

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: <http://Elsevier.com/locate/radcr>

Chest

Bifid sternum in a young woman: Multimodality imaging features

Guglielmo Manenti MD, PhD, Alessio Bozzi MD, Valentina Ferrazzoli MD, Salvatore Marsico MD*, Erald Vasili MD, Roberto Floris MD, PhD

Department of Diagnostic Imaging, Molecular Imaging, Interventional Radiology and Radiation Therapy, Fondazione Policlinico “Tor Vergata”, Viale Oxford 81, 00133, Rome, Italy

ARTICLE INFO

Article history:

Received 27 February 2017

Accepted 9 June 2017

Available online

Keywords:

Sternum

Cleft

CT

MRI

Bifid

ABSTRACT

Bifid sternum is a rare fusion anomaly of the chest wall that accounts for 0.15% of all chest deformities and may be associated with cardiac or vascular anomalies. It is usually diagnosed and surgically corrected at birth or within the first month of life. Being a diagnosis made during the neonatal period, computed tomography scan and magnetic resonance imaging are not often performed; not so many cases in literature have been studied with II level diagnostic imaging, such as computed tomography or magnetic resonance.

We describe a case of bifid sternum, rarely diagnosed in adults, discovered in a 21-year-old woman who came to our Diagnostic Imaging Department to perform a chest magnetic resonance after a chest X-ray.

© 2017 the Authors. Published by Elsevier Inc. under copyright license from the University of Washington. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Case report

A 21-year-old woman came to our Department of Diagnostic Imaging with a bony defect in the central upper part of her chest wall, which had been evident since birth and more noticeable during inspiration.

There were no alterations in laboratory tests, echocardiography, and electrocardiogram.

Chest X-ray, in the posteroanterior and latero-lateral projections, showed an abnormal radiolucent area in the upper part of the thoracic wall (Fig. 1). A general practitioner requested a magnetic resonance imaging (MRI) to rule out possibility of mediastinal pathology.

Chest MR was performed with axial and coronal planes by using a protocol that included T1-weighted turbo spin echo (repetition time/echo time: 613/8) (Figs. 2–4) and T2-weighted turbo spin echo (repetition time/echo time: 3500/100) sequences (Fig. 6). MRI showed a sternal fusion defect with an incomplete superior cleft of the manubrium and the body of the sternum, which was “U-shaped”; the right ventricle was directly in contact with the chest wall, but pulsations were not clinically evident because the bone defect was tiny.

The patient underwent a chest computed tomography (CT) (helical scan; 0.7-s rotation time; pitch 0.9; 120 kV; 200 mA; image thickness of 1.25 mm; bone plus filter) integrated with multiplanar and volume rendering reconstructions (Figs. 5 and 6). This last step confirmed the diagnosis of bifid

Competing Interests: The authors have declared that no competing interests exist.

* Corresponding author.

E-mail address: salvatore.marsico@hotmail.it (S. Marsico).

<https://doi.org/10.1016/j.radcr.2017.06.005>

1930-0433/© 2017 the Authors. Published by Elsevier Inc. under copyright license from the University of Washington. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

