

## BIFID INTRATHORACIC RIB

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**Key-word:** Ribs, abnormalities

**Background:** A 79-year-old-man was admitted to our Medical Imaging Department for routine check-up following resection of melanoma. He had no other medical history except appendectomy and cholecystectomy two years earlier. Radiography and CT of the chest were performed. The patient was symptom-free.

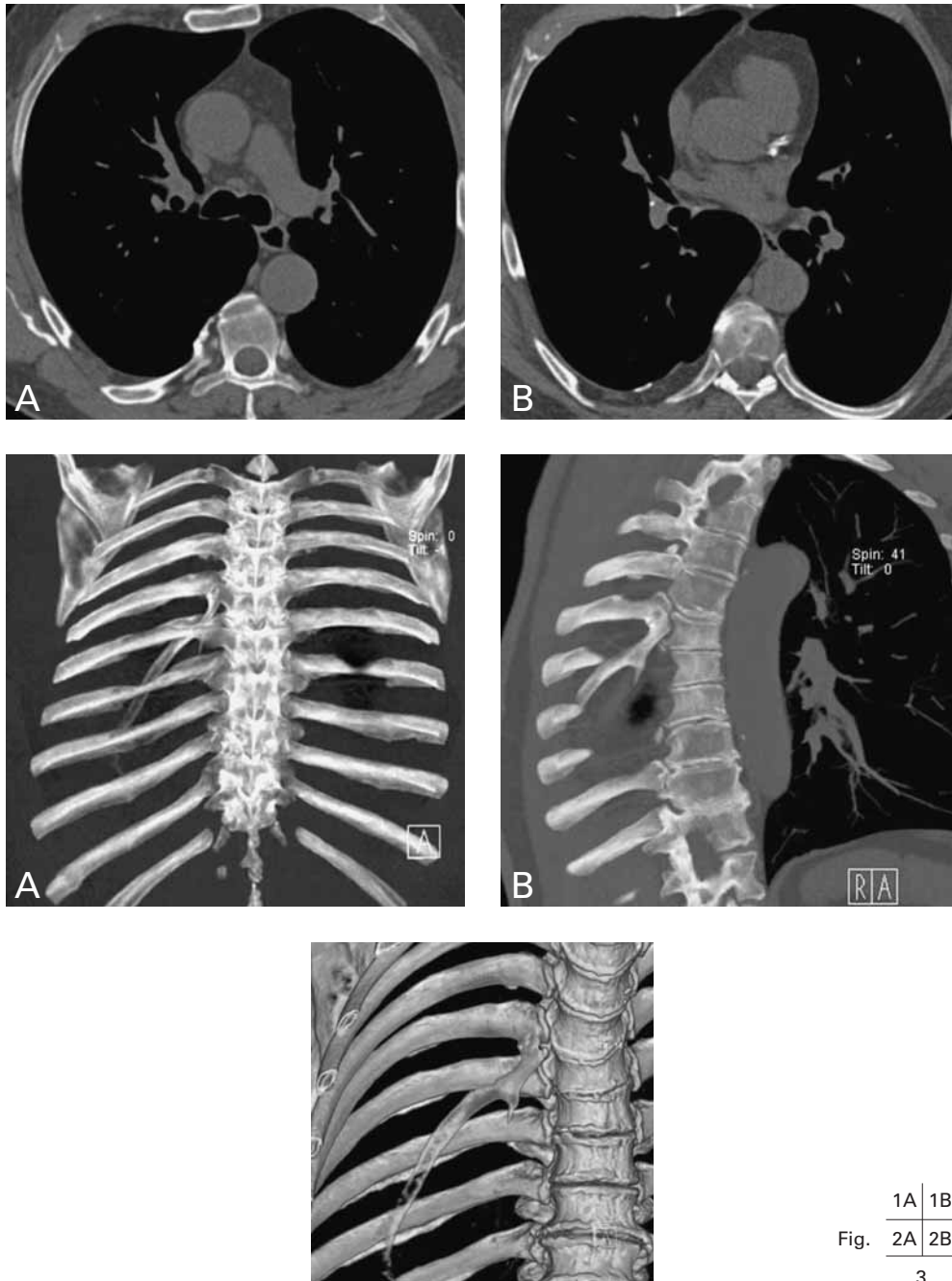


Fig. 

1A	1B
2A	2B
3	

## Work-up

Unenhanced chest CT scan (axial view) (Fig. 1) shows an anomalous ribbon-like bony structure originating from the 6th costovertebral articulation on the right side (A).

Increase of extrapleural fat content posterior to the bony structure is seen on B.

Unenhanced chest CT (MIP reformatting, bone windows) (Fig. 2) demonstrates an oblique structure with bony density having shape and structure of a typical rib (A). The abnormal structure shows a bifid shape and presents a neoarticulation with the 6th rib (B).

On unenhanced chest CT (coronal view, volume rendering technique) (Fig. 3), the anomaly originates from the inferoposterior margin of the 6th rib. There is no contact with the vertebral body.

## Radiological diagnosis

Based on morphology and localization of the lesion on CT scans of the thorax, the diagnosis of *intrathoracic bifid rib* was made.

## Discussion

One percent of the population shows some variation of the ribs, including bone dysplasia, focal rib abnormalities, cervical rib, intercostal synostosis and bifid anterior extremity, associated or not with malformations of thoracic vertebrae. Intrathoracic rib is an uncommon congenital anomaly in which a nonnumerary rib, a supernumerary rib, or one arm of a bifid rib shows an abnormal course within the thoracic cavity.

Intrathoracic rib was first described in 1947 by Lutz and there are about 40 reported cases in the literature. Embryologically, development of intrathoracic rib is uncertain and probably results from an incomplete fusion of cephalic and caudal segments of sclerotome during embryogenesis, occurring around the 4th-6th week of foetal life.

Intrathoracic rib may present in three forms: local depression of one or more ribs into the thoracic cavity, supernumerary intrathoracic rib arising from vertebral body, and supernumerary intrathoracic rib as a variant of a bifid rib. Intrathoracic rib is usually an isolated finding, but it may be associated with deformities of a vertebral body. It is more frequently located on the right side. It may originate from a vertebra or the posterior and inferior margin of a rib, extending downward and inward. The shape and bone structure is similar to that of normal rib. Increased extrapleural fat may be detected to compensate for the slight chest wall depression caused by the deformity. On chest X-ray the soft tissue could be confused with pleural or pleural-based parenchymal lesion. Some fibrous attachment to the diaphragmatic pleura may occasionally be seen. Differential diagnosis includes exostosis, bone tumors, pleural calcified plaque, calcification in a pulmonary sequestration, or anomalous pulmonary vein.

Intrathoracic rib remains frequently non-symptomatic but thoracic pain, dyspnea or even hemoptysis have been reported. Pain has been reported in case of fibrous attachment to the diaphragmatic pleura.

## Bibliography

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