IMAGES IN THORAX

Four thoracic cavity compartments caused by bilateral bifid intrathoracic rib

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CASE PRESENTATION

A 13-year-old boy who had hump-back was taken to the hospital. The whole spine posteroanterior and lateral radiograph showed failures of segmentation from T5 to T8 vertebra, as well as laminae fusion, diagnosed congenital thoracic kyphoscoliosis. Spinal fusion surgery was suggested because of the potential progress of segmental kyphosis. However, unusual imaging revealed that four thoracic cavity compartments were separated by two deformed ribs extending inferolaterally in bilateral hemithorax (figure 1A).

Further CT with 3D reconstruction showed that there was a bifurcated rib articulated with the anterior aspect of the T5 vertebra, extending toward anterior inferolaterally and protruding into the thorax cavity, with fibrous band attaching to hemidiaphragm. The distal anomalous rib had an osseous connection with adjacent fused rib, extending bifid rib locally depressed into the thoracic cavity (figure 2). Absent bilateral 12th ribs and occult bifid spine in the lumbosacral region were other radiographic features. In the sagittal plane, it is seen that an intrathoracic rib had grown out of the corpus of T5 vertebra and forward towards the bilateral hemithorax causing pulmonary collapse at this extension (figure 1C). In the left upper lobe, the focal additional compartment was formed with a fibre band-like attachment to pleura (figure 1B). This finding was consistent with the bifid

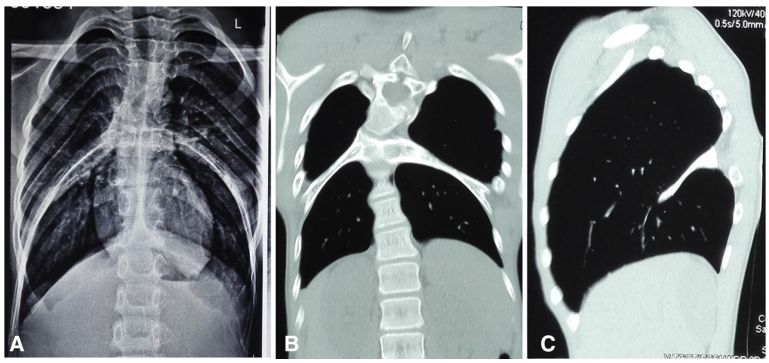

Figure 1 Intrathoracic rib. Chest radiograph showing four thoracic cavity compartments separated by two deformed ribs extending inferolaterally in bilateral hemithorax (A). In the coronal CT scan, the focal additional compartment was formed with fibre band-like attachment to pleura (B). In the sagittal plane, it is seen that a supernumerary rib has grown out of the corpus of 5th thoracic vertebra and forward towards the hemithorax causing pulmonary collapse (C).

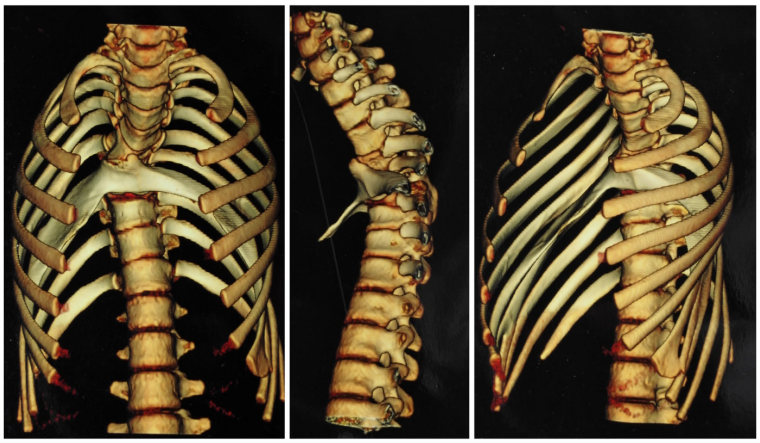

Figure 2 CT scan with 3D reconstruction showing bifurcated rib articulated with the anterior aspect of the T5 vertebra with kyphoscoliosis, extending toward anterior inferolaterally. The distal anomalous rib had an osseous connection with adjacent fused rib, extending bifid rib locally depressed into the thoracic cavity.

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intrathoracic rib. He had no history of lung or other diseases. The routine laboratory tests, pulmonary function tests and echocardiography were normal. Posterior spinal fusion was performed. His postoperative course was uneventful and discharged 5 days after surgery.

DISCUSSION

The intrathoracic rib is a rare anomaly, usually incidental finding and seldom necessary intervention due to the normally benign, asymptomatic presentation.[1 2] The intrathoracic rib occurs more frequently singly and unilaterally.[3] To our best knowledge, bilateral bifid intrathoracic rib with kyphoscoliosis had not been reported in the previous literature. The importance lies in the fact that they may mimic intrathoracic pathology, and early recognition will stop further unnecessary intervention.

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