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Research Article

TAKAYASU'S ARTERITIS IN A 64-YEAR-OLD PATIENT ASSOCIATED WITH INFLAMMATORY BOWEL DISEASE TAKAYASU'S ARTERITIS ASSOCIATED WITH INFLAMMATORY BOWEL DISEASE

Eloura de Felício Cônsoli., Gabriela Teixeira Bazuco., Isabela Nicoletti Merotti., Julia Dayrell Beretens and Adrian Nogueira Bueno

José do Rosário Vellano University/ Alfenas-MG

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A B S T R A C T

Takayasu's arteritis is a chronic disease of unknown etiology and average diagnosis age between 25 and 30 years. 64-year-old patient, diagnosed by clinical presentation, physical examination, coronary angiography and fecal calprotectin. Information was acquired through a descriptive study with medical record review, clinical history and examination analysis. The research ethics committee approved this study with opinion number 5.115.169. In this case, we emphasize occlusive lesions of both axillary arteries, chest pain and long-term dyspnea. The lesions were stenotic and occlusive. Due to the rarity of the disease and low life expectancy, the diagnosis with mild manifestations at 64 years of age is unusual. Furthermore, Takayasu's arteritis and coexisting inflammatory bowel disease are rarely reported in literature.

INTRODUCTION

Takayasu's arteritis (TA) is a chronic, granulomatous condition with large vessel vasculitis, characterized by stenosis, occlusion, aortic aneurysm and main branches. Other vessels may also beinvolved. (KESER *et al*, 2018)

TA has an unknown etiology, but studies have shown an association with human leukocyte antigens, suggesting a genetic predisposition. Areas of inflammation progress to fibrosis and scarring of the artery wall leading to stenosis, while destruction of the elastic lamina and media lamina leads to aneurysm formation. (KIM, 2018)

The average diagnosis age is between 25 and 30 years, women represent 75%-97% of cases, mainly affecting Asian women. In Japan, the prevalence is above 0.004%, while there are 4.7 cases per million reported in the United Kingdom. In the US, 2.6 new cases per million people per year were estimated. (KIM, 2018)

AT is not as common as giant cell arteritis, the equivalent of large vessel vasculitis in the elderly. Both share characteristics such as extensive collateral arterial formation, the presence of indistinct symptoms and an insidious onset, leading to delays in diagnosis. They suggest that there must be a number of 'asymptomatic individuals' who never seek medical attention and, consequently, the disease may be more frequent. (SEYAHI, 2017)

There is an association between autoimmune diseases and TA. Therefore, autoimmunity is also blamed as an etiological factor. TA and inflammatory bowel disease (IBD) are rare diseases, but there are reports showing that they coexist. (KILIC *et al*, 2016)

IBD are chronic diseases of the gastrointestinal system of unknown etiology and may involve organs outside the gastrointestinal system. Intestinal dysbiosis and loss of tolerance to commensal bacteria due to damage to autoimmune tissue is implicated in the pathogenesis of IBD. Compared to TA, they present similar features, including onset age, female predominance, granulomatous inflammation, and benefit of anti-TNF treatment. (KILIC *et al*, 2016)

This article will present the case of a 64-year-old female patient whose diagnosis of TA associated with IBD was established in consultation with a rheumatologist through clinical presentation, physical, laboratory and imaging examinations, in addition to the proper treatment institution.

Clinical Case

A 64-year-old female patient comes to the rheumatology outpatient clinic of the Universitary Hospital AlziraVelano, in June 2021, complaining of continuous intense pain in tightness in the chest and armpits, intensity 9 on the pain scale from 0 to 10, worsening on exertion, associated with dyspnea on exertion that started for years. Denied fever, amaurosis, blurred vision and palpitations. Denied a family history of rheumatologic diseases. On physical examination, cardiac

Corresponding author:* **Eloura de Felício Cônsoli
José do Rosário Vellano University/ Alfenas-MG

auscultation revealed a murmur in an accessory aortic focus with increased intensity with Valsalva. Pressure in the right upper limb 120 x 80 mmHg, upper left limb 110 x 90 mmHg, lower right limb 180 x 90 mmHg and lower left 200 x 90 mmHg, heart rate in the right upper limb 61 beats per minute and 77 in the left.

