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Case Report

Bilateral total duplication of clavicle: First reported case

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ABSTRACT

A very rare first case of bilateral duplication of the clavicle is presented here. Duplication of the clavicle has been described in only six reports based on a search of the world literature, with single case of bilateral duplication (incomplete) of clavicle being reported. The detection of anatomic anomalies are increasing with the advancement of technology in medicine field. This case is more of academic interest as it is the first case of total bilateral duplication of clavicle

Keywords: Bilateral Clavicle, Duplication of Clavicle, Clavicle, Congenital anomaly

INTRODUCTION

Anatomic anomalies of the skeletal system have long fascinated medical fraternity. Some of the skeletal anomalies such as block vertebrae, hemi vertebrae, and cervical ribs may be of clinical importance. While anomalies like fusion or bifurcation of the ribs, coalition of the carpal or tarsal bones and development of the accessory sesamoid bones are largely of academic interest. Knowledge of the existence of such anomalies is important. A case of bilateral duplication of the clavicle discovered incidentally, producing little or no clinical symptoms, is presented here as first case of its kind.

CASE REPORT

A 40 year old male presented in casualty with head injury with unconscious, patient was admitted in intensive care unit. Immediately patient was shifted for CT scan. With no physical signs of chest or abdominal trauma. X-ray chest, X-ray abdomen and ultrasonography was done to rule out chest and abdominal injury. X-ray chest showed bilateral duplication of clavicle (Figure 1 & 2). CT showed intracranial bleed with 8mm midline shift. Decision was taken to do craniotomy. Since patient's general condition was poor, patient had an episode of cardiac arrest just before he was to be shifted to Operation Theater, cardiopulmonary cerebral resuscitation was given but the patient could not be revived.

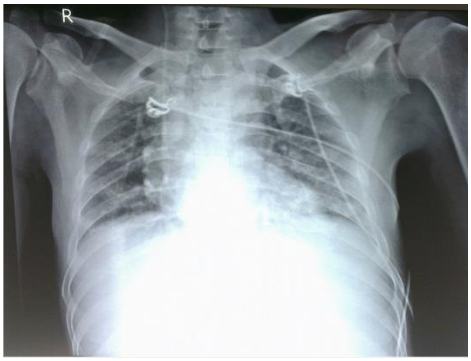

Figure 1: X-ray Chest showing duplication of bilateral clavicle.

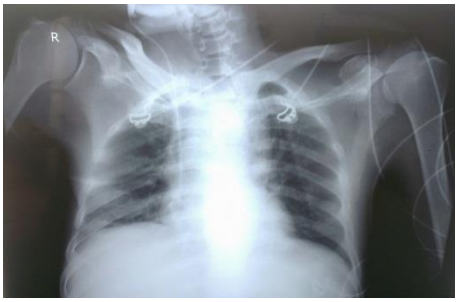

Figure 2: X-ray chest showing duplication of bilateral clavicle.

DISCUSSION

The clavicle is the first bone to begin the process of ossification during development of the embryo, during the 5th and 6th weeks of gestation. However, it is one of the last bones to finish ossification, at about 21-25 years of age. It forms by intramembranous ossification. Even though it is classified as a long bone, the clavicle has no medullary cavity like other long bones. It is made up of spongy bone with a shell of compact bone. It is a dermal bone derived from elements originally attached to the skull. The whole clavicle develops from a cartilaginous anlage. In the middle part of the clavicle, an osseous cuff develops very early by the ossification in the perichondrium. In the lumen of this cuff, a cartilaginous cork persists which is resorbed and replaced by bone and marrow later than in other bones. It is possible that cartilaginous nests may persist in the middle part of the clavicle. Duplication of the clavicle has been reported in the literature.[1-6] Duplication of the clavicle is an asymptomatic condition and is usually detected by serendipity when a chest or a shoulder radiograph is taken. The first case of bifurcation of the clavicle was reported in 1921 in a 16-year-old boy.[7] Since then, five further cases of duplication (bifurcation) of the clavicle have been reported in the world literature. Bilateral clavicular anomalies had been reported in one case, where the lateral third of the right clavicle was duplicated and articulated with the coracoid process, and a spur-like projection was present in the left clavicle. Besides these anomalies, accessory bone elements were also present close to the right coracoclavicular joint, as well as between the spur-like projection and coracoid process on the left side.[8] In all of the reported cases, duplication involved the lateral part of the clavicle. The supernumerary clavicle ("Os Subclaviculare") was completely separated from the main clavicle in one case,[3] and in two others the duplicated clavicle remained fused with the main clavicle on the medial aspect, giving rise to a fork-like bifurcation of the clavicle.[1,4] Twigg and Rosenbaum[2] reported a "bifid" clavicle in a 40-year-old man. They concluded that this was an anatomic variant, "Without clinical significance and of purely anatomic interest". Oestreich,[4] suggested that partial clavicular duplication was developmental, but that one variety of the lateral clavicle hook could be an acquired lesion or occur congenitally.[4] Ogden[5] described a traumatic aetiology and stated that it was likely that the early reports occurred as the result of unrecognised injuries. In a skeletally immature person, the clavicle is enclosed in a thick periosteal sleeve. The physis of the bone is inherently weaker than the acromioclavicular joint ligaments and trauma to the shoulder usually results with a fracture instead of an acromioclavicular joint sprain. After the resulting injury, a new clavicle can form if the proximal clavicle remains displaced. New growth occurs from the distal epiphysis and toward the proximal diaphysis. The final result is a duplicate clavicle.[5] All authors have agreed that duplicate clavicles are clinically insignificant.[6] Two theories have been proposed to explain the duplication of the clavicle: (a) displacement of one of the ossification centres in utero, and (b) presence of more than two ossification centres, where one of them is displaced to form a supernumerary clavicle.[3]

CONCLUSION

This case report illustrates the utility of X-ray in showing the anatomical details of rare congenital anomalies and its anatomical relationship with neighboring milieu. Secondly it adds one more anatomical anomaly of academic interest for generations to come.

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REFERENCES

1. Webb LX, Mooney JF (2002) Fractures and dislocations about the shoulder Skeletal Trauma in Children Vol 3. Philadephia, Pa: Elsevier Inc; 2002:322-325.
2. Twigg HL, Rosenbaum RC (1981) Duplication of the clavicle Skeletal Radiol. 1981;6:281.
3. Golthamer CR (1957) Duplication of the clavicle: Os subclaviculare. Radiology. 1957;68:576-8.
4. Oestreich AE. The lateral clavicle hook-an acquired as well as a congenital anomaly. Pediatr Radiol. 1981;11:147-50.
5. Ogden JA. Skeletal Injury in the Child 2nd ed. Philadelphia, Pa: Elsevier Inc, 1990.
6. Wilson TC. Duplication of clavicle. Orthopedics. 2006;29:79.
7. Rutherford H. Bifurcate clavicle. J Anat. 1921;55:286–7.
8. Reinhardt K. A bilateral anomaly on the lateral third of the clavicula consisting of a curved duplication of the bone toward the coracoid and accessory bone elements. Fortschr Geb Rontgenstr Nuklearmed. 1970;113:527–30.

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