

## Case Report

### Isolated Bifid Rib with Intracranial Hemorrhage in a Neonate: Case Report

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**Abstract:** The manifestations of many congenital and acquired conditions can be seen in the ribs of neonates. Bifid ribs are usually asymptomatic, and are often discovered incidentally by chest X-ray. Signs of abnormality can appear in the ribs as variations in number, size, mineralization, and shape. These changes can be focal or generalized. The ribs can yield important diagnostic clues in the work-up of patients with congenital bone dysplasias, acquired metabolic diseases, iatrogenic conditions, trauma (especially child abuse), infection, and neoplasms. Routine evaluation of the ribs on every chest radiograph is important so that valuable diagnostic data will not be overlooked. The diagnostic information obtained from evaluation of the ribs can help tailor the radiologic and laboratory studies that may be necessary to complete a patient's diagnostic work-up. We are reporting a case of neonate with isolated bifid rib with intracranial hemorrhage.

**Keywords:** Bifid ribs, Congenital, Intracranial hemorrhage.

## INTRODUCTION

A rib develops from the costal process of the developing thoracic vertebrae through the endochondral ossification [1]. Congenital abnormalities of the rib are relatively common, particularly in cervical, lumbar, and bifid ribs [2, 3]. As the structural abnormalities, the bifid rib is usually asymptomatic [4]. Almost all reported cases of bifid rib were found in X-ray investigations or some symptomatic patients, with only 2 previous reports involving cadavers [5,6]. Important information may be missed if attention is not directed to the ribs on every chest radiograph. Abnormalities detected in the ribs can sometimes be the initial indication of systemic disease.

## CASE REPORT

A 4 day old female term, appropriate for gestational age neonate, born to primigravida mother by normal vaginal delivery presented with cough, hurried breathing, and apnea. Antenatally mother was booked and immunized with uneventful antenatal visits. On examination baby was weighing 2.3kg (birth weight 2.5) with head circumference of 34cms, length of 48.5cms, and lethargic, dehydrated, hypothermic with respiratory rates of 65 cycles per min, HR 140 beats per min, peripheral pulses just felt. Chest examination revealed widening of the rib spaces between 3<sup>rd</sup> and 5<sup>th</sup> on right side with bony prominence at the same region. Systemic examination baby bilateral air entry equal and occasional crepitations were heard on both the lung fields.

Baby was admitted as a case respiratory distress with sepsis and was treated with oxygen, antibiotics and other supportive measures. Laboratory investigations revealed Hb of 10.8 mg%, TLC 9000. P50 L40. Platelet count -3.8, with peripheral smear suggestive of microcytic hypochromic picture. CRP was negative and blood culture revealed no growth. CXR showed bifid second rib. Cranial ultrasound showed intracranial hemorrhage. CT scan brain was not done due to financial constraints.



Fig. 1: Bifid rib at the right side seen on chest radiograph



**Fig. 2: Transcranial ultrasound showing intracranial hemorrhage**

## DISCUSSION

Bifid or forked ribs are not uncommon. They are commonly seen in female and more common on right side [7]. The anatomy of the bifid rib has a great effect on its development, but this has only been reported in Japanese cases [5, 6]. They occur most frequently in the third and fourth ribs (incidence: third  $\approx$  fourth > fifth > sixth > second) [3,8]. Various incidences and types of costal numerical and structural abnormalities have been reported. For example, the incidence of costal abnormalities based on X-ray investigations was 2.8% in Koreans<sup>5</sup> and 0.15-5.7% in other populations [9].

Bifid ribs have been reported to be an independent abnormality when they appear as accidentally or sporadically developed bifid ribs, and are mostly found in elderly cadavers [5, 6] or conventional X-ray studies. Bifid ribs associated with pathologic malformations such as Gorlin-Goltz syndrome [10, 11]. There can be association with malignancy in childhood usually occur in the young [3].

In our case there was a association of bifid rib with intracranial hemorrhage.

## CONCLUSION

Rib anomalies may occur in isolation, as well as in association with abnormalities of vertebral segmentation and multi-system malformations.

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knowledge of bifid ribs is necessary for the differential diagnosis with other diseases and also to look for its associations.

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