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Takayasu Arteritis with Descending Thoracic Aortic Stenosis: A Case Report

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Abstract **Case Report**

Takayasu arteritis is a rare inflammatory disease that mainly affects the aorta and its major branches. Imaging plays an important role in detecting vascular changes and assessing the extent of the disease. We report the case of a 29-year-old woman whose computed tomography angiography (CTA) showed circumferential wall thickening of the descending thoracic aorta, with significant luminal stenosis estimated at 63%. The abnormalities extended to the origins of the supra-aortic trunks. The imaging findings were suggestive of active inflammation. CTA is useful for identifying aortic wall changes, assessing the severity of stenosis, and determining the extent of vascular involvement in Takayasu arteritis. However, imaging findings should be interpreted alongside clinical and laboratory data to assess disease activity.

Keywords: Takayasu arteritis, computed tomography angiography, mural thickening, luminal stenosis, large-vessel vasculitis, active inflammation.

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INTRODUCTION

Takayasu arteritis (TA) is a rare, chronic inflammatory disease that mainly affects the aorta and its major branches. It can cause thickening of the arterial wall, stenosis, occlusion, and sometimes aneurysm formation [3,5].

Imaging plays an important role in the diagnosis of Takayasu arteritis and in assessing the extent of vascular involvement. Computed tomography angiography (CTA) provides detailed images of the arterial wall and lumen, helping to identify wall thickening and vascular stenosis. Although magnetic resonance imaging is the preferred imaging method in current European recommendations, CTA remains a useful alternative for evaluating vascular abnormalities [1,3].

We report a case of Takayasu arteritis in a 29-year-old woman, in whom CTA revealed thickening and significant stenosis of the descending thoracic aorta, extending to the origins of the supra-aortic trunks.

CASE PRESENTATION

A 29-year-old woman was referred for evaluation of suspected vascular disease. Her clinical presentation and physical examination findings were assessed as part of the diagnostic work-up.

Laboratory investigations were performed to assess the inflammatory status, including inflammatory markers where available.

Imaging findings:

Computed tomography angiography (CTA) revealed circumferential thickening of the wall of the descending thoracic aorta, resulting in significant luminal stenosis estimated at 63%. The abnormality extended to the origins of the supra-aortic trunks. The aortic wall changes were suggestive of active inflammation. These findings raised suspicion of Takayasu arteritis. The CTA provided a detailed assessment of the aortic wall abnormalities, the degree of luminal narrowing, and the extent of vascular involvement.

