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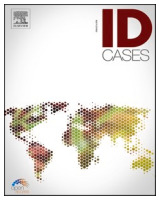

Tuberculosis and Takayasu's arteritis: An enigmatic association

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ABSTRACT

There is indirect evidence signifying a potential link between tuberculosis and Takayasu's arteritis (TAK); however, the exact mechanism and relationship between TKA and Mycobacterium tuberculosis (TB) remain to be elucidated. This case intends to highlight the association between TB and TKA, as early detection can avoid devastating consequences.

A 45-year-old female was referred to our service due to a three-month history of productive coughing, fever, and night sweats. She also reported frequent episodes of dizziness, to the extent that she fell many times. There was no significant past medical history of note or recent travel. She denied weight loss or headaches. Examination showed absent radial pulses bilaterally and discrepancies in the blood pressures between the upper (90/50 mmHg) and lower limbs (150/90 mmHg). Right carotid bruits and right upper zone crepitations were detected on auscultation. No other findings or lymphadenopathies were observed. Laboratory tests were significant for normocytic anemia, 8.5 g/dl (12−16), elevated inflammatory markers (CRP level of 53 mg/L). Her renal and liver panel were within normal limits. CXR revealed a thick cavity in the right upper zone (Fig. 1). Sputum examination for acid-fast bacilli smears and MTB (GeneXpert MTB/RIF) turned positive with a negative rifampin resistance gene. Subsequently, a fully sensitive MTB was isolated. CT angiography (Aorta, upper and lower limbs) and PET scan demonstrated occlusion of the proximal bilateral subclavian arteries, multiple saccular aneurysmal dilatation in the descending aorta, left popliteal artery, and occlusion of the proximal part of the superior mesenteric artery, highly suspicious for Takayasu arteritis (Fig. 2A–D). Additionally, PET scan demonstrated right upper lobe cavitary lesion suggestive of PTB. Based on the obtained results, she was commenced on standard 6-month of TB therapy and prednisolone 1 mg/Kg per day for 4–6 weeks then slowly tapering by commencing disease-modifying anti-rheumatic drugs (DMARDs). She was planned for stenting of the descending aorta and left popliteal artery after finishing the course of anti-tubercular medications. Unfortunately, she traveled back to her home and was lost to follow-up.

Takayasu arteritis (TAK), also referred to as pulseless disease, is a rare, chronic inflammatory vasculitis that primarily affects large- and medium-sized vessels and typically presents in the second and third decade of life in females of Asian descent [2]. Given the similarity between histopathological lesions in TKA and TB (pan- arteritis with giant cell granulomatous reactions), several explanations for how TB triggers TKA have been proposed, but the exact mechanism and relationship between TKA and TB remain to be elucidated. However, this is speculated to be either due to cross-reactivity between mycobacteria and a human heat shock protein (HSP) or the triggering of superantigens by mycobacteria [3]. On the other hand, the second hypothesis is based on the possibility that the arteritis results directly from a latent TB infection which might high prevalence of latent TB in TA patients [1].

Screening for active TB in patients with TKA, at least by performing PPD/Quantiferon and chest X-ray to detected subclinical PTB is worth being considered. Conversely, vigilance of salient features of TKA in patient with TB is needed, as treating TB could control TKA activity, and treating TKA with glucocorticoids could increase the risk of TB progression [4]. Thus, a high degree of suspicion with the aid of the new TKA diagnostic criteria can clinch the diagnosis and avoid unnecessary consequences [5].

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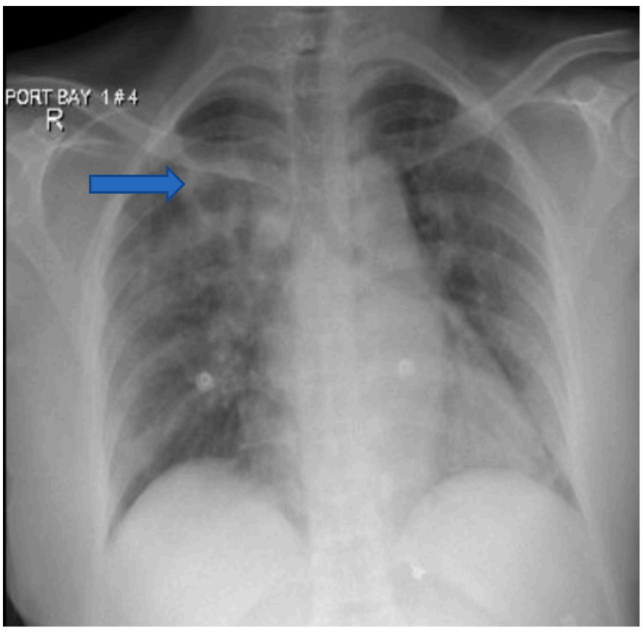

Fig. 1. CXR PA view showing thick cavity in the right upper zone (blue arrow).

