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Case Report

Posterior Scleritis in a Patient with Psoriasis Masquerading as Acute Angle Closure Glaucoma

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Keywords
Posterior scleritis · Psoriasis · Angle closure glaucoma

Abstract
Posterior scleritis is a relatively uncommon form of scleral inflammation of the posterior segment of the eye. Clinical manifestations include ocular pain, headache, pain with ocular movements, and loss of vision. A rare presentation of the disease is acute angle closure crisis (AACC) with elevated intraocular pressure (IOP) secondary to anterior displacement of the ciliary body. Various systemic diseases have been described to co-exist with posterior scleritis; however, psoriasis has not been associated with posterior scleritis. Here, we present a case of posterior scleritis which initially presented as AACC in a patient with pre-existing psoriasis. A 50-year-old male with a history of psoriasis under treatment presented to the emergency department with intense sudden ocular pain and loss of vision on the left eye as well as headache and nausea. A thorough medical and ocular history was taken, and a detailed examination of the anterior and posterior segment was completed including visual acuity and IOP. Initial diagnosis of AACC was made, and appropriate actions were taken with partial resolution of his symptoms. However, upon further work-up including ultrasound (B-scan) of the left eye a final diagnosis of posterior scleritis was made. The patient was treated with steroids and nonsteroidal anti-inflammatory drugs which dramatically improved his condition. Photographic evidence of initial presentation and post-treatment condition was obtained and presented in this report. Posterior scleritis is a potentially vision-threatening condition which is usually challenging to diagnose. In this report, we highlight the challenges one might come into when dealing with different manifestations of the same disease, increasing awareness. This case of posterior scleritis presenting as AACC in a patient

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with a history of psoriasis enhances what we already know from the literature as well as provides some new insights in the clinical manifestations of posterior scleritis in the setting of psoriasis without arthritis.

Introduction

Posterior scleritis is a relatively uncommon and potentially sight-threatening condition which is frequently misdiagnosed. It is a form of inflammation of the sclera primarily involving the posterior segment of the eye and is commonly associated with systemic autoimmune diseases [1]. It affects between 2% and 17% of all scleritis patients, while there is a 2:1 female predominance [1, 2]. Due to its low incidence, initial diagnosis may be challenging as it can present with a variety of clinical manifestations, while it can be confused with intraocular or orbital inflammation as well as ocular tumors. Clinical presentation is usually unilateral with or without associated active anterior scleritis, while the usual presenting symptoms are ocular pain, headaches, pain with ocular movement, and loss of vision [2]. Commonly associated systemic conditions include among others: rheumatoid arthritis, systemic lupus erythematosus, and granulomatosis with polyangiitis (formerly known as Wegener's granulomatosis), while psoriatic arthritis has a weak association according to literature [1, 3, 4]. Ocular B-scan and MRI are essential imaging tests to aid in the diagnosis of posterior scleritis. On ultrasound, scleral and choroidal thickening can be shown as well as fluid under Tenon's capsule, with distended optic nerve sheath features commonly known as the "T-sign" [3]. Serous retinal detachment can also be seen. On MRI, scleral thickening is often identified [2]. In terms of treatment, posterior scleritis is managed with systemic steroids and nonsteroidal anti-inflammatory drugs [1].

Psoriasis is a systemic immune-mediated, genetic disease of the skin; in the Western world, the prevalence of psoriasis is about 2%, and even though it is equally prevalent in both sexes, on average men have more severe forms of the disease [5]. The vast majority of patients (70–80%) have mild disease which can be controlled with topical treatment. Treatment of psoriasis involves immune suppression in the form of steroids, methotrexate, or biologics [5, 6].

Psoriasis has not been associated with posterior scleritis as there are no previous cases published; nevertheless, there are a few cases of posterior scleritis with a history of psoriatic arthritis [7–9]. Our report aims to describe a case of posterior scleritis in a patient with known psoriasis and to highlight previous reports of posterior scleritis in the context of psoriatic arthritis since potential associations between these conditions may exist. We herein report this interesting case of posterior scleritis which initially masqueraded as acute angle closure crisis (AACC) in a patient under systemic treatment for psoriasis.

