 1971), analyzed the prevalence of the joint which is more common in Asians than in other races (Cho and Kang, 1998).

The occurrence of coracoclavicular joint may lead to pain in the shoulder, which may radiate to the arm. Nalla and Asvat (1995) reported the incidence of the joint in an adult South African population group with reference to racial, sexual and tribal differences. There have been attempts to correlate the coracoclavicular joint to the size of the scapula and clavicle (Nalla and Asvat, 1995) which was ignored in the Korean study (Cho and Kang). Despite the clinical importance of the coracoclavicular joint a search through Medline did not indicate any study of its incidence in Western African subjects and most importantly, no studies have been documented in adult Nigerian subjects. This study, therefore, is an attempt to document the prevalence of the joint in a West African population.

*Corresponding author. E-mail: olotujoy@yahoo.com. Phone: 2348037752394

MATERIALS AND METHODS

Anteriorposterior chest radiographs of indigenous adult Nigerians (963 males, 674 females, with age range of 18 – 88 years) were consecutively collected from the records units of the X-ray department of University of Nigeria Teaching Hospital and Abia State University. University of Nigeria Teaching Hospital is referral center in Eastern Nigeria, serving the various states in that part of the country.

Each radiograph was placed on an x-ray, viewer to assess the presence or absence coracoclavicular joint. Assessed radiograph were sent to the resident radiologist for further confirmation. The results were tabulated and the prevalence of coracoclavicular joint

Table 1. Frequency of coracoclavicular joint (coracoclavicular joint) in the Nigerian study population.

Total Sample	Total (%)	Males (%)	Females (%)
	1637	963	674
Presence of coracoclavicular joint	9 (0.55)	5 (0.52)	4 (0.59)
Bilateral coracoclavicular joint	1 (0.06)	1 (0.10)	0 (0.00)
Unilateral coracoclavicular joint	8 (0.49)	4 (0.42)	4 (0.59)

Table 2. Prevalence of coracoclavicular joint in different population.

Study	Year	Population	%
Nalla	1995	South African	9.6
Cho	1998	Korean	9.8
Nehme	2004	French	0.82
Present study	2007	Nigerian	0.55

Table 3. Degree of asymmetry of the coracoclavicular joint in the study population.

Coracoclavicular joint	Males		Females		Total	
	Incidence	%	Incidence	%	Incidence	%
Bilateral	1	20	0	0	1	11
Right	3	60	2	40	5	55.5
Left	1	33.3	2	66.7	3	33.3

in the adult population sample calculated our result was then compared with those previously studied in other population groups (Table 2).

RESULTS

Table 1 shows the frequency of coracoclavicular joint in our studied population. Nine coracoclavicular joint were found in the study population, one was bilateral and eight were unilateral. Of the unilateral coracoclavicular joint, five were present on the right side and three on the left. Five coracoclavicular joint occurred in male patients. The overall percentage prevalence of the coracoclavicular joint found in our studied population was 0.55% at 95% confidence interval of 2.16 – 12 – 12.67.

Table 2 shows the prevalence of coracoclavicular joint in different population groups from previous studies. Frequencies of coracoclavicular joint was found higher in a Korean and South African populations 9.8 and 9.6% respectively (Cho, 1998; Nalla, 1995) and relatively lower in the Nigerian population (0.55%) (present study). Though the French study showed a lower when compared to the Korean and South African studies, this is, however, still higher than the value for the present study.

Table 3 shows the degree of asymmetry of the joint in the study population, showing the joint to have on higher occurrence on the right than left (55.5%), 33.3% for the left and 11.11%, for the bilateral occurrence.

DISCUSSION

The coracoclavicular joint is an anomalous roundish joint. The joint is easily observed among primates (Haramari et al., 1994). In humans, the coracoclavicular joint is extremely rare in European populations, but relatively common in Asia (Cockshott, 1992). The use of radiographs in the study of the coracoclavicular joint as indicated in our methodology tend to put the prevalence of the coracoclavicular joint at a higher value, this is in agreement with findings of Gumina et al. (2002), than when dry bones are studied directly. The value of its occurrence is put between 0.6 - 21% when radiographs are used (Cockshott, 1963; Fischer et al., 1971); this is in agreement with our findings in which we have observed a frequency of 0.55% for the study population. A 0.55% prevalence of coracoclavicular joint (coracoclavicular joint) was observed in the Nigerian study population; 0.49% of them occurring unilaterally which is in also seen in the South African population (4.58%; Nalla and Asvat 2003); both values presenting higher than the bilateral occurrence. This finding, however, differ from the Korean study which put the bilateral occurrence as higher at 8.8

of the 9.8% overall occurrence (Cho and Kang 1998). Sexual differences was not statistically significant in the present study as well as in previous studies (Nalla and Asvat, 1995; Cho and Kang, 1998).

