

Incidentally determined scapular ossicles on chest X-ray

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In this case report, we present a case of an 18-year-old male with a scapular ossicle which is rarely seen at the inferior end of the scapula and is considered as an anatomical variation. This very rare condition was found bilaterally in our case

on his chest X-ray. There are very few publications and studies in the literature, It is contemplated that such an anatomical variation should be presented to avoid confusion with the fracture.

Key Words: Scapula; Bone; X-ray; Fracture; Anatomic variation

INTRODUCTION

A case of accessory ossicles, also called end apophysis of the scapula, which is a rare condition in the inferior angle of this covered scapula and has been defined incidentally on postero-anterior chest radiogram in routine health control. The ossicle in the inferior part of the scapula is not common on routine chest radiographs. There are a few predefined regulations on the subject of pre-defined literature research and are expected to be seen rarely. Due to its rarity and incidental finding on routine chest radiography, it was considered appropriate to present it as a case report.

CASE REPORT

An 18-year-old male patient who had a routine chest X-ray examination and had no complaints before his work was observed to have normal heart and lung areas on his chest X-ray (Figure 1). The lucent lines with a slight oblique angle were noted at the inferior angle of both scapulae (Figures 2), which were characterized as inferior end apophysis or scapular ossiculæ of the scapula. Computed Tomography (CT) and 3D imaging were suggested to the patient, however, because of the high radiation dose that could be exposed from 3D examinations and the fact that the patient was young, no CT examination was required. Furthermore, the variational appearance to be disassembled on the X-ray was clearly defined.

On physical examination, there was no abnormality in body development in our case. There was no limitation in shoulder and scapula movements. No trauma was defined in the case history. The case states that such an

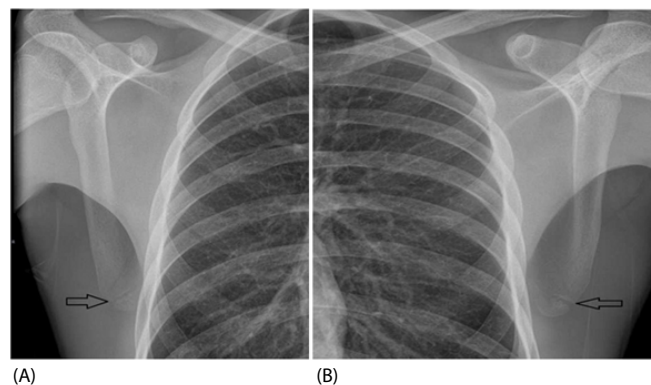


Figure 2 (A) Scapular ossicle on the right side scapula radiogram (arrow). (B) Scapular ossicul on the left side scapula radiogram (arrow).

appearance was not observed in his family and close relatives. Our case was investigated for possible concomitant thoracic and scapula anomalies. However, no accompanying anomaly was detected. In addition, abdominal organs, especially kidneys, were normal on abdominal ultrasonographic examination. Considering that apophysis lines may be closed in the beginning of the twenties, the case may be closed. At the end of his 22nd birthday, he was advised to come back for follow-up.

DISCUSSION

Scapula is an important bone in the function of the shoulder joint. It is a flat bone and its base is in the shape of a triangle above. It has two surfaces, three borders, and three angles. The scapula is located the anterior surface of the posterior thoracic wall, at the level of 2-7th ribs. It is usually observed as a flat bone with its entire structure [1].

The scapular body begins osteogenic development *via* endochondral ossification by the formation of an irregular quadrilateral plate of bone, immediately behind the glenoid cavity about second month of human embryogenesis. This occurs shortly after week 10 of humerus development, during which it will form the glenohumeral joint [2]. Since its development is provided by endochondral ossification, it does not include the epiphyseal line [1-4]. The scapula is ossified from seven or more centers: one for the body, two for the coracoid process, two for the acromion, one for the vertebral border, and one for the inferior angle [1].

The scapulae allow full function of the shoulders and one of the most mobile joints of the body. It engages in six type motions which allow full functional upper extremity movements. When there is a morphological problem in



Figure 1 Postero-anterior chest x-ray.

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the scapula, disorders and deficiencies can occur in upper extremity movements [5]. Limitations or inadequacies of movement in the shoulder and upper extremities can easily be determined on physical examination. In our case, there was no significant deficiency or limitation in both shoulder and upper extremity movements on physical examination.

The scapula increases in size with age, it proportionally increases more in width than it does in length. At birth, a large part of the scapula is osseous and most of the bone provides its development through membranous ossification (5-6). However, some parts of the external part of the scapula are glenoid cavity, coracoid process, acromion, vertebral border and inferior angle cartilage. From the 15th to the 18th months after birth, ossification takes place in the middle of the coracoid process, which as a rule becomes joined with the rest of the bone about the 15th year, between the 14th and 20th years [1].

Therefore, the relevant parts of the scapula are ossified by endochondral ossification. Incisal ossification foci of the scapula go from integration to main bone until the age of 14 from the age of life. If these combinations are not completed, ossicles can be seen in discrete appearance from the main bone. The most common of these is the acromial [6,7]. A similar situation can be seen in the inferior angle of the scapula. The inferior angle, thick and rough, is formed by the union of the vertebral and axillary borders. Its dorsal surface affords attachment to the teres major and a few fibers of the latissimus dorsi muscles [1]. In this case, an ossicle tip apophysis can be seen at the inferior angle of the scapula [8,9].

Congenital malformations of the scapula, ranging from complete absence, to abnormal shape and position are encountered, not infrequently, in genetic practice. Despite this, little is known of the embryologic origin of the scapula and the relationship of the embryology to the observed birth defects [10]. Sprengel anomaly is the most frequently encountered malformation of the scapula [10]. In a study on anatomic variations of scapula in adult Turkish population, it was reported that various anatomic variations were found in the scapula-related parts, but no description was made regarding the scapular ossicle [11]. There is no information about the incidence of scapular ossicles.

Scapular ossification can be easily diagnosed by posteroanterior chest X-ray. Although it can be visualized by Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) but they are not absolutely necessary in the diagnosis of this anatomic variation. CT is even a radiological modality that should be avoided because of the high risk of ionizing radiation. Therefore, in our case, CT scan was not required for confirmation of the anatomical variation. There are some concomitant conditions in scapula pathologies. Klippel-Feil syndrome, congenital scoliosis, kidney diseases, diastematomyelia are examples [12]. Kosenow syndrome (Scapuloiliac dysostosis), a rare skeletal dysplasia, is associated with marked hypoplasia of the scapulae, clavicles and pelvis. Associated anomalies include eye anomalies, rib anomalies and spine bifida [13]. CT can help diagnose these anomalies and plan treatment [14]. However, there was no other morphological abnormality in the scapula. In our case, no curvature (such as scoliosis, rotoscoliosis) in the vertebral column and no spinal bone canal defects were observed. Abdominal organs were normal in the ultrasonography.

The ossification center at the lower end of the scapula occurs in adolescence and is completed by age 22 [7]. The most important and important point

for this age group is to not be confused with fracture when investigating the fracture in possible thoracic trauma [7,14]. There was no history of trauma in our patient. The localization, bilateral symmetry and the slightly indented protruding structure of discrete bone lines can help in the differentiation of this variational appearance [8,14,15].

CONCLUSION

Knowledge of anatomical variations is important for clinical diagnosis. There are various anatomical variations in the scapula that may or may not cause dysfunction. Sprengel anomaly is the most common of these. Particular attention should be paid to accessory ossicles, which is a rare condition that can be confused with scapula fracture in the neighboring inferior angle of the scapula.

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