

Takayasu's Arteritis: Multi-modality Imaging Approach of a Typical Vasculitis

Arteritis de Takayasu: Abordaje multi-imagen de una vasculitis típica

JUAN M. GALVÁN¹, ESTEBAN G. JEANMAIRE¹, NEBIL LARRAÑAGA¹

In the following paper, we present the contribution of our specialty in the diagnosis of Takayasu's disease. A 35-year-old female patient attended the emergency department due to neck pain, and paraesthesia in fingers and palm of the left hand which had a red-purple discoloration. On physical examination, the skin of the left arm was pale, the axillary and brachial pulses were weak, and the radial pulse was absent. The laboratory tests showed hematocrit of 22%, increased erythrocyte sedimentation rate (> 120 mm/h), and elevated C reactive protein levels.

A computed tomography (CT) angiography was performed to rule out thoracic outlet syndrome. The aortic arch, both carotid arteries, descending thoracic aorta, abdominal aorta and left subclavian artery had thickened walls (Figure 1).

This condition should be suspected in young women with diminished arterial pulses, blood pressure difference and bruits. (1)

Takayasu's vasculitis is classified according to criteria that can be applied to CT and magnetic resonance imaging (MRI): (2)

TYPE I: Involves the aortic arch, brachiocephalic artery, carotid arteries, and subclavian artery.

TYPE II: A- involves the ascending aorta, aortic arch and its branches; B- also involves the descending thoracic aorta and its branches.

TYPE III: Involves the descending thoracic aorta, abdominal aorta and/or the renal arteries. The ascending aorta and the aortic arch and its branches are not affected.

TYPE IV: Involves the abdominal aorta and/or the renal arteries.

TYPE V: General involvement. Combined features of types IIB and IV. This is the most common type. (1)

Histological findings may range from an adventitial mononuclear infiltrate to marked mononuclear inflammation of the media, which may even present focal necrosis.

MRI allows the diagnosis of mural thickening and enhancement of the walls affected after the administration of contrast material, indicating activity. It is also useful to detect edema of the wall and adjacent soft tissues, suggestive of inflammation. Nevertheless, the significant association between mural edema and disease activity remains unclear (Figure 2). (3)

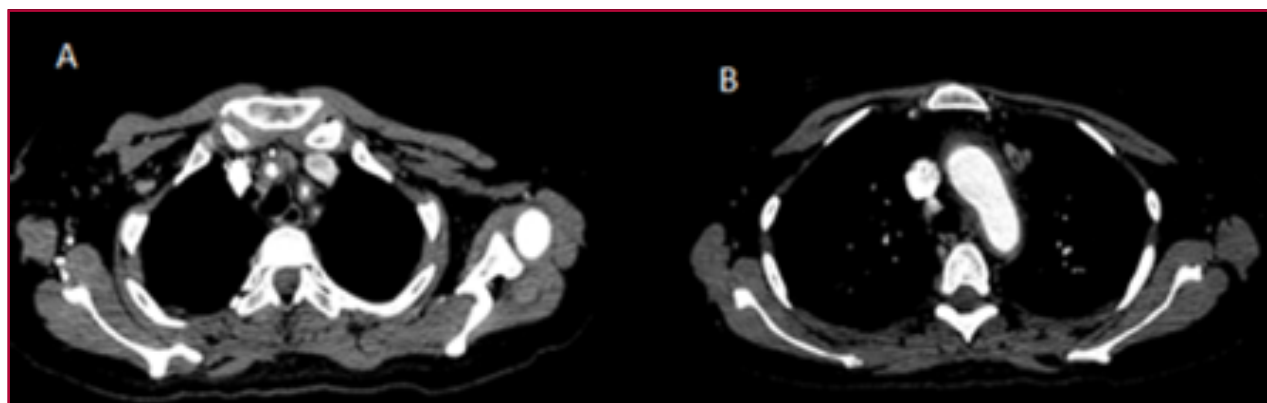


Fig. 1. A. Computed tomography angiography (axial section), showing mural thickening at the level of the origin of the left subclavian artery, left carotid artery and right brachiocephalic artery. **B.** Computed tomography angiography (axial section), showing mural thickening of the aortic arch.