All of the clavicles with coracoclavicular joint belonged to subjects aged from 43 – 64 years old, which is in agreement with the results of Cho and Kang (1998), who reported that the presence of coracoclavicular joint is related to ageing. The foregoing only suggests that coracoclavicular joint is not a condition sequel to a traumatic experience, as postulated by Lane (1888).

The presence of this joint has variously been said to be responsible for humeral head fracture (Frasseto, 1921) and decrease in movement of the upper limb (Hall, 1950). At present it is not agreed that the coracoclavicular joint undergoes arthritis changes, though De Palma (1973) and Kier et al. (1986) both reported that the presence of this joint predispose to degenerative changes of the sternoclavicular joint and acromioclavicular joints and that the joint itself has a tendency to undergo arthritis changes (Gumina et al., 2002).

The present study has however shown that the frequency of occurrence of this joint is lower when compared to other population samples (Nalla and Asvat, 1993; Cho and Kang, 1998; Gumina et al., 2002) except for the trends study (Nehme et al., 2004). The occurence is not gender specific in that they were statistically equal among males and females. Though the presence of this joint and its importance has been largely agreed to be of no significance other than merely academic (Nutter, 1941), notwithstanding, its presence is useful in determining the etiology of shoulder pains and its subsequent management.

REFERENCES

Bennet EH (1873). Congenital malformation of the clavicle. Dublin J. Med. Sci. (56): 413-414.

Cockshott WP (1963). Carpal fusions. AJR. (89): 1260-1271.

De Palma AF (1973). Normal regional and variational anatomy of the shoulder. In surgery of the shoulder. 2nd Edition.

Cho BP, Kang HS (1998) Articular facets of the coracoclavicular joint in Koreans. Acta Anat (163): 56 – 62.

Cockshott WP (1992). The geography of coracoclavicular joint. Skeletal Radiol. (21): 225-227

Fischer L, Vuillard P, Blanc JF, Bouchet A (1971). L'articulation Coraco-claviculaire.

Frasseto F (1921). Trecasi di articulazione coraco-clavicolare osservate radiograficamente sul vivente. Chir. Org. Mov. (5): 116 – 124.

Giongo F (1927). Tre casi di articolazione coraco-clavicolare bilaterale. Radiologia Med. (14): 186-191.

Gruber WL (1861). Die Oberschulterhakenschleimbeutel (bursae mucosae, supracoracoideae) Eine Monographie mit Vorbemerkungen enthaltend: Bietrage zur Anatomie der Regio infraclavicularis und deltoidea. Mem. Acad. Imp. Sci. St Petersboug. 3, 11 (Series 7).

Gumina S, Salvatore M, De Santis P, Orisina L, Postachini (2002). Coracoclavicular joint: osteologic study of 1020 human clavicles. J. Anat. 201(6): 513 – 519.

Hall FJS (1950). Coracoclavicular joint; rare condition treated successfully by operation. Br. Med. J. (1): 766 – 768.

Kier R, Wain SL, Apple J, Martinez S (1986). Osteoarthritis of the sternoclavicular joint. Radiographic features and pathologic correlation. Invest. Radiol. (21): 227-223.

Lewis OJ (1959) The coracoclavicular joint. J Anat. (93): 296-303.

Lyon med. (225) 1257-1260.

Nalla S, Asvat R (1995) Incidence of the coracoclavicular joint in South African population. J. Anat. (186): 645-649.

Nehme A, Tricoire JL, Giordano G, Rouge D, Chiron P, Puget J (2004). Coracoclavicular joint. Reflections upon incidence, pathophysiology and etiology of the different forms. Surg. Radiol. Anat. 26(1): 33 – 38.

Nutter PD (1941). Coracoclavicular articulations. J. Bone Joint Surgery. (23): 177-179.

Ray LJ (1959). Bilateral cora-coclavicular articulation in the Australian aboriginal. J. Bone Joint Surg. (Br) 41-B, 180-184.

Slocum DB (1948). Coracoclavicular joint. Northwest Med. (40): p.16.