Bilateral nodular sclerokeratitis secondary to syphilis - A case report

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A 30-year-old female patient presented with bilateral anterior nodular sclerokeratitis and multiple erythematous skin lesions involving the face, trunk, arms, and legs. The patient had a history of temporary relief with steroids, however the lesions recurred. A dermatology consultation was sought and the patient was diagnosed to have syphilis, consequent to which she was started on benzathine penicillin and showed a dramatic improvement in both skin and ocular lesions. A high index of suspicion for syphilis should be kept in mind for patients presenting with nodular scleritis to initiate timely and appropriate management with penicillin.

Key words: Nodular scleritis, sclerokeratitis, syphilis

Ocular manifestations of syphilis have been rarely reported in literature. Anterior nodular sclerokeratitis can occur in syphilis, and often this can be a presenting symptom. The treatment of choice for these cases is systemic benzathine penicillin.

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Cite this article as: Goel S, Desai A, Sahay P, Maharana PK, Sharma N, Titiyal JS. Bilateral nodular sclerokeratitis secondary to syphilis - A case report. Indian J Ophthalmol 2020;68:1990-3.
penicillin; however, the use of topical steroids shows an initial good response in symptoms without altering the underlying pathology resulting in a prolonged course of the disease as well as consequences of steroid therapy. Herein, we present a similar case wherein anterior nodular sclerokeratitis was initially managed with steroids for a prolonged period of time without due consideration of the underlying systemic association. On systemic evaluation, the patient was diagnosed with syphilis for which systemic benzathine penicillin was started to which the patient responded well with resolution of ocular nodules.

Case Report

A 30-year-old lady presented with complains of bilateral acute onset pain, redness, and nodular lesions in the eye for the past three weeks. She also had painful erythematous rash and elevated skin lesions over her forehead, forearms, and trunk. She did not give a history of any other medication/drug intake or addictions. Sexual and reproductive history was unremarkable. The patient had been started on topical steroids and lubricant eye drops by her local ophthalmologist, which had caused a mild improvement in her ocular symptoms.

On ocular examination, she had a best-corrected distance visual acuity (BCVA) of 6/6 in both the eyes. There was diffuse conjunctival injection in both eyes with a nebulomacular corneal opacity (NMCO) in the inferior quadrant of right eye measuring 1 × 1 mm and two elevated scleral nodules on the ocular surface (inferior and temporal to the cornea). In the left eye, a small temporal NMCO with corneal infiltrate and an elevated temporal scleral nodule were seen [Fig. 1]. The nodule was positive on sodium fluorescein staining. Posterior segment evaluation was normal.

General examination revealed multiple erythematous, tender indurated papules to plaques distributed over forehead, extensor surface of both the forearms, feet, and the lower back [Fig. 2]. Scaling was seen overlying some lesions while there was central atrophy in the larger lesions. None of the skin lesions were hypopigmented and there was no hypoesthesia over the lesion. Sensory examination revealed reduced sensation to fine touch and pain over both upper limbs below elbow and over the palmar...
and dorsal surface of the hand. The left ulnar and radial cutaneous nerve were found to be firm and thickened on palpation.

Baseline hematological investigations — complete blood count, renal function test, liver function tests, and erythrocyte sedimentation rate (ESR) were found to be normal. Investigations for cytoplasmic antineutrophil cytoplasmic antibody (c-ANCA), perinuclear antineutrophil cytoplasmic antibodies (p-ANCA), single-stranded DNA (ss-DNA), and rheumatoid factor were negative. Test for human immunodeficiency virus 1 (HIV-1) antibody, HIV-2 antibody, hepatitis B surface antigen (HBsAg), and antinuclear antibodies were nonreactive. The Venereal Disease Research Laboratory (VDRL) was reactive with a titer of 1:64. The Treponema pallidum hemagglutination assay (TPHA) was positive. Serological tests for these infectious markers were negative in the patient’s spouse.

Mantoux test resulted in a 70 mm induration. Chest X-ray was normal. Quantiferon tuberculosis (TB) gold test and high-resolution computed tomography of chest were normal.

Skin biopsy was taken from one lesion each from both the forearms that revealed focal parakeratosis and mild atrophy of epidermis. Microscopic examination revealed presence of a diffuse, dense, perivascular, and focal pericorneal lymphohistiocytic infiltrate extending beyond the mid dermis. There was no evidence of granulation tissue or acid-fast bacilli in the examined specimen.

Based on these findings a diagnosis of anterior nodular sclerokeratitis with syphilis was made.