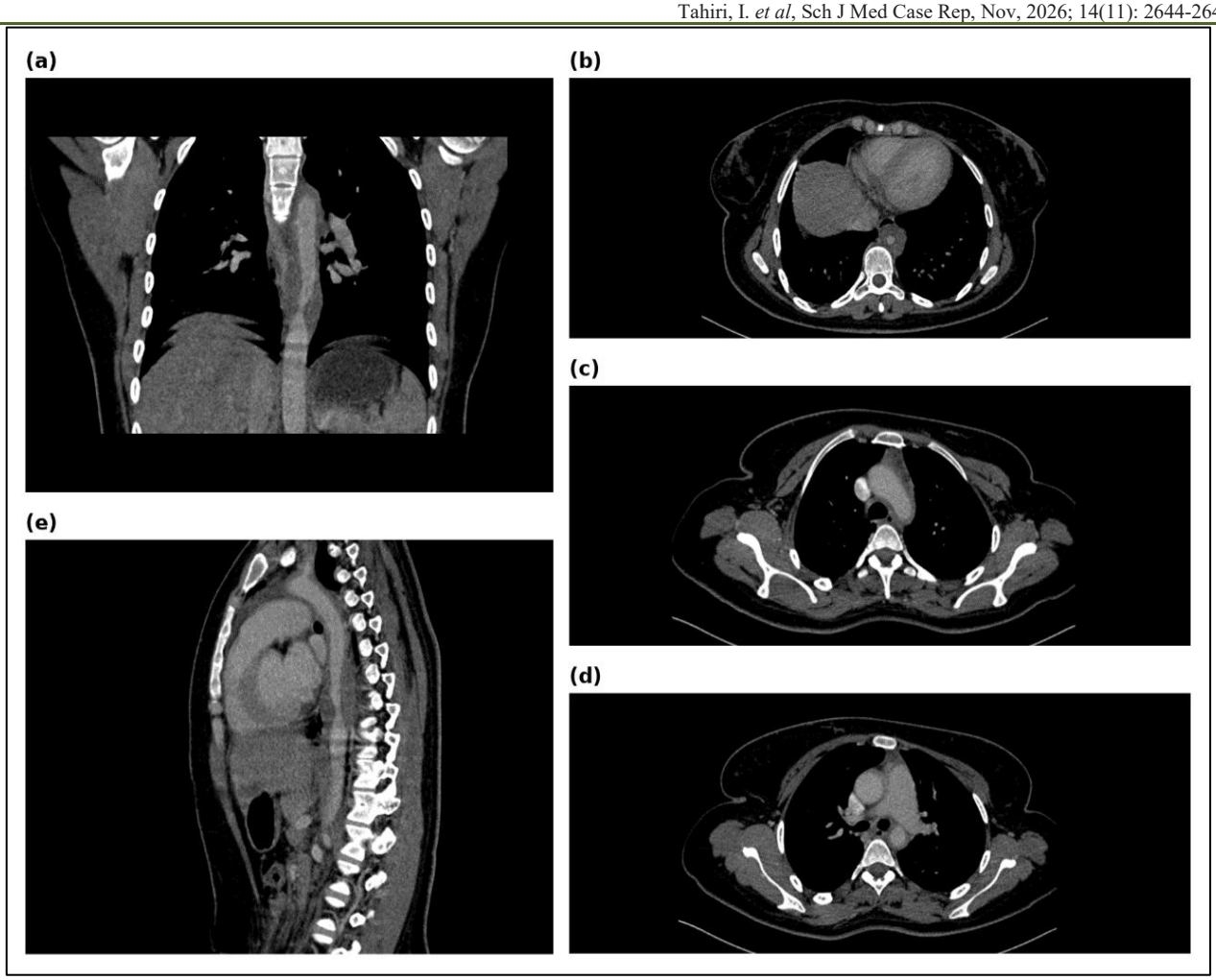


Figure 1: Multiplanar CT angiographic images demonstrate circumferential mural thickening of the descending thoracic aorta, associated with significant luminal narrowing (approximately 63%). The abnormal aortic wall changes extend to the origins of the supra-aortic trunks. The imaging findings are suggestive of active aortic inflammation

DISCUSSION

Takayasu arteritis (TA) is a large-vessel vasculitis characterized by inflammatory involvement of the aorta and its major branches [2,4]. Although its clinical presentation is variable, persistent vascular inflammation may lead to structural changes in the arterial wall and lumen, including mural thickening, stenosis, occlusion, aneurysmal dilatation, and collateral vessel formation [3,5].

Imaging plays a central role in the diagnosis, assessment of vascular involvement, and follow-up of TA. The 2023 update of the European Alliance of Associations for Rheumatology (EULAR) recommendations identifies magnetic resonance imaging as the preferred imaging modality for suspected TA, while computed tomography angiography (CTA), fluorodeoxyglucose positron emission tomography, and ultrasound may be used as alternatives depending on the clinical context and local expertise [1]. CTA offers high spatial resolution and enables comprehensive assessment of both the arterial lumen and the vessel wall. Unlike conventional angiography, which primarily depicts luminal abnormalities, CTA can demonstrate mural changes that may precede or accompany significant stenosis [3].

The characteristic CT manifestations of TA include concentric arterial wall thickening, mural enhancement, and luminal narrowing. In advanced disease, chronic inflammation and subsequent fibrosis may result in fixed stenosis or complete arterial occlusion, while aneurysmal changes may also occur [3]. Park *et al.,* investigated CT angiographic findings in 12 women with TA and reported circumferential aortic wall thickening in all patients. Arterial-phase enhancement was observed in five patients with active disease, while delayed-phase images demonstrated circumferential enhancement in eight patients [6]. These findings illustrate the potential of CTA to characterize arterial wall abnormalities in addition to luminal changes. Similarly, Zhu *et al.,* described the broad spectrum of CTA manifestations of TA, including concentric wall thickening, stenotic lesions, occlusions, and aneurysmal changes [3].

In the present case, CTA demonstrated marked thickening of the descending thoracic aortic wall, associated with significant luminal stenosis estimated at 63%. The abnormalities extended to the origins of the supra-aortic trunks. These findings are consistent with the recognized imaging spectrum of TA and highlight the importance of assessing the entire aorta and its major branches. However, extension of the abnormalities to the origins of the supra-aortic trunks should not be interpreted as confirmed stenosis of these branches unless their luminal narrowing is demonstrated separately.

The distribution of vascular lesions in TA is variable, with frequent involvement of the subclavian and common carotid arteries, as well as different segments of the aorta. In a retrospective cohort of 97 patients, Dinçer *et al.,* found that the subclavian and common carotid arteries were the most frequently involved vessels [8]. This observation underlines the importance of systematically examining the supra-aortic branches when evaluating patients with suspected or established TA. In our patient, the extension of the aortic abnormalities to the origins of these vessels further emphasizes the value of comprehensive vascular imaging, although the available findings do not establish the presence of stenosis within the branches themselves.

Another important aspect of this case is the coexistence of significant luminal narrowing and imaging features interpreted as suggestive of inflammatory activity. TA may produce active mural inflammation alongside established structural damage, and these processes may coexist within the same patient. Although circumferential wall thickening and mural enhancement can support the suspicion of active aortitis, their interpretation requires caution. The presence of wall thickening or enhancement alone does not reliably distinguish active inflammation from chronic residual vascular abnormalities in every case [6,9].