Case Report

A 50-year-old man presented to the emergency department with sudden onset intense ocular pain and loss of vision on his left eye (OS), accompanied by headache and nausea. His ophthalmic history included similar symptoms in the left eye during the past few months of milder intensity, which were previously diagnosed and treated as conjunctivitis. He had an 8-year history of psoriasis currently under treatment with brodalumab injections every 15 days. Upon presentation, the patient was under a lot of pain and demonstrated macroscopically

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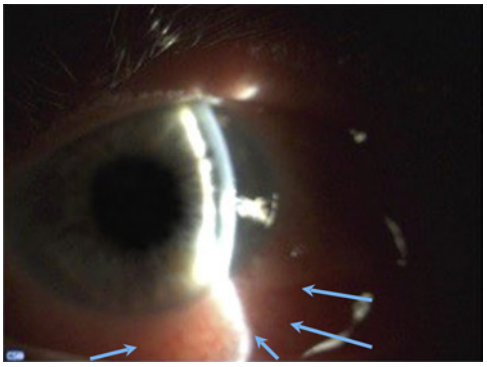

Fig. 1. Initial presentation with mid dilated pupil and shallow anterior chamber. Note the unexplained inferior conjunctival chemosis (blue arrows) that is unusual for primary angle closure attack.

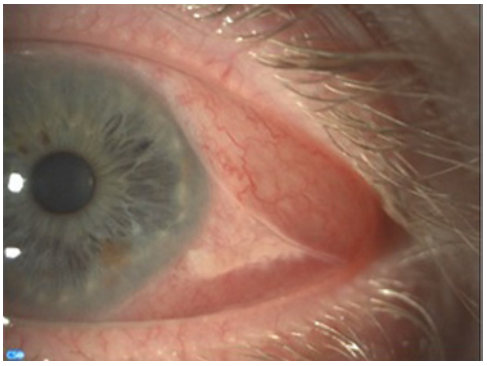

Fig. 2. Photo of the first post-iridectomy day, revealing a patent iridectomy and normal pupil but worsening of the conjunctival chemosis.

eyelid edema and conjunctival chemosis and injection. Uncorrected Snellen visual acuity (UCVA) measured 8/10 in his right eye (OD) and 4/10 in OS, while the intraocular pressure (IOP) was 15 mm Hg OD and 37 mm Hg OS by applanation. Slit-lamp examination OD was unremarkable. The OS findings included severe conjunctival injection, moderate conjunctival edema, clear cornea, convex iris configuration, very shallow anterior chamber (AC) with a closed angle on gonioscopy in all 4 quadrants, few cells in the AC, a round mid-dilated pupil, and phakic status (shown in Fig. 1). On fundus examination (without pharmacologic dilation), there was a normal optic disk with a cup/disk ratio of 0.3–0.4 and a normal fovea on both eyes. Our initial diagnosis was AACC of OS, and the patient was immediately treated with timolol 0.5 mg/mL, latanoprost, dorzolamide, and brinzolamide eye drops and was given 500 mg acetazolamide orally (PO). A Nd-YAG laser peripheral iridotomy was performed in the upper temporal quadrant at the 2 o'clock area. After 30 min, IOP dropped to 25 mm Hg, and the patient started to feel better and was sent home with full anti-glaucomatous eye drop prescription as well as PO tb acetazolamide 250 mg daily.

The following day even though the symptoms were slightly better the overall condition of the patient remained the same with ocular pain on the left eye as well as some slight deterioration of ocular signs at examination. The UCVA remained the same; however, the conjunctival edema increased, the conjunctival injection remained the same, the AC was slightly deeper, and the pupil was normal (shown in Fig. 2). The iridectomy was patent, and the IOP improved to 25 mm Hg OS. Upon further evaluation of the patient, an anterior segment optical coherence tomography as well as a B-scan was performed on both eyes. The anterior segment optical coherence tomography revealed a shallow angle OS as well as a patent iridectomy. Interestingly, the B-scan showed a hypoechoic space representing increased sub-Tenon's fluid, thickening of the posterior choroid and sclera as well as distended optic nerve sheath a

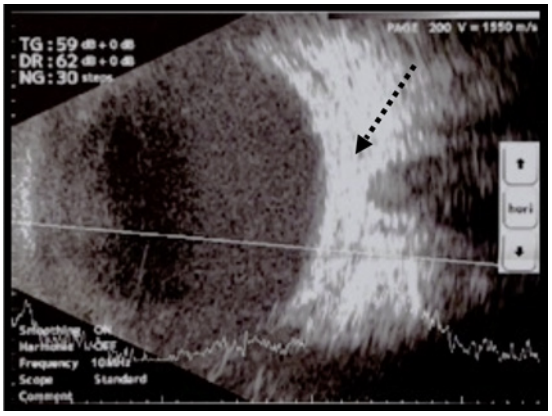

Fig. 3. B-scan of the patient demonstrating thickened posterior sclera forming the characteristic "T-sign" (dashed line).