Rev Argent Cardiol 2021;89:347-348. <http://dx.doi.org/10.7775/rac.v89.i4.20431>

Address for reprints: Dr. Dr Galván Juan Manuel – CEMIC. Hospital Universitario Saavedra. Servicio de Diagnóstico por Imágenes - Galván 4102, Buenos Aires, Argentina - E-mail: galvanjm88@gmail.com

¹ Department of Diagnostic Imaging, Hospital Universitario CEMIC, Buenos Aires, Argentina

Another advantage of MRI is that the contrast agent used does not contain iodine and therefore, rarely causes an allergic reaction or kidney toxicity. (4) The sensitivity of MRI to detect lesions in the aorta and main branches is similar to or better than that of CT angiography.

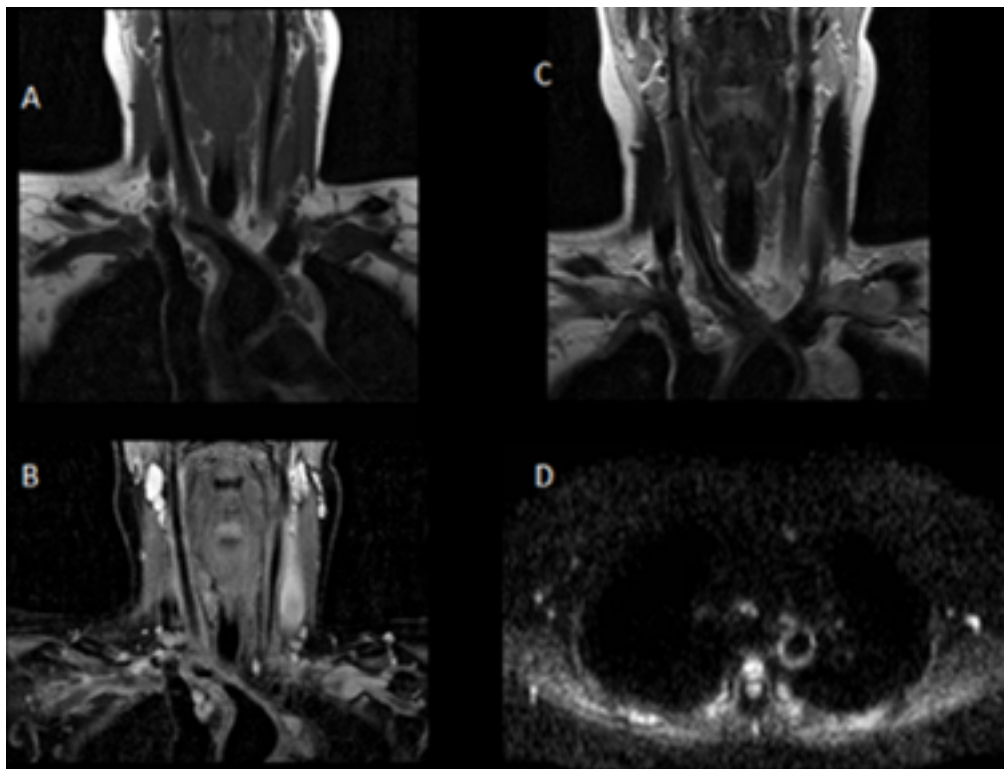


Fig. 2. Magnetic resonance imaging. **A.** T1 sequence, coronal view. **B.** STIR sequence, coronal view. **C.** T2 sequence, coronal view. **D.** Axial diffusion-weighted image. The images show mural thickening of the aortic arch, both subclavian arteries and common carotid arteries in T1 and T2 sequences (**A** and **C**), edema of the artery wall and perivascular soft tissue in STIR and T2 sequences (**B** and **C**), and increased signal in diffusion-weighted image (**D**) in the thoracic aorta, suggestive of inflammation.

REFERENCES

1. Kumar V, Abbas A, Fausto N, Aster J. En: Robbins y Cotran. Patología estructural y funcional. - 8ª. Ed - Barcelona: Elsevier, 2010.
2. Longo D, Kasper D, Jameson J, Fauci A, Hauser S, Loscalzo J. Principios de Medicina Interna de Harrison. - 18ª Ed. - México: Mc Graw Hill-Interamericana, 2012
3. Natri MV, Baptista LP, Baroni RH, Blasbalg R, de Avila LF, Leite CC, et al. Gadolinium enhanced Three-dimensional MR Angiography of Takayasu Arteritis. Radiographics 2004;24:773-86. <https://doi.org/10.1148/rg.243035096>.
4. Zhu FP, Luo S, Wang ZJ, Jin ZY, Zhang LJ, Lu GM. Takayasu arteritis: imaging spectrum at multidetector CT angiography. Br J Radiol 2012;85:e1282-92. <https://doi.org/10.1259/bjr/25536451>