

## Case Report

# Fusion of Ribs Mimicking Cavitory Lesion

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### Abstract

Fusion of the ribs is one of the most frequent anomalies in rib pathologies. Anomalies of the ribs may be isolated or a component of a congenital syndrome or metabolic disease. It is usually asymptomatic and detected incidentally on a plain chest radiography. Presently described is a case of a patient with a rib fusion mimicking a cavitory lesion observed on a plain chest radiography. Rib anomalies, including rib fusion, are often undiagnosed during radiological evaluation; however, they may lead to unnecessary diagnostic tests and treatments. Thus, rib fusion should be considered in the differential diagnosis of cavitory lesions.

**Keywords:** Cavitory lesion, computed tomography, fusion of rib, plain radiography

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Rib anomalies may be components of the congenital syndromes and metabolic diseases or they may be completely isolated. Bifid rib, cervical rib, fusion of ribs are the most common costal anomalies.<sup>[1]</sup> Fusion of ribs may be segmental or it may affect the entire rib. Rib anomalies are often asymptomatic and they are incidentally determined on plain chest radiography performed for any indication. Rib fusion can mimic a cavitory or a mass lesion radiologically. Herein, we report a case of a patient with a rib fusion mimicking a cavitory lesion on plain chest radiography.

### Case Report

A 25-year-old male patient admitted with complaints of fatigue and cough. Physical examination of the patient was normal except for mild pharyngeal erythema. Acute phase reactants were elevated: white blood cell count: 18.000/ $\mu$ L and C-reactive protein: 8 mg/dL. On plain chest radiography, a suspicious appearance for cavitory lesion was detected at superior-middle zone of right lung (Fig. 1). On computed tomography (CT), there was a slight indentation

of the bone structures to the pulmonary parenchyma in the right anterolateral chest wall without an evidence of cavitory lesion (Fig. 2). On volume-rendered three-dimensional CT images, anterolateral fusion of the third and fourth ribs at the level of corpus was determined (Fig. 3). Patient was evaluated as a case of upper respiratory tract infection and treated accordingly.

### Discussion

Frequency of costal anomalies in general population is reported to be around 0.15–0.31%.<sup>[1]</sup> In a study, 40.000 healthy subjects were screened and rib fusion was found to be the most frequent anomaly after bifid rib.<sup>[2]</sup> The incidence of bifid rib was reported as 0.6% while fusion of ribs as 0.3%. Anomalies of the ribs may be seen as isolated cases or they may be a component of a congenital syndrome or a metabolic disease. They can also develop secondary to metastatic disease or trauma.<sup>[1, 3]</sup> Anomalies of ribs are usually asymptomatic and they are incidentally detected on autopsy or plain chest radiography.<sup>[3]</sup>