Ethical approval

Ethics approval and permission was obtained to publish the case reports from the institutional review board which is in line with international standards.

Funding

No funding was received towards the publication.

Consent

A written informed consent was obtained from the patient to include clinical presentation together with results and imaging. This was subsequently reviewed and approved by the institution ethics and research review board with MRC-04-23-440.

CRediT authorship contribution statement

Wael Goravey: Conceptualization, Data curation, Supervision, Writing – review & editing. **Gawahir A. Ali:** Conceptualization, Data curation, Funding acquisition, Writing – original draft.

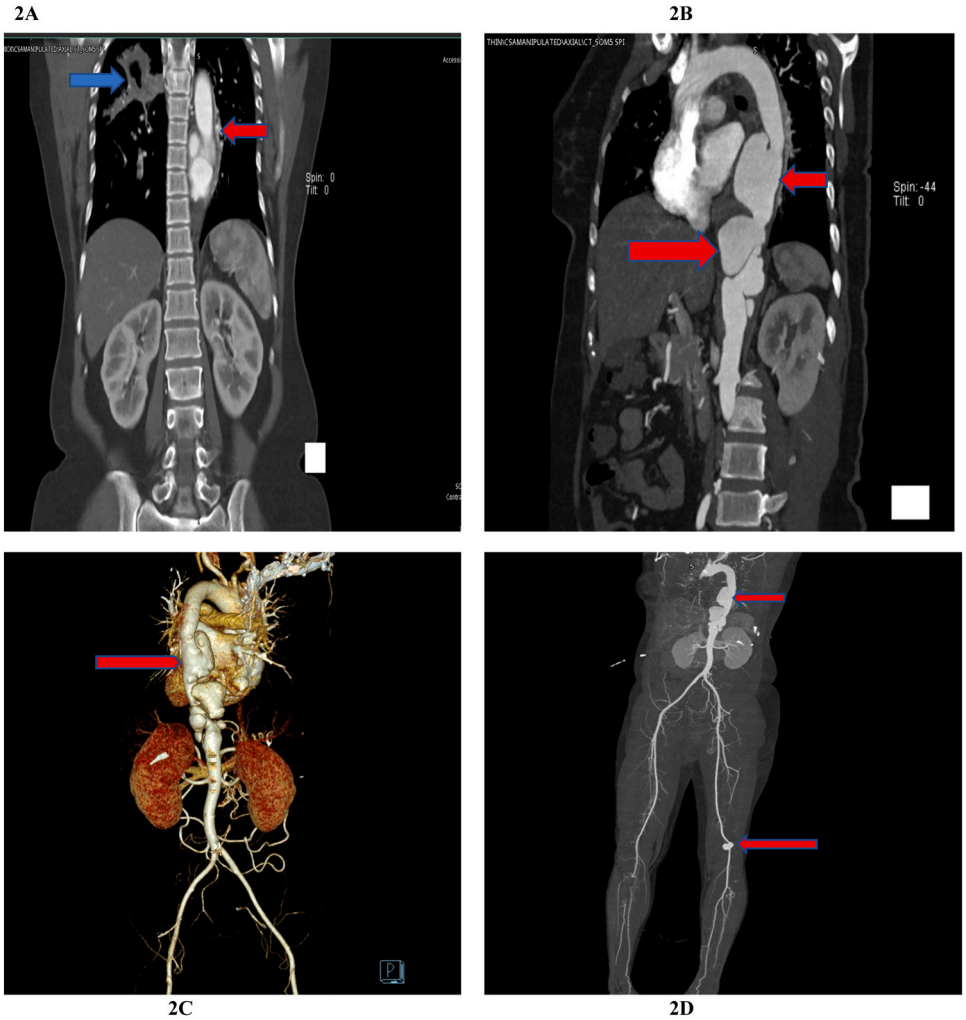

Fig. 2. A–D: CT angiography and PET scan demonstrating huge multiple aneurysmal dilatation in the descending aorta and left popliteal artery (red arrow), Also, obvious right-side chest cavitation can be seen on A in the same view (blue arrow).

Declaration of Competing Interest

The authors declare that they have no competing interests.

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