Table 1 Modified Ishikawa diagnostic criteria for Takayasu's arteritis. (KIM, 2018)

Major Criteria
1. Left middle subclavian artery lesion: the most severe stenosis or occlusion present in the midportion of the point 1 cm proximal to the vertebral artery orifice until 3 cm distal to the orifice determined by angiography.
2. Right middle subclavian artery lesion: the most severe stenosis or occlusion present in the middle portion of the right vertebral artery orifice up to a point 3 cm distal to the orifice determined by angiography.
3. Characteristic signs and symptoms of at least 1 month duration: these include limb lameness, lack of pulse or pulse differences in limbs, a significant blood pressure or unreachable difference (>10 mmHg in systole).
Minor Criteria
1. High ESR: unexplained persistent > 20 mm/h (Westergren) at diagnosis or presence of evidence in patient history.
2. Carotid artery sensitivity: Unilateral or bilateral sensitivity of the common arteries to palpation. The sensitivity of the neck muscles is unacceptable.
3. Hypertension: Persistent blood pressure > 140/90 mm Hg brachial or > 160/90 mm Hg popliteal.
4. Aortic Regurgitation or Annuloaortic Ectasia: Aortic Regurgitation Annuloaortic Ectasia.
5. Pulmonary artery injury: Lobar or segmental arterial occlusion or equivalent determined by angiography or perfusion scintigraphy, or presence of stenosis, aneurysm, luminal irregularity, or any combination in the pulmonary or pulmonary trunk unilateral or bilateral arteries determined by angiography.
6. Left middle common carotid lesion: Presence of more severe stenosis or occlusion in the 5 cm middle portion of the point 2 cm distal to its orifice determined by angiography.
7. Distal brachiocephalic trunk lesion: Presence of more severe stenosis or occlusion in the distal third determined by angiography.
8. Injury of the descending thoracic aorta: Narrowing, dilation or aneurysm, luminal irregularity or any combination determined by angiography: only tortuosity is unacceptable.
9. Abdominal Aortic Injury: Narrowing, dilation or aneurysm, luminal irregularity, or aneurysm combination.
10. Coronary artery injury: Documented on angiography under the age of 30 years, in the absence of risk factors such as hyperlipidemia or diabetes mellitus.

ESR: erythrocytesedimentation rate

She has systemic arterial hypertension (SAH) for 20 years using duloxetine 60mg (1-0-0), aldactone 25mg (1-0-0), losartan 50mg (1-0-1) and hypothyroidism using Puran 50 mg. A coronary angiography was requested and found bilateral axillary artery occlusion, right-dominant coronary circulation pattern, bifurcated left coronary artery trunk free of stenosis. Anterior descending artery, circumflex artery and its marginal branches free from stenosis. Dominant right coronary artery, tortuous and free of stenosis. Left ventricle normocontractile global systolic function preserved, renal arteries free of obstruction. Findings compatible with the diagnosis of TA, prescribed azathioprine 50 mg and prednisone 5 mg.

An angioresonance of the abdominal aorta and iliac vessels performed in June 2021 showed aortic segments with preserved flow, without evidence of parietal spacing, dissection, narrowing or aneurysmal dilatation. Descending thoracic segment immediately above the diaphragm 2.3 cm, at the height of emergence of the celiac trunk 2.2 cm, at the height of emergence of the renal arteries 2.0 cm, intermediate segment between the emergence of the renal arteries and the origin of the iliac arteries 1 .7 cm, immediately above the origin of the iliac arteries 1.6 cm, right and left common iliac artery 1.0 cm.

Examination revealing elevated C-reactive protein (CRP) in July 2021 at 5.6 mg/L. Continuing the evaluation, erythrocyte sedimentation rate (ESR) was requested, which showed 5 mm in 30 minutes and 17 mm in 60 minutes, which were elevated when compared to the reference value. Furthermore, the fecal calprotectin was 1,561 mcg/g, considered positive to be greater than 200 mcg/g.

The case lead to the conclusion that the patient presents TA associated with IBD, being added to the other drugs sulfasalazine 500mg.