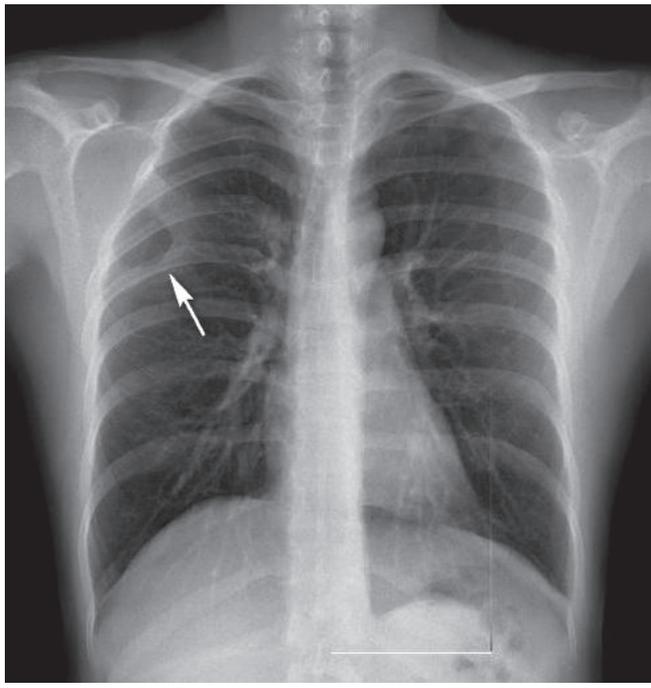
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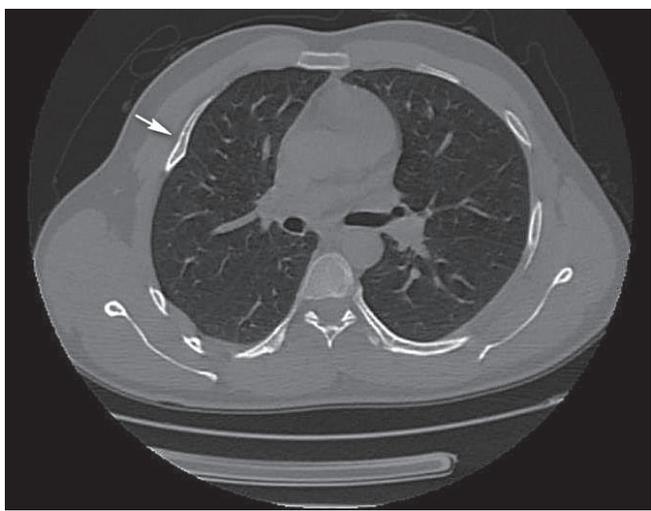
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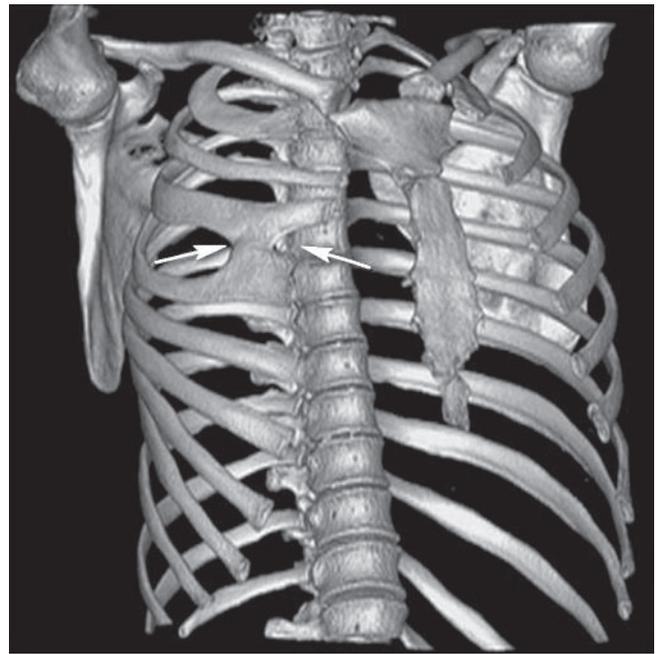


**Figure 1.** Plain radiography image: a round radiolucent lesion suspicious for a cavitory lesion in the right-upper zone of the right lung (white arrow).



**Figure 2.** Axial CT image: a bone bridge making a mild indentation to the lung parenchyma in the right anterior chest wall (white arrow).

During the evaluation of chest radiographs, these anomalies are easily undiagnosed because radiologists or clinicians usually focus on only the lung parenchyma. Diagnosis can be easily performed by computerized tomography



**Figure 3.** Volume-rendered 3D CT images: fusion of the ribs (white arrow).

with the advantages of high resolution image quality and three-dimensional reconstruction. For this reason, the plain radiography and CT findings should be evaluated together.<sup>[4]</sup>

In conclusion, rib anomalies including rib fusion are often undiagnosed during radiological evaluation however they may lead to unnecessary diagnostic tests and treatments. Thus, rib fusion should be considered in the differential diagnosis of cavitory lesions.

#### Disclosures

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** None declared.

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