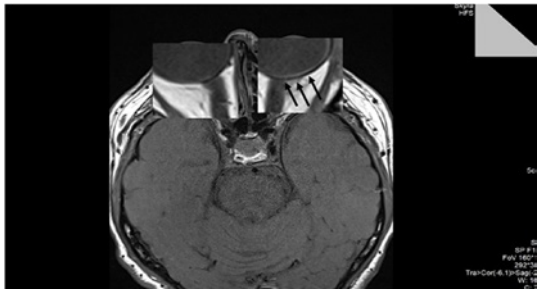

Fig. 4. Axial T2 with fat suppression MRI, revealing thickening with enhancement involving outer and inner aspect of left posterior sclera (black arrows).

collection of clinical features also known as "T-sign" (shown in Fig. 3). A diagnosis of posterior scleritis was made, while a series of blood tests were ordered along with orbital MRI with contrast and treatment with systemic steroids and nonsteroidal anti-inflammatory drugs was initiated. Methylprednisolone (60 mg QD) PO, ibuprofen (400 mg TID) PO, omeprazole (20 mg QD) PO, and maximal topical anti-glaucoma treatment was given. MRI findings confirmed the diagnosis by identifying thickening with enhancement involving outer and inner aspect of left posterior sclera and mild inflammatory stranding of the orbital fat (shown in Fig. 4). Blood tests revealed no significant findings.

Within 1 week of initiating treatment, the patient's condition markedly improved with restoration of VA OS. The conjunctival edema subsided only with mild conjunctival injection remaining on the left eye (shown in Fig. 5a). The IOP was 14 mm Hg OS on tab acetazolamide 250 mg PO daily. The UCVA OS was 9/10, while the best-corrected VA was 10/10.

Two weeks after initial presentation, the patient was under no pain and best-corrected VA measured 10/10 OS. The IOP was 12 mm Hg in both eyes, while the iris assumed a normal configuration and the AC was deep (shown in Fig. 5b). Fundus examination as well as macula optical coherence tomography revealed no significant findings in both eyes. Treatment modification involved the cessation of tab acetazolamide 250 mg and modification of oral ibuprofen 400 mg daily to PRN. The methylprednisolone was tapered over the next 2 weeks.

Discussion

Clinical manifestation of posterior scleritis masquerading as AACC has been previously described and should be in the differential diagnosis in nontypical cases [1, 10]. The proposed mechanism of a secondary angle closure in posterior scleritis is that of an anterior displacement

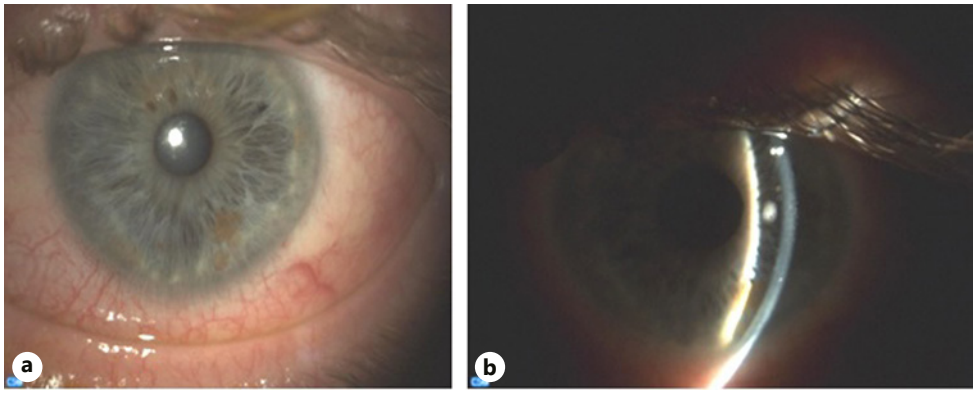

Fig. 5. a, **b** Final photos of the patient with complete resolution of conjunctival edema, patent iridectomy (**a**), and deep anterior chamber (**b**).

of the ciliary body due to an annular ciliochoroidal effusion caused by inflammation. This can cause a shift of the lens-iris-diaphragm anteriorly resulting in the development of acute angle closure and increased IOP [11]. Unfortunately, UBM was not available in order to demonstrate this in our case, and since not all clinics are equipped with it, the clinician should be highly suspicious in patients with asymmetric findings and atypical presentations of AACC.

