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Diagnosing and Management of Anterior Diffuse Scleritis

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Abstract
Anterior diffuse scleritis is an uncommon and possibly blinding inflammatory condition that affects the anterior sclera. It is distinguished by widespread inflammation of the anterior sclera, which can result in an assortment of ocular problems if not diagnosed and treated immediately. An 18-year-old boy presented with complaints of severe ocular pain, redness, and blurred vision in the left eye. The patient was diagnosed with anterior diffuse scleritis and managed with topical and oral NSAIDs.

Key words: *anterior diffuse scleritis, computed tomography, magnetic resonance imaging, non-Steroidal anti-inflammatory drugs*

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I. Introduction

Anterior diffuse scleritis is a form of scleritis that is characterized by inflammation and thickening of the sclera, primarily affecting the anterior segment of the eye. [1,2] Anterior diffuse scleritis (ADS) is a scleral inflammation that can impair the ability to see. The exact etiology of anterior diffuse scleritis remains unclear, although it appears to be associated with an abnormal immune response leading to chronic inflammation of the sclera. [3] Symptoms of anterior diffuse scleritis include severe ocular pain, redness, photophobia, tearing, and decreased visual acuity. [4] Ophthalmic examination reveals anterior scleral inflammation, which can extend to the posterior and adjacent tissues if misdiagnosed or not diagnosed early and given the appropriate intervention [1]

II. Case report

An 18-year-old male presented to the eye clinic with complaints of severe eye pain, redness, and reduced vision in his left eye, which started two days prior. He graded the pain 8/10. He reported a gradual onset of symptoms that had progressively worsened. The patient denied any associated symptoms such as photophobia, discharge, foreign body sensation, or burning sensation. There was no history of trauma. His medical history was unremarkable, with no known autoimmune or connective tissue disorders.

Habitual distance visual acuity for the right eye was 6/6, and the left eye was 6/9. Extraocular muscles were not restricted in all positions of gaze, but the pain in the left eye intensified with eye movement. The confrontation visual results were full in both eyes. Intraocular measurements using the Goldmann applanation tonometer at 11:00 a.m. were 11 mmHg in the right eye and 13 mmHg in the left eye. Anterior segment evaluation with a slit lamp biomicroscope revealed diffuse redness of the sclera vessels in the left eye. A cotton bud was used to move the inflamed vessels, but it did not move the vessels. This indicated that the inflammation was not on the episclera but on the sclera itself. Based on the patient's clinical presentation and findings, a diagnosis of anterior diffuse scleritis of the right eye was made. There was no blanching of inflamed vessels when phenylephrine 2.5% was administered and the diffuse nature of the injection supported this conclusion. An urgent CT scan was requested to check if there was a potential posterior involvement of the sclera but the results showed the posterior sclera was not involved. Laboratory investigations were ordered, including a complete blood count, erythrocyte sedimentation rate, C-reactive protein, antinuclear antibody and rheumatoid factor test. The test results were normal. Tabs of ibuprofen 400 mg three times daily for five days and diclofenac eyedrops three times daily in the left eye for one week were prescribed. The patient was asked to come back in seven days' time for a review. The patient had no complaint. The symptoms had resolved. His visual acuity was 6/6 in both eyes and refraction was plano for both eyes.

III. Discussion

Autoimmune diseases, including rheumatoid arthritis, systemic lupus erythematosus, and granulomatosis with polyangiitis, have been found to be associated with anterior diffuse scleritis. To further confirm or rule out the involvement of autoimmune diseases, laboratory tests are often conducted. These tests aim

to detect specific antibodies and inflammatory markers associated with autoimmune processes. González-López et al. conducted a study evaluating the diagnostic accuracy of laboratory tests for anterior diffuse scleritis. [4] It should be noted that although laboratory tests can provide valuable information, they can sometimes yield negative results. This, however, does not rule out the possibility of autoimmune involvement, as anterior diffuse scleritis can also be idiopathic. [5]

To diagnose ADS, clinicians usually rely on clinical examination and ultrasonography. [6] However, these methods may not be enough to distinguish it from other eye disorders, such as episcleritis or posterior scleritis. Therefore, using CT or MRI is also important, especially when the diagnosis is uncertain or the patient has vision changes. CT and MR imaging can show signs of scleritis, such as scleral thickening, enhancement, and episcleral cellulitis. [7-8] MR imaging is preferred over CT because it has better soft tissue contrast and does not expose the patient to radiation. However, CT may be useful for posterior scleritis, which is harder to detect on MR imaging. The disadvantage of using MRI is that it may not be as readily accessible as other imaging modalities, and it can be contraindicated in certain individuals, such as those with -metallic implants or claustrophobia [7-8].

Nonsteroidal Anti-inflammatory Drugs (NSAIDs) serve as a first-line treatment option for anterior diffuse scleritis due to their anti-inflammatory properties. Oral NSAIDs, such as diclofenac, indomethacin or naproxen, can effectively reduce pain and inflammation associated with the condition [4,9] The oral NSAIDs could be taken with or without topical NSAIDs. If the symptoms are not improved within the first two weeks, corticosteroids may be considered. Corticosteroids, either systemic or topical, are commonly used to manage anterior diffuse scleritis and they are the second line of treatment of ADS. Systemic corticosteroids, such as prednisone, are effective in reducing scleral inflammation, while topical corticosteroids help manage associated ocular surface inflammation [10-12]

IV. Conclusion

Diagnosing anterior diffuse scleritis requires a comprehensive approach involving a detailed history, slit lamp examination, assessment of visual acuity, and evaluation of vessel mobility. By comparing the patient's history findings to existing literature, healthcare professionals can ensure accurate diagnosis and appropriate management. Timely recognition and treatment are crucial to prevent potential complications and improve patient outcomes.

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