A rare disease with a rarer presentation: Nodular episcleritis in Takayasu’s arteritis

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Episcleritis is an acute unilateral or bilateral inflammation of the episclera and can be of two types: diffuse (more common: 70%) and nodular (30%).[1] While the data regarding its epidemiology is sparse, an incidence of 41/100,000 and prevalence of 52.6/100,000 population are reported in northern California, with middle-aged females being the most commonly affected.[2] The pathophysiology is related to the inflammation of the episcleral vascular network, causing an increase in vascular permeability and vasodilatation.[1] The etiology of episcleritis is mostly idiopathic. In 26%–36% of cases, associated systemic disorders are present, such as rheumatoid arthritis, ankylosing spondylitis, leukemia, lymphomas, temporal arteritis, and syphilis.[1] This case report is intended to emphasize the rare association between nodular episcleritis and Takayasu’s arteritis (TA) in adults, which has not been reported in the literature to date.

A 37-year-old female presented with the chief complaint of redness in the left eye (OS- Oculus sinister) on the nasal side for the last 3 months, along with mild ocular pain and occasional headache. She gave a history of such episodes twice in the past, for which she visited a local practitioner. She also had on and off pain in her knee joints, especially during winter, since the last 4 years subsiding with analgesics. She complained of claudication in both her arms while doing household work with fatigue and malaise sometimes. Her menstrual history was normal. Nothing of significance was found in past or family histories.

On ocular examination, visual acuity was 20/30 in both eyes (OU- Oculus uterque). A nodular, pink, mobile, and non-tender swelling of 4 × 5 mm² size was noted 4 mm away from the 9-o’clock nasal limbus in the bulbar conjunctiva of OS. There was localized congestion of blood vessels, seen in Fig. 1(a), blanching with topical phenylephrine hydrochloride solution, as seen in Fig. 1(b). OU anterior segment and fundus evaluations were within normal limits (WNL). Intraocular pressures were normal in OU.

With a clinical diagnosis of nodular episcleritis of OS, we proceeded with laboratory investigations, which revealed a total leucocyte count (TLC) of 12,900 cells/mm³ with normal differential leucocyte count (DLC). Her erythrocyte sedimentation rate (ESR) was 80 mm/h (Normal value: 0–20 mm/h); however, hemoglobin and C-reactive protein (CRP) levels were WNL (11.3 g/dL and <6 mg/1000 mL, respectively). Rheumatoid factor, anti-nuclear antibody (ANA), anti-neutrophil cytoplasmic antibody (ANCA), VDRL, and Venereal disease research laboratory test (VDRL) were negative. No abnormalities were detected in urine routine examination, liver function test (LFT), electrocardiography (ECG), and 2D-echocardiography.

The patient was referred to a rheumatologist for further evaluation, and she returned with a definitive diagnosis of TA based on the following findings:

a. Radial pulses- feeble bilaterally
b. Blood pressures in-
   I. Right upper limb- 150/90 mm Hg
   II. Left upper limb- 130/110 mm Hg
   III. Both lower limbs- 170/100 mm Hg
IV. Blood pressure difference between two arms- 20 mm Hg
V. Other systems evaluations- WNL

Thus, our patient fulfilled five out of six diagnostic criteria of TA (3/6 considered as positive for TA), mentioned in the American College of Rheumatology (ACR) criteria of 1990 given in Table 1.

She was started on Tab. Prednisolone 15 mg once daily on the first week, then tapered over 2 weeks till 7.5 mg once daily dosage combined with calcium supplements. Oral methotrexate 7.5 mg twice daily/week, with folate supplements, was also started in consultation with the rheumatologist along with topical steroid and non-steroidal anti-inflammatory agents. Following 3 months of treatment, attacks of nodular episcleritis decreased, and ocular congestion disappeared, as seen in Fig. 3. She was asked to be on three monthly regular follow-ups with us and the rheumatologist.
Table 1: 1990 ACR criteria for diagnosis of Takayasu’s arteritis (3 out of 6 should be met)\(^3\)

| Criterion                          | Definition                                                                 | Whether fulfilled in our case |
|------------------------------------|---------------------------------------------------------------------------|------------------------------|
| Age at disease onset <40 years     | Development of symptoms or findings related to Takayasu arteritis at age <40 years | Yes                          |
| Claudication of extremities        | Development and worsening of fatigue and discomfort in muscles of 1 or more extremity while in use, especially the upper extremities | Yes                          |
| Decreased brachial artery pulse    | Decreased pulsation of 1 or both brachial arteries                        | Yes                          |
| Blood pressure difference >10 mm Hg| Difference of >10 mm Hg in systolic blood pressure between arms            | No                           |
| Bruit over subclavian arteries or aorta | Bruit audible on auscultation over 1 or both subclavian arteries or abdominal aorta | Yes                          |
| Arteriogram abnormality            | Arteriographic narrowing or occlusion of the entire aorta, its primary branches, or large arteries in the proximal upper or lower extremities, not caused by arteriosclerosis, fibromuscular dysplasia, or similar causes; changes usually focal or segmental | Yes                          |

5 out of 6 criteria are met in our case

**Figure 1:** Slit-lamp examination of left eye: (a) bulbar conjunctiva showing nodular episcleritis with a pink nodule (yellow arrow) 4 mm away from the 9-o’clock limbus and localized congestion; (b) blanching of episcleral vessels following topical phenylephrine hydrochloride application

**Figure 2:** Computed tomography (CT) aortogram showing- (a) circumferential wall thickening of the proximal descending thoracic aorta (blue arrow); (b) circumferential wall thickening of bilateral common carotid arteries (red arrow)

**Discussion**

TA is a large vessel vasculitis characterized by chronic granulomatous inflammation of the vessel walls, predominantly involving the aorta and its main branches.\(^4\) The reported incidence is 1-2/million population worldwide, with a female to male ratio of 1.7:1 in India.\(^4\) The ocular manifestations of TA are Takayasu’s retinopathy and secondary hypertensive retinopathy (31%), ocular ischemic syndrome, anterior ischemic optic neuropathy, iris neovascularization, scleritis,\(^5\) and episcleritis as an atypical manifestation in children.\(^6\)

To the best of our knowledge, ours is the only case report demonstrating a case of TA presenting with nodular episcleritis in adults. In the literature search, we found few case reports mentioning scleritis as a rare presenting feature of TA,\(^4,7,8\) but
the possible reason for the same has not been described with certainty. The involvement of the small vessels by the disease process itself may be one of the reasons, and another reason might be secondary to narrowing of carotid arteries,[9] which in turn involves the ophthalmic artery and its branches supplying sclera and episclera, such as anterior ciliary arteries,[10] leading to their inflammation.

We are reporting this case as it was an investigative surprise. A rare but life-threatening disease (a mortality rate of 35%[8]) was unveiled with our detailed evaluation of a common ophthalmic condition, that is, nodular episcleritis. Thus, this case report may help other ophthalmologists to widen their index of suspicion and connect the dots in retrospect about their own similar cases. This can also act as a source for further research into the ocular manifestations of TA and their etiopathogenesis.

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Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

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