

The Bifid Rib: Clinical Case

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Abstract

Bifid rib is a congenital anomaly of the rib cage and usually asymptomatic, often discovered incidentally on chest radiography. The effects of this anomaly can include breathing difficulties and neurological limitations.

1. Introduction

A bifid (also bifurcated) rib is a congenital neuro skeletal anomaly of the anterior chest wall that occurs in approximately 1.2% of humans [1]. The anterior end of the rib is bifurcated. It is usually unilateral.

The overall prevalence of bifid rib is estimated to be 0.15%-3.4% (means 2%), and it accounts for up to 20% of all congenital rib anomalies. Rib anomalies are noted in 0.31% of routine chest radiographs [2].

Most commonly, it occurs in the 4th rib. Asymptomatic and often discovered incidentally by chest radiography [3]. A bicapital rib is different from the bifid rib and issue in relation to the first thoracic rib. It seems to be the result of the fusion of two ribs, either one cervical and one first thoracic, or the first two thoracic ribs.

2. Observations

2.1 Observation 1

Patient aged 17 years with no notable pathological history, in particular no known malformative syndrome, admitted to the thoracic surgery department of the university hospital Hassan II-Fès for management of pain in the left anterior chest wall, the

clinical examination revealed pain on palpation of the anterior arch of the 5th left rib, the chest X-ray showed a bifurcation of the 5th left rib (FIG. 1). The exploration did not reveal any other associated malformations.

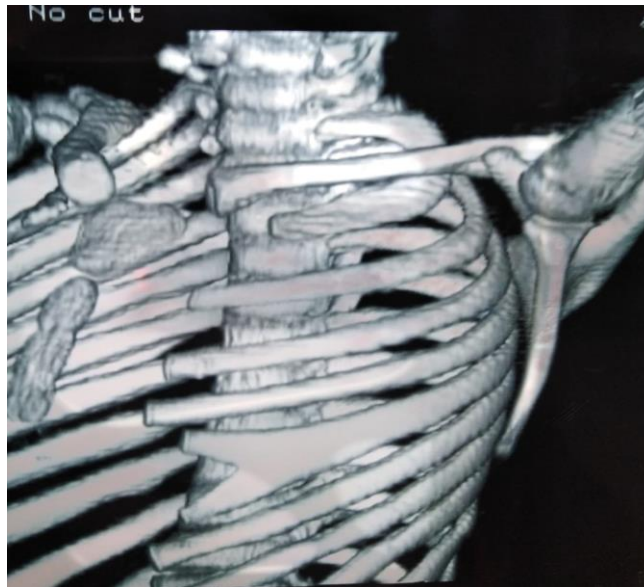


FIG. 1. The chest X-ray showed a bifurcation of the 5th left rib.

2.2 Observation 2

Patient aged 4 years with no notable pathological history, notably no known malformative syndrome, admitted to the thoracic surgery department of the university hospital Hassan II-Fès for management of a swelling of the right anterior chest wall, the clinical examination showed a slight hard swelling opposite the anterior arch of the 5th right rib, then he benefited from a chest X-ray which showed a bifurcation of the 5th right rib (FIG. 2). The exploration did not objectify any other associated malformations.

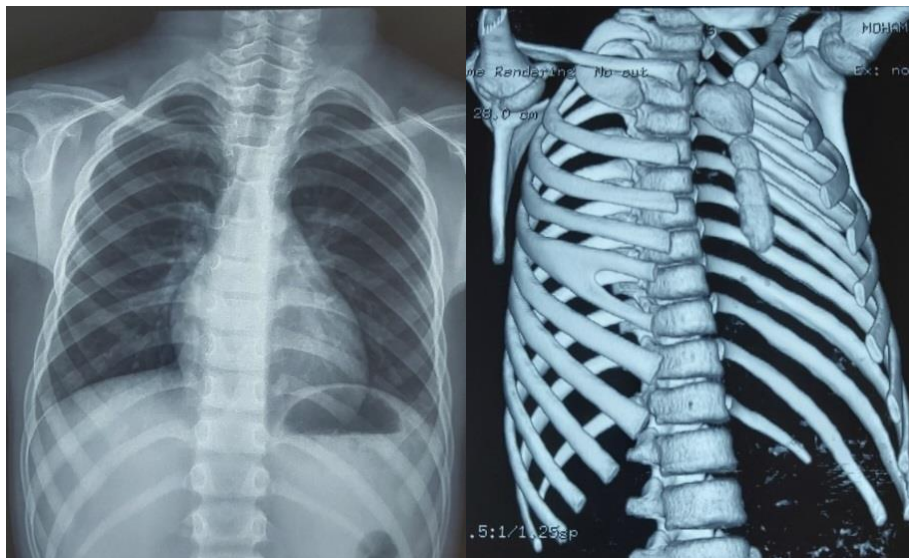


FIG. 2.