The patient was started on 0.5% preservative-free moxifloxacin eye drops thrice a day, 0.5% carboxy methyl cellulose eye drops every 2 h, and 1% prednisolone phosphate eye drops 4 times/day with 75 mg oral indomethacin once a day for ocular symptoms. Intramuscular injection of benzathine penicillin 2.4 million International Units (4 mL) was given in the buttck (2 mL in each buttck). A total of three injections were given at weekly intervals. There was a marked decrease in ocular symptoms after initiating therapy with near total resolution of ocular pain and congestion at 2 weeks [Fig. 3]. Flattening of skin lesions with a 30%–40% decrease in size of the lesions was noted one-month post penicillin injection [Fig. 4]. The VDRL titer was repeated at 3 months, which showed a decrease in titer to 1:8.

**Discussion**

Anterior nodular sclerokeratitis can occur as an idiopathic entity or may be associated with systemic disease in approximately 39%–50% of patients. While autoimmune and connective tissue disorders like rheumatoid arthritis, Wegener’s granulomatosis, systemic lupus erythematosus, relapsing polychondritis, and polyarteritis nodosa are the more common associations, infectious scleritis has been reported in 4.2% to 7.5% of the cases.[9]

Ocular syphilis is known as the “great imitator” and a diverse range of ocular manifestations have been reported: keratitis, iritis, posterior uveitis, pan uveitis, chorioretinitis, optic neuritis, and scleritis.[2-4,7,8] Ocular involvement is relatively less common in primary and secondary syphilis and is an uncommon clinical entity in an immuno-competent host.[11] However, few cases of syphilis have been reported in medical literature in patients with secondary syphilis and negative serology for HIV[8-10,11] [Table 1]. Wilhelms et al. reported complete clinical resolution in all cases of syphilitic episcleritis (n-2) and scleritis (n-2) following parenteral therapy with penicillin.[9] Similarly, Shaikh et al. reported a case of nodular syphilitic scleritis masquerading as an ocular tumor, which responded well to penicillin.[3]

Thus, based on the clinical presentation of the patient, a positive VDRL titre of 1:64, positive Treponema pallidum hemagglutination (TPHA), and dramatic improvement of both ocular and skin lesions after intramuscular administration of benzathine penicillin, we concluded that the patient was affected with anterior nodular sclerokeratitis secondary to syphilis, the source of which could not be traced. It is important to note that the patient had highly positive Mantoux test, 70 mm in this case. However, such a result should not distract a clinician from simultaneously ordering for other laboratory investigations such as TPHA for syphilis, which although is uncommon but is a great mimicker.

**Conclusion**

All cases of scleritis, especially those with nonophthalmic features and not responding to standard treatment protocol should be carefully evaluated for rare causes and systemic associations preferably by an integrated team of healthcare professionals. Laboratory tests for syphilis should be routinely carried out in all patients presenting with scleritis without an underlying obvious cause for optimal outcomes.

**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.
Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

References
1. Margo CE, Hamed LM. Ocular syphilis. Surv Ophthalmol 1992;37:203-20.
2. Moradi A, Salek S, Daniel E, Gangaputra S, Ostheimer TA, Burkholder BM, et al. Clinical features and incidence rates of ocular complications in patients with ocular syphilis. Am J Ophthalmol 2015;159:334-43.e1.
3. Shaikh SI, Biswas J, Rishi P. Nodular syphilitic scleritis masquerading as an ocular tumor. J Ophthalmic Inflamm Infect 2015;5:8.
4. Furtado JM, Arantes TE, Nascimento H, Vasconcelos-Santos DV, Nogueira N, de Pinho Queiroz R, et al. Clinical manifestations and ophthalmic outcomes of ocular syphilis at a time of re-emergence of the systemic infection. Sci Rep 2018;8:12071.
5. Watson PG, Hayreh SS. Scleritis and episcleritis. Br J Ophthalmol 1976;60:163-91.
6. de Souza EC, Jalkh AE, Trempe CL, Cunha S, Schepens CL. Unusual central chorioretinitis as the first manifestation of early secondary syphilis. Am J Ophthalmol 1988;105:271-6.
7. Casey R, Flowers CW, Jones DD, Scott L. Anterior nodular scleritis secondary to syphilis. Arch Ophthalmol 1996;114:1015-6.
8. Wilhelmus KR, Yokoyama CM. Syphilitic episcleritis and scleritis. Am J Ophthalmol 1987;104:595-7.
9. Bin Ismail MA, Lim RH, Fang HM, Wong EP, Ling HS, Lim WK, et al. Ocular autoimmune systemic inflammatory infectious study (OASIS)-report 4: Analysis and outcome of scleritis in an East Asian population. J Ophthalmic Inflamm Infect 2017;7:6.
10. Escott SM, Pyatetsky D. Unilateral nodular scleritis secondary to latent syphilis. Clin Med Res 2015;13:94-5.
11. Tucker JD, Li JZ, Robbins GK, Davis BT, Lobo AM, Kunkel J, et al. Ocular syphilis among HIV-infected patients: A systematic analysis of the literature. Sex Transm Infect 2011;87:4-8.