This limitation is supported by the systematic review and meta-analysis conducted by Barra *et al.,* which evaluated imaging modalities for the diagnosis and assessment of disease activity in TA. The authors found that the available evidence regarding the performance of CTA and magnetic resonance angiography for assessing inflammatory activity was limited and heterogeneous [9]. Therefore, the reported imaging signs in our patient should be interpreted as suggestive of inflammatory activity rather than as definitive evidence of active disease in isolation. Correlation with clinical manifestations, inflammatory markers, previous imaging examinations, and, when appropriate, complementary imaging is essential for a more comprehensive assessment [1,2].

The estimated 63% stenosis represents an important structural abnormality in the descending thoracic aorta. Nevertheless, the clinical significance of this measurement depends on the method used to calculate the degree of narrowing, the reference segment selected, and the presence of associated symptoms or hemodynamic consequences. Moreover, the severity of luminal stenosis does not necessarily reflect the intensity of current inflammation, since fixed stenosis may persist after the inflammatory process has subsided [2,9]. Clarifying the measurement method and documenting the exact mural findings would therefore strengthen the radiological description of this case.

Regarding disease monitoring, the EULAR recommendations emphasize the role of non-invasive imaging in assessing large-vessel vasculitis, with the choice of modality guided by the clinical circumstances and the information required [1]. CTA provides detailed anatomical information about the aorta and its branches, but its use in repeated examinations must take into account ionizing radiation exposure and iodinated contrast administration. Magnetic resonance imaging may be particularly useful for follow-up when repeated assessment of the arterial wall is required [1]. The present case illustrates the contribution of CTA to identifying the distribution of aortic wall thickening, quantifying luminal stenosis, and demonstrating the extension of abnormalities to the supra-aortic trunk origins.

Overall, this case reinforces the importance of evaluating both the arterial wall and the lumen when interpreting CTA in patients with TA. The association of descending thoracic aortic wall thickening, significant stenosis, and imaging features suggestive of inflammation provides relevant information about the structural extent of the disease. However, definitive assessment of inflammatory activity requires integration of the imaging findings with clinical and laboratory data.

CONCLUSION

Takayasu arteritis can cause substantial structural abnormalities of the aorta and its major branches. In this 29-year-old woman, CTA demonstrated marked thickening of the descending thoracic aortic wall, associated with stenosis estimated at 63%, imaging features suggestive of inflammatory activity, and extension of the abnormalities to the origins of the supra-aortic trunks. These findings illustrate the value of CTA in characterizing the anatomical extent of vascular involvement. Nevertheless, imaging findings suggestive of inflammation should be interpreted in conjunction with clinical, laboratory, and, when available, longitudinal imaging data to support an accurate assessment of disease activity.

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Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Dejaco C, Ramiro S, Bond M, Bosch P, Ponte C, Mackie SL, *et al.,* EULAR recommendations for the use of imaging in large vessel vasculitis in clinical practice: 2023 update. Ann Rheum Dis. 2024;83(6):741-751. doi:10.1136/ard-2023-224543.
2. Maz M, Chung SA, Abril A, Langford CA, Gorelik M, Guyatt G, *et al.,* 2021 American College of Rheumatology/Vasculitis Foundation Guideline for the management of giant cell arteritis and Takayasu arteritis. Arthritis Rheumatol. 2021;73(8):1349-1365. doi:10.1002/art.41774.
3. 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(1020):e1282-e1292. doi:10.1259/bjr/25536451.
4. Grayson PC, Ponte C, Suppiah R, Robson JC, Gribbons KB, Judge A, *et al.,* 2022 American College of Rheumatology/EULAR classification criteria for Takayasu arteritis. Ann Rheum Dis. 2022;81(12):1654-1660. doi:10.1136/ard-2022-223482.
5. Tombetti E, Mason JC. Application of imaging techniques for Takayasu arteritis. Presse Med. 2017;46(7-8 Pt 2):e571-e583. doi:10.1016/j.lpm.2017.05.034.
6. Park JH, Chung JW, Im JG, Kim SK, Park YB, Han MC. Takayasu arteritis: evaluation of mural changes in the aorta and pulmonary artery with CT angiography. Radiology. 1995;196(1):89-93. doi:10.1148/radiology.196.1.7784596.
7. Gotway MB, Araoz PA, Macedo TA, Stanson AW, Higgins CB, Ring EJ, *et al.,* Imaging findings in Takayasu's arteritis. AJR Am J Roentgenol. 2005;184(6):1945-1950. doi:10.2214/ajr.184.6.01841945.
8. Keleşoğlu Dinçer AB, Kılıç L, Erden A, Kalyoncu U, Hazirolan T, Kiraz S, *et al.,* Imaging modalities used in diagnosis and follow-up of patients with Takayasu's arteritis. Turk J Med Sci. 2021;51(1):224-230. doi:10.3906/sag-2005-70.
9. Barra L, Kanji T, Malette J, Pagnoux C; CanVasc. Imaging modalities for the diagnosis and disease activity assessment of Takayasu's arteritis: a systematic review and meta-analysis. Autoimmun Rev. 2018;17(2):175-187. doi:10.1016/j.autrev.2017.11.021.