Back Pain as the Presenting Manifestation of Takayasu Arteritis

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Takayasu arteritis is a chronic idiopathic vasculitis that predominantly affects young women. It mainly involves the aorta and its main branches, such as the brachiocephalic, carotid, subclavian, vertebral and renal arteries, as well as the coronary and pulmonary arteries. Systemic symptoms are common in the early stages, and include malaise, weight loss and fever. Cardiac and vascular symptoms are also commonly present at disease onset. The manifestations include absence or asymmetry of pulses, blood pressure inequality between upper or lower limbs, vascular bruits, claudication, and hypertension. Although the aorta and its primary branches are often involved pathologically, it seems that back symptoms have received little attention in the literature. We present here a case of a young woman who complained of thoracic interscapular back pain that was finally diagnosed as Takayasu arteritis.

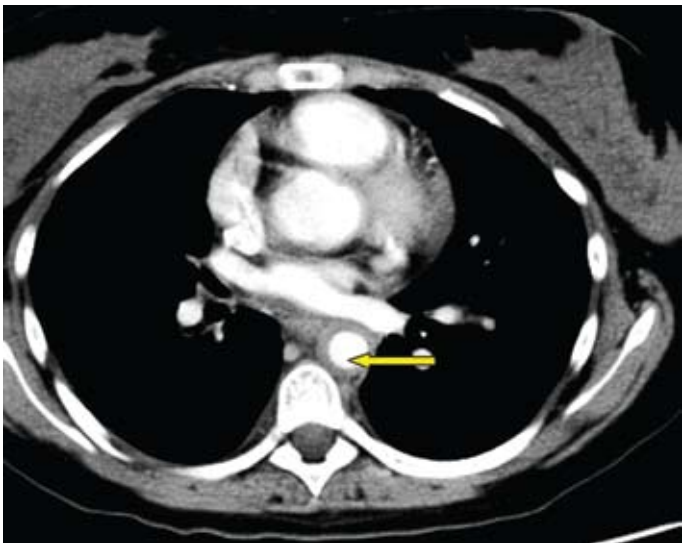
PATIENT DESCRIPTION

A 22 year old woman of Ashkenazi Jewish descent with a history of ulcerative colitis treated with 5-aminosalicylic acid presented to the emergency department after 10 days of fatigue, low grade fever and severe thoracic back pain radiating to her left arm. The pain was worse in the evening. At presentation, her body temperature was 37.2°C and pulse was well palpated at regular rhythm (80/min) in both arms. Blood pressure was 115/76 mmHg. Physical examination of the chest and abdomen was unremarkable. No bruit was audible on the neck, chest or abdomen. The skin was notable for pallor. Tenderness to palpation was localized to the T7 level of the thoracic spine, extending to the border between the posterior mediastinum and intercostal space.

Laboratory tests showed a leukocyte count of 17,600/μl, hemoglobin 9.62 g/dl, hematocrit 29.1%, platelet count 557 × 10^3/μl, and serum C-reactive protein 232.9 mg/dl (normal < 6). Liver function tests showed an aspartate aminotransferase level of 9 IU/L, alkaline phosphatase 135 IU/L, and total bilirubin 0.4 mg/dl. Renal function tests were normal. Serologic test was negative for antinuclear antibody. Urine examinations were positive for leukocytes. The findings on plain X-ray film of the chest were unremarkable. For evaluation of suspected vertebral osteomyelitis, a three-phase bone scan and a gallium-67 scan were performed. The gallium-67 images also showed mildly increased radioactivity in the upper mediastinum. Thoracic CT scan was normal, with no signs of spondylodiscitis.

In view of the findings of nuclear medicine images, which localized the process to the upper mediastinum, an emergent contrast-enhanced thoracic computed tomography angiography was performed, which revealed mild aortic wall thickening [Figure]. Aortic aneurysmal disease was excluded since

CT angiogram of the thorax, demonstrating concentric wall thickening of the descending aorta in the arterial phase (arrow), with involvement of the perivascular fat and adjacent lymph nodes.



the CT scan did not disclose the presence of aneurysms in the thoracic and abdominal regions.

Based on these findings, the patient was diagnosed with Takayasu arteritis. Treatment with prednisolone at a dose of 30 mg/day was initiated, which resulted in the disappearance of the back pain within a few days as well as resolution of the inflammatory parameters (leukocyte count 10,200/µl, hemoglobin 9.80 g/dl, platelet count 267 × 10^3/µl, and C-reactive protein 22 mg/dl)

COMMENT

Since Takayasu arteritis is a vasculitis involving the whole aorta and its branches, back pain may be present in patients with this disease. Thoracic back pain may be associated with the involvement of the descending aorta, which was observed in our patient. Slobodin et al. [1] described a similar case of Takayasu arteritis in a patient who initially presented with chronic back pain originating from the aorta. The pain was described as dull, vague and poorly localized. It was speculated that since nerve distribution in blood vessels is confined to the adventitial-medial border, inflammation involving the adventitia, as in Takayasu arteritis, might be painful. Noyer and co-researchers [2] presented an 11 year old boy with a 1 year history of dorsalgia that was finally diagnosed as Takayasu arteritis on the basis of associated hypertension and inflammatory syndrome. In our patient acute back pain was the presenting clinical feature of Takayasu arteritis and was related to a thoracic aortitis without aneurysmal process.

When physicians encounter patients with thoracic back pain accompanied by elevated serum levels of C-reactive protein, vertebral osteomyelitis must be considered as a differential diagnosis. Both a bone scan and a CT scan showed no abnormal change suggestive of osteomyelitis. Therefore, it is conceivable that aortic vasculitis, detected by CTA, is responsible for the back pain. For a patient with an abrupt onset of severe back pain, acute aortic dissection and a ruptured aortic aneurysm should be considered in the differential diagnosis from spinal disease. In an older patient, temporal arteritis would be the differential diagnosis, even without cranial involvement.

Several case reports have documented the association of Takayasu arteritis with inflammatory bowel disease, such as ulcerative colitis and Crohn's disease [3]. The pathogenic association of Takayasu arteritis with ulcerative colitis is not clear; however, a common genetic basis has been suggested because of the high frequency of HLA-B52 and DR2 for the two disorders among Japanese patients [4]. The coexistence of ulcerative colitis and Takayasu arteritis in the present case may be coincidental, or, speculatively, may be due to cross-reactivity between autoantigens in the arterial wall and colonic mucosa.

Progress in medical technology has made it easier to diagnose Takayasu arteritis and identify the sites of pathologic changes. Ultrasonography and magnetic resonance imaging can help to detect vascular wall thickening of large and medium-sized arteries [5]. In our case, computed tomography was useful in evaluating the thoracic arterial involvement in this disease. To diagnose Takayasu arteritis accurately and as promptly as possible, and to evaluate the disease appropriately, the combined use of various imaging examinations – such as ultrasonography, MRI and CTA – is necessary.

Takayasu arteritis may present a wide variety of clinical symptoms and signs depending on the affected vessel(s). Acute back pain has not been well described as a clinical manifestation of the disease. Takayasu arteritis must be considered one of the underlying diseases that may cause thoracic back pain in young women.

CTA = computed tomography angiography

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