DISCUSSION

The incidence in women up to the fourth decade of life is a consensus in literature. It classically appears before the age of 50, more common in Asian women, however, recent series show a high prevalence of older ages. It is admitted that genetic elements, infectious agents and autoimmune factors are related to the evolution of TA, highlighting the possibility of Mycobacterium tuberculosis (MT) and streptococcus. (PANICO *et al*, 2008)

Clinical manifestations vary in the intensity, location and speed of the pathological process. Vascular lesions as well as SAH develop in more than 50%, which even in the absence of significant lesions, can be considered essential. It may be asymptomatic for years, or with nonspecific symptoms. Depending on the affected arterial segment, visual disturbances, headaches, syncope, Raynaud's phenomenon, limb claudication or pulse asymmetry with differential blood pressure between limbs may occur. (DUQUE *et al*, 2015)

Due to the age of the patient in question, to its European origin and to unreliable clinical evidence, the case is considered atypical. The possible etiology, or any relationship to TM or streptococci is unknown. Although the genetic link has not been confirmed, it denies similar cases in the family, or of other rheumatologic diseases.

Diagnosis is more specifically based on ESR and ultra-sensitive CRP, serological markers of disease activity, which, despite being nonspecific, are the most used, in addition to being based on clinical evolution and laboratory tests. Diagnostic imaging provides more effective results. Previously, arteriography was considered the gold standard for diagnosis due to the fact that it is invasive, providing accurate information on the lesion in the arterial wall and lumen. Duplex scan is specific in the assessment of disease activity. On the other hand, MR angiography assesses the degree of aortic stenosis more specifically. (PANICO *et al*, 2008)

There is no gold standard exam, tests with adequate sensitivity or specificity may have delays in diagnosis due to the presence of these nonspecific symptoms that can lead to the onset of clinical signs. Diagnostic criteria employ a combination of physical examination, laboratory and imaging findings. The criteria widely adopted are those proposed by Ishikawa and the classification criteria of the American College of Rheumatology that due to underdiagnos is of patients with late-onset TA and those with predominantly involvement of

the abdominal aorta. Modifications were proposed that removed the mandatory age and included the addition of artery lesions in patients <30 years of age in the absence of atherosclerotic risk factors. (KIM, 2018)

Currently, the modified Ishikawa diagnostic criteria (Table 1) for TA is used, which includes main and secondary diagnostic criteria. Thus, the presence of two main major criteria or one major criterion and two minor criteria or four minor criteria suggests a high probability of AT. (KIM, 2018)

The patient in question had dyspnea for more than a month, in addition to a >10mmHg difference in systolic blood pressure between limbs and pulse difference between limbs, one of the major criteria for arteritis. Also, as a minor criterion, the patient presented arterial hypertension and aortic regurgitation on auscultation and elevated CRP, thus, the patient can be diagnosed with TA.

Furthermore, the patient had increased fecal calprotectin, showing an association of TA with intestinal inflammation. Occurrence of IBD with arteritis was reported in a Japanese study that demonstrated a 6.4% concurrency rate of ulcerative colitis (UC) and TA. A French study reported that the competition between Crohn's disease (CD) and ED was 9%. Therefore, the coexistence of DII and AT is not accidental. It is suggested that AT and IBD share immunological mechanisms in common, because AT shares different types of HLA (Human Leukocyte Antigen System) with IBD. (AKIYAMA *et al*, 2017)

Regarding therapy, the treatment of TA is based on corticotherapy. When necessary, other immunosuppressants are associated, such as methotrexate, AZO, cyclophosphamide, mycophenolate mofetil and anti-TNF.5 The patient associated prednisone 5 mg and azathioprine 50 mg.

In about 50% of cases, corticosteroid therapy alone is insufficient to prevent the progression of vasculitis, requiring additional immunosuppressive therapy. (DUQUE *et al*, 2015) Some patients do not achieve remission even with adequate treatment, resulting in progressive vascular evolution, with indication for surgical procedures, such as percutaneous transluminal angioplasty and revascularization surgery. (PANICO *et al*, 2008)

CONCLUSION

In view of the reported case, we emphasize that the clinical presentation of the patient of chest pain and dyspnea, associated with arterial hypertension, pressure difference between the limbs and coronary angiography showing occlusion of bilateral axillary arteries are sufficient for the diagnosis of Takayasu's arteritis.

The rarity of the disease and low life expectancy make the case relevant considering the diagnosis with mild clinical manifestations in this 64-year-old patient. Furthermore, although rare, there are reports that present the coexistence of Takayasu's Arteritis and Inflammatory Bowel Disease in the literature. In this case, IBD was diagnosed through laboratory alterations. However, more studies are needed for a better understanding, but its coexistence found in this patient cannot be explained as accidental.

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