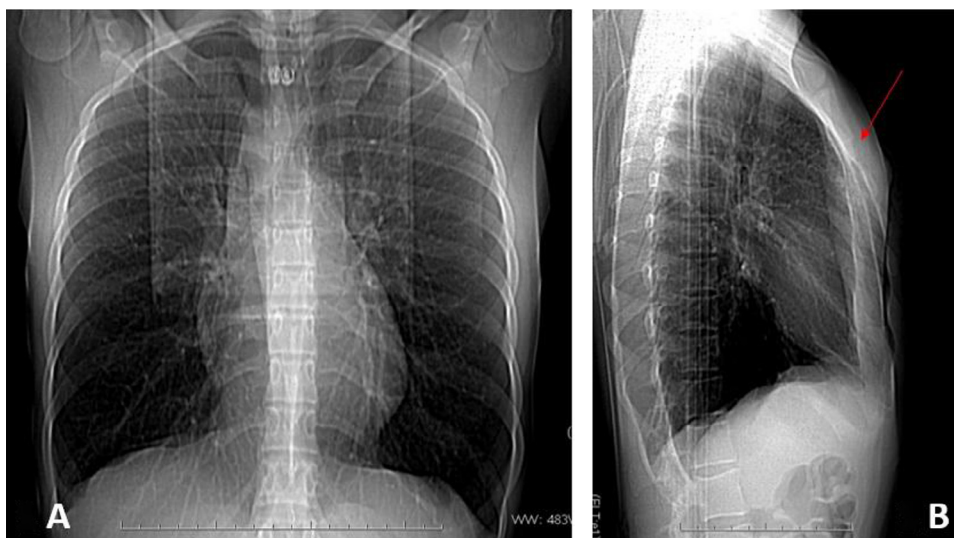


Fig. 1 – Twenty-one-year-old woman with bifid sternum. Findings: Double-projection chest X-ray. (A) Figure demonstrates no pathologic findings in posteroanterior (PA) projection. (B) Figure demonstrates an abnormal radiolucent area (red arrow) in the upper part of the thoracic wall in latero-lateral (L-L) projection. The patient shows a bony defect in the central upper part of her chest wall, more noticeable during inspiration, without alterations in the laboratory tests, echocardiography, and electrocardiogram. Technique: PA and L-L projections of chest X-ray.

sternum and, according to Ravitch classification, it was an isolated defect of the upper sternum.

The patient refused to undergo surgery after a cardiothoracic counseling, and was lost to follow-up.

Discussion

The sternum develops over a long period, with different times of maturation in each person. It begins to form during the

sixth week of intrauterine life from paired mesoderm plates located in the anterior chest wall on each side of the midline; the sternal plates first chondrify, fuse with the ribs, and then undergo endochondral ossification [1]. The fusion of the ossification centers of the manubrium and sternal body (segments 1-4) starts at birth, and it is completed during the sixth year. The timing of ossification of the xiphoid (segment 5), instead, is more variable. Besides, it is possible to find an asynchronous ossification of segments 1-4, most common in the superior and inferior body, which may be an expression of a normal variant or suggestive of an

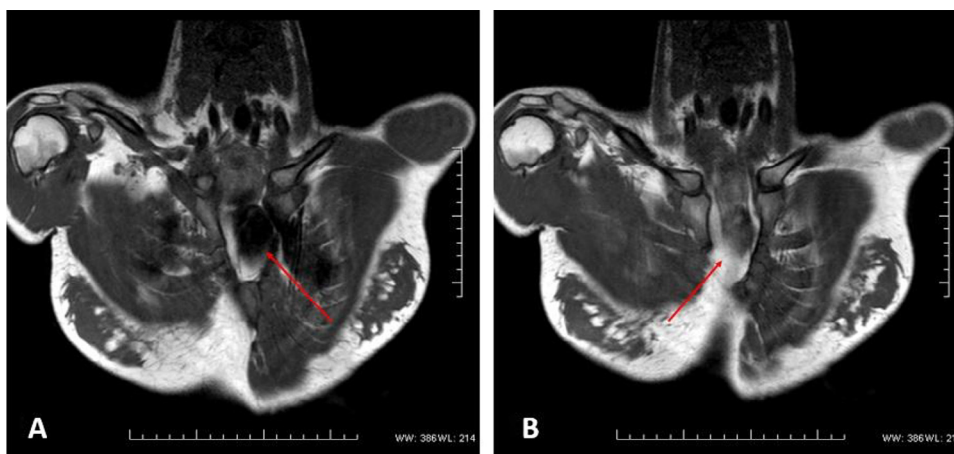


Fig. 2 – Twenty-one-year-old woman with bifid sternum. Findings: Noncontrast chest coronal magnetic resonance imaging (MRI). (A and B) Figures demonstrate the sternal fusion defect with an incomplete superior cleft of the manubrium and the body of the sternum (red arrows). This is a rare fusion anomaly of the chest wall that occurs in 0.15% of all chest deformities. It is usually diagnosed and corrected surgically at birth or within the first month of life, so it is rarely diagnosed in adulthood. Technique: 1.5 Tesla General Electric (GE) software version 15 (GE Healthcare, Milwaukee, WI); noncontrast chest coronal T1-weighted (W) turbo spin echo (TSE) (TR 613 ms, TE 8 ms, slice thickness 3 mm, skip 1 mm).

Download English Version:

<https://daneshyari.com/en/article/8825261>

Download Persian Version:

<https://daneshyari.com/article/8825261>

[Daneshyari.com](https://daneshyari.com)