Rib Notching in Coarctation of the Aorta (Roesler's Sign)

Escotadura costal en la coartación aórtica (Signo de Roesler)

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Coarctation of the aorta (CoA) is a rare cause of secondary high blood pressure (HBP); its diagnosis is important, since it is a potentially treatable etiology of HBP. CoA accounts for 6%–8% of all congenital heart disease, occurring as aortic arch stenosis proximal to the insertion of ductus arteriosus, below the origin of the left subclavian artery. (1, 2) CoA can occur as a solitary lesion, but is often associated with other cardiovascular lesions, including bicuspid aortic valve, aortic arch hypoplasia, mitral valve abnormalities, and ventricular and atrial septal defects. (1, 2)

This is the case of a 39-year-old female patient with a history of HBP refractory to medical treatment, multiple therapy schemes with metoprolol, enalapril, valsartan, and hydrochlorothiazide, associated to recurrent headaches and coldness of the lower limbs; chest X-ray showed bilateral "notches" on the lower costal margins, or Roesler's sign (Figure 1). Cardiac Doppler ultrasound showed bicuspid aortic valve, normal left ventricular size and wall thickness, and preserved systolic function; cardiac CT-angiography of the chest revealed coarctation of the descending aorta posterior to the origin of the left subclavian artery, with prominent pulmonary arteries (Figure 2A).

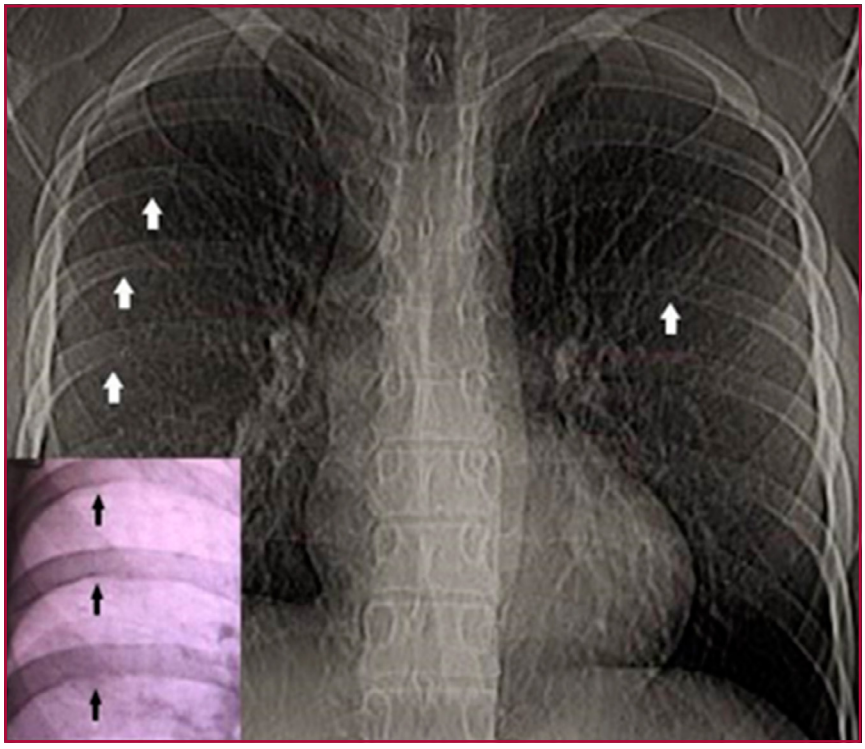

Fig. 1. Chest X-Ray: Bilateral rib notches (Roesler's sign)

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Rib notching on chest X-ray was identified in 1928 by H. Roesler, and was subsequently mentioned in numerous vascular and non-vascular disorders such as aortic thrombosis, Takayasu's arteritis, tetralogy of Fallot, superior vena cava obstruction, neurofibromatosis and poliomyelitis, respectively. (3) In CoA, rib notching usually occurs on the inferior-posterior costal margin from the 4th to the 8th ribs after the first decade of life, as a result of tortuosity and increased collateral flow through the intercostal arteries, being generally symmetrical (Figure 2B). (1, 2) Although this is not pathognomonic sign of CoA, it is the main differential diagnosis in young patients with HBP refractory to treatment, since it is suspected from clinical history and physical examination, and confirmed with cardiac CT angiography.

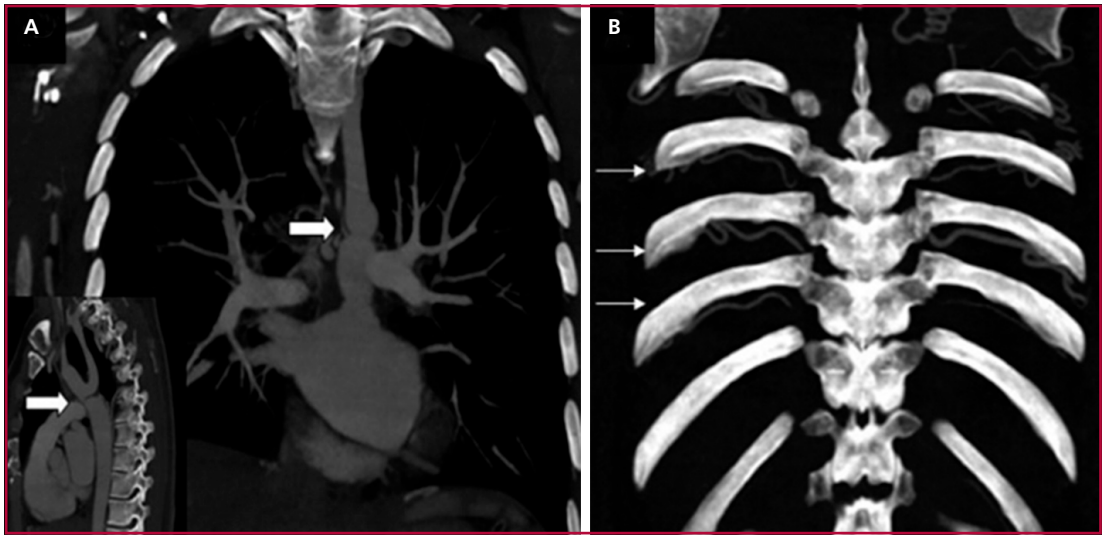

Fig. 2. Chest CT angiography: **A)** Bilateral prominence of intercostal arteries, comprising the inferior borders of the posterior costal margins. **B)** Coarctation of the descending aorta with prominent pulmonary arteries.

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