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Tubercular Nodular Episcleritis: A Case Report

T. Rama Rao[1], D. Akshaya[2], G. Sravya[2], T. Kaushik[2]

[1]Professor & Principal, CMR College of Pharmacy, Hyderabad, India.
[2]Department of Pharm. D, CMR College of Pharmacy, Hyderabad, India.

Corresponding Author: T. Rama Rao

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ABSTRACT

Episcleritis is a common inflammatory eye illness that is typically self-limiting and is marked by mild discomfort and redness. However, systemic disorders, such as infections like tuberculosis (TB), may be linked to recurring or treatment-resistant episcleritis. Localized, elevated lesions on the bulbar conjunctiva are a symptom of the uncommon form of tubercular nodular episcleritis, which may be a sign of systemic TB.

The patient was a 40-year-old woman who had been experiencing slight discomfort, redness in her right eye, and a raised lesion near her limbus for 15 days. These symptoms were indicative of nodular episcleritis. She developed a slight cough and was lethargic after the first round of treatment with antibiotics and corticosteroid eye drops failed. Tuberculosis was diagnosed after a highly positive Mantoux test revealed tuberculosis.

Topical corticosteroids (loteprednol etabonate 0.5%) and oral NSAIDs were used to treat the condition. Isoniazid, Rifampin, Pyrazinamide, and Ethambutol were started as part of systemic anti-tubercular therapy (ATT) due to the positive Mantoux test and repeated symptoms. To track side effects and therapeutic efficacy, close monitoring was advised.

This case highlights how crucial it is to take tuberculosis into account when making a differential diagnosis for recurring episcleritis, especially in endemic locations. In order to avoid problems and enhance patient outcomes, early diagnosis and focused treatment are essential.

KEY WORDS: Episcleritis, tuberculosis, Mantoux test, systemic anti-tubercular therapy

INTRODUCTION

Episcleritis is an acute, mostly unilateral inflammatory condition involving deep subconjunctival connective tissue and is common in adults and in females [1]. The majority of episcleritis cases are idiopathic, however some are linked to illnesses of the connective tissue [2]. Unilateral involvement is present in two-thirds of episcleritis cases. Females are more likely than guys to suffer from episcleritis. Nevertheless, a third of instances might have a systemic underlying condition, especially a connective tissue or vasculitic disease, and could also be linked to infectious causes including syphilis, TB, herpes simplex, or herpes zoster [3].

There are primarily two forms of episcleritis. The first form is diffuse (70%) and is more prevalent than the second type, which is nodular (30%). However, nodular episcleritis is more painful and has a longer course than diffuse episcleritis, and it frequently has a systemic disease associated with it [4]. The development of a localized, elevated, swollen nodule is the hallmark of nodular episcleritis (NE), which is

comparatively less common. Usually temporal, it affects a single eye sector and causes soreness but little to no pain. Compared to diffuse kind, it lasts longer and resolves on its own in five to six weeks. It does, however, have a significant propensity to repeat. Investigations are typically not necessary in patients of episcleritis unless there is a history of systemic disease or persistent inflammation [5]. Topical steroids and non-steroidal anti-inflammatory medications are part of the conventional treatment for NE, although they only provide short-term relief and might cause problems if taken for an extended period of time [6].

CASE REPORT

A forty-year-old woman was brought to the ophthalmology clinic complaining of redness and minor discomfort in her right eye, which led to her being admitted to the hospital with the primary complaint. She also reported a slight cough with sputum and a left-sided headache that had been persistent for about 15 days. The patient described a red, elevated spot on the bulbar conjunctiva of the right eye, close to the limbus, that gradually developed.

She reported a slight discomfort, but no severe pain, photophobia, or extensive tearing was present. Over the preceding three days, the symptoms had gotten worse, and she was worried about the lesion's continued appearance. No joint discomfort, dry mouth, fever, cough, or other systemic sickness was mentioned nor did she report any issues with her other eye. Prior to the illness, no systemic or topical medication use was documented.

No serious medical history, systemic autoimmune conditions like lupus erythematosus or rheumatoid arthritis, recent upper respiratory tract infections, or other systemic illnesses, and no long-term pharmaceutical use. No family history of TB was found. She had a combination eye drop of tobramycin and fluorometholone four times a day and an eye drop of carboxymethylcellulose 0.5% three times a day during her prior evaluation at another eye center, but there was no noticeable improvement and recurrence.

Upon examination, her right eye showed a little pain. She was aware, cooperative, and had a good sense of place, time, and people. Vital signs were normal, and she had a fever. The systemic evaluation came out normal. She has always had 20/20 vision in both eyes. The bulbar conjunctiva at the 3 o'clock position had a pinkish-red, well-defined, elevated lesion that was confined and close to the limbus. While the left eye was normal, the right eye had a solid lesion with no noticeable conjunctival injection or discharge. There were no anomalies in either the anterior or posterior segments, and the intraocular pressure was normal. The fundus examination came back normal.