Ophthalmic manifestations are estimated to occur in 10% of patients with psoriasis and 31% of patients with psoriatic arthritis [6, 9]. It has been reported that approximately 20–37% of posterior scleritis cases are associated with systemic disease including rheumatoid arthritis, systemic lupus erythematosus, and granulomatosis with polyangiitis (formerly known as Wegener's granulomatosis), while the majority of the cases are idiopathic [1, 3, 4].

Altan-Yaycioglu R et al. [7] were the first published case of posterior scleritis in psoriatic arthritis. Contrary to our case, they initially misdiagnosed posterior scleritis as perceptual cellulitis and idiopathic orbital inflammation. Additionally, the patient had normal IOP and was not initially diagnosed with psoriatic arthritis. In another report linking psoriasis with posterior scleritis, a middle-aged woman initially complaining of floaters had a progressively enlarging white retinochoroidal lesion with a vague history of psoriatic rash in the past. During a period of 6 years, the patient had flair ups of psoriatic arthritis together with various clinical manifestations in the eye including vasculitis and necrotizing posterior scleritis. In contrast to our case, this was not a typical presentation of posterior scleritis and the IOP was not affected during the follow-up years [9]. Stacy et al. [8] reported a case of necrotizing scleritis presenting as sectoral chorioretinitis in a patient with a history of psoriasis and arthritis but without treatment. In our case, there were no retinal findings on dilated fundus examination as well as no arthritis.

In the largest published report so far including 137 patients, McCluskey et al. [1] retrospectively reviewed medical records of the scleritis clinic at Moorfields Eye Hospital between 1974 and 1996 and found no association of psoriasis or psoriatic arthritis with posterior scleritis. In another more recent cohort of 114 patients in the UK and India by Lavric et al. [4], they reported only 1 case of psoriatic arthritis associated with posterior scleritis, while the majority of patients with a systemic association suffered from rheumatoid arthritis. Gonzalez-Gonzalez et al. [3] reported 2 cases of psoriatic arthritis associated with posterior scleritis in a cohort of 31 patients.

An interesting observation when reviewing the literature in contrast to our case is that all scleritis patients previously reported in the context of psoriasis suffered from psoriatic

arthritis. Our patient reported no arthritis. Additionally, an association of AACC and psoriasis has not been previously reported to our knowledge; however, an annular ciliochoroidal effusion caused by the posterior scleritis may account for this association. Furthermore, our patient was under treatment for psoriasis for 8 years (brodalumab), while in the reported cases patients were either newly diagnosed with psoriatic arthritis or poorly controlled with psoriatic arthritis [7–9]. Our case was most likely associated with a recent flare-up of his disease which exacerbated his ocular symptoms and made him seek emergent eye health care. According to his ophthalmic history, he stated that he had intermittent nonspecific symptoms of red eye (OS) which were routinely treated as conjunctivitis and were potentially attributed to either brodalumab treatment or psoriasis itself [6]. Psoriasis is associated with nonspecific symptoms of conjunctivitis among other ocular pathologies, which match our patient's claims [6].

In conclusion, posterior scleritis is a potentially vision-threatening condition which is usually challenging to diagnose. In this report, we highlight the challenges one might encounter when dealing with different manifestations of the same disease. In our case, posterior scleritis presented as AACC and given the low prevalence of the disease it can be easy to misdiagnose. While posterior scleritis is mostly idiopathic, it can be associated with systemic disease like rheumatoid arthritis or psoriasis with or without arthritis like in our case.

Statement of Ethics

This study protocol was reviewed and approved by the G Gennimatas Hospital, Athens Ethics Committee, on April 18, 2022, and was conducted in accordance with the Declaration of Helsinki. Written informed consent was obtained from the patient for publication of the details of their medical case and any accompanying images.

Conflicts of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

All authors meet the current ICMJE criteria for Authorship. Spyridon Doumazos wrote the manuscript with support from Stylianos A. Kandarakis, and conceived and presented the case report; Stylianos A. Kandarakis wrote the manuscript with support from S. Doumazos, and analyzed and interpreted the results; Petros Petrou performed data analysis and interpretation and provided a critical revision of the article; Dimitrios Karagiannis conducted review of the literature and contributed in shaping the differential diagnosis; Leonidas Doumazos collected digital photos and imaging and designed the figures; Ilias Georgalas contributed to the final version of the manuscript and supervised the project. All authors provided critical feedback and helped shape the final manuscript.

Data Availability Statement

All data generated or analyzed during this study are included in this article. Further inquiries can be directed to the corresponding author.

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