2.3 Observation 3

Patient aged 9 years with no notable pathological history, notably no known malformative syndrome, admitted to the thoracic surgery department of the university hospital Hassan II-Fès for management of a pain of the right anterior chest wall, the clinical examination showed a pain on palpation of the anterior arch of the 5th right rib, then he benefited from a chest X-ray which showed a bifurcation of the 5th right rib (FIG. 3). The exploration did not objectify any other associated malformations.

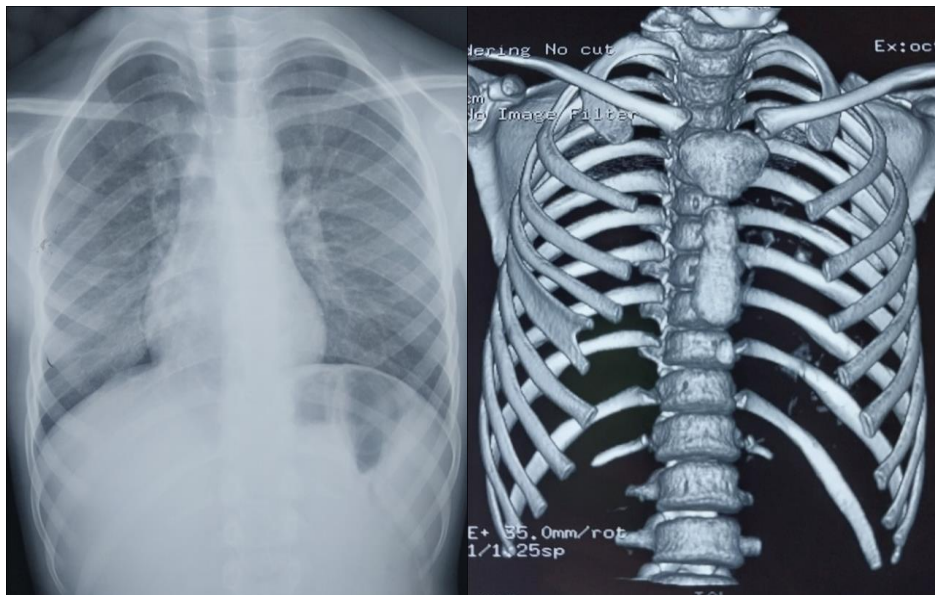


FIG. 3.

3. Discussion

A bifurcated rib is a congenital anomaly of the rib cage, associated muscles and nerves that occurs in approximately 1.2% of humans. It is usually asymptomatic and often discovered incidentally on a chest x-ray and can sometimes lead to respiratory and neurological difficulties.

The bifid rib can be included in several syndromic grouping such as Gorlin-Goltz syndrome (basal cell nevus) (65%-70% of patients), Job's syndrome, [4] Kindler's syndrome, malignant tumor of childhood (especially neuroblastoma). Very rarely, a bifid rib may occur in the context of Gorlin-Goltz syndrome or Jobs syndrome or Kindler syndrome.

The presence of bifid ribs is the most characteristic musculo-skeletal manifestation of Gorlin-Goltz syndrome [5,6]. These malformations may give an unusual shape to the thorax, including a characteristic downward tilt of the shoulders. Bifid ribs are noted in approximately 6% of the general population. Costal anomalies, along with kyphoscoliosis, cause pectus excavatum [7,8].

4. Conclusion

Bone abnormalities are less common to find. There is little information in the literature about the clinical significance of bifid ribs. Rib anomalies can occur in isolation or as part of vertebral malformations.

Knowledge of bifid ribs are necessary for differential diagnosis with other diseases, such as chest wall tumors or rib fracture, because the different types of bifid ribs are present with various appearances on normal chest radiographs [9].

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