According to the standard tests, his hemoglobin level was 10.8 g/dl, his erythrocyte sedimentation rate was 66 mm/h, and his total leukocyte count was 7300 per cu. mm, with 68% neutrophils, 19% leukocytes, 1% basophils, and 2% eosinophils. After 72 hours, a 23 mm x 20 mm induration showed a robust positive Mantoux test result. In light of the slit lamp examination results and the extremely high Mantoux test results, the diagnosis of tubercular nodular episcleritis of the right eye is made. For the right eye, the patient was initially prescribed topical corticosteroids (loteprednol etabonate 0.5%) to be administered twice daily for a week. For extra pain treatment, an oral NSAID (ibuprofen 400 mg) was advised, even though the patient complained of very minor discomfort.

DISCUSSION AND MANAGEMENT

Episcleritis Overview:

The inflammation of the episcleral tissue, which is located between the sclera and the conjunctiva, is known as episcleritis. Simple episcleritis and nodular episcleritis are the two frequent classifications. Whereas nodular episcleritis manifests as a confined, elevated, clearly defined, pinkish-red lesion, the simple variant usually manifests as a

widespread sectoral redness of the eye. Although nodular episcleritis is often benign and self-limiting, it can occasionally be linked to systemic illnesses like autoimmune diseases and infections like tuberculosis.

Patients with episcleritis usually do not have severe discomfort, photophobia, or vision loss, however the most common symptoms are ocular redness, mild irritation, and soreness upon probing. With conservative measures such topical corticosteroids or NSAIDs, the problem usually goes away [7]. Nonetheless, a more comprehensive examination is necessary to rule out systemic reasons, such as infectious etiologies, when illness is recurring or unresponsive to standard therapy.

Tubercular Nodular Episcleritis:

Tubercular episcleritis is an uncommon kind of episcleritis linked to ocular tuberculosis that can occur alone or in conjunction with systemic TB. Especially in endemic regions, tuberculosis continues to be a major cause of ocular inflammation globally [8]. Tubercular episcleritis can cause granulomatous inflammation in the episcleral tissue, which can result in the development of a nodule. TB can also cause uveitis, keratitis, and scleritis in the eyes, while episcleritis is considerably less frequently linked to TB [9]. A delayed-type hypersensitivity reaction to Mycobacterium TB antigens is believed to be the cause of ocular involvement in tuberculosis. Although this inflammatory reaction can impact any area of the eye, nodular episcleritis frequently develops when the episclera is impacted [10]. The condition is more frequently seen in individuals with latent or active tuberculosis, and it often presents with nonspecific symptoms such as ocular redness and mild discomfort.

The management of tubercular episcleritis involves two main components:

1. **Topical Corticosteroids:** These are used to lessen the inflammation of the eyes brought on by episcleritis. A comparatively mild corticosteroid called loteprednol etabonate 0.5% is frequently recommended to prevent side effects including cataract development or elevated intraocular pressure. Use of corticosteroids should be cautious, particularly in patients whose causes may be contagious [11].
2. **Anti-Tubercular Therapy (ATT):** To treat the underlying tuberculosis infection, systemic treatment with first-line anti-tubercular medications is necessary. The usual treatment consists of ethambutol (EMB), pyrazinamide (PZA), rifampin (RIF), and isoniazid (INH). Drug interactions, hepatotoxicity, and optic neuropathy are among the side effects of the patient's medication that need to be regularly evaluated [12].

For further symptom relief, nonsteroidal anti-inflammatory medications (NSAIDs) such ibuprofen may be utilized. Because of their analgesic and anti-inflammatory qualities, NSAIDs can help reduce the pain that comes with mild inflammation.

The primary diagnostic difficulty in tubercular episcleritis is differentiating it from other types of episcleritis, like those linked to infections or autoimmune illnesses like rheumatoid arthritis. Confirming the diagnosis in the absence of significant systemic symptoms requires a strong clinical suspicion in addition to supportive diagnostic tests such the Mantoux test, ESR, and potentially a chest X-ray [13]. In this case, the recurrent episcleritis and lack of response to conventional treatment prompted the further evaluation for underlying tuberculosis, which ultimately led to the diagnosis.

CONCLUSION

In the differential diagnosis of recurring or treatment-resistant episcleritis, this case emphasizes the significance of taking infectious diseases like tuberculosis into account, especially when linked to atypical symptoms like a strongly positive Mantoux test. Even though episcleritis usually goes away on its own and is well treated conservatively, nodular episcleritis,

particularly when systemic signs or persistent symptoms are present, calls for additional testing to rule out underlying causes. Due to the patient's clinical presentation, positive Mantoux test, and lack of other systemic symptoms, tubercular nodular episcleritis was diagnosed.

A combination of systemic anti-tubercular therapy (ATT) to treat the underlying viral etiology and local corticosteroid therapy to reduce ocular inflammation is used to treat tubercular episcleritis. Because untreated tuberculosis can cause long-term consequences and recurrence, a multidisciplinary strategy that includes close follow-up is essential. In order to prevent problems and attain the best results, this case emphasizes the necessity of increased clinical awareness of tuberculosis as a rare but major cause of ocular inflammation, especially in endemic regions, and the significance of targeted therapy.

Declaration by Authors

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