

PSEUDO NECROTIZING SCLERITIS FOLLOWING IMPROPER ADMINISTRATION OF POSTERIOR SUB TENON INJECTION: CLINICAL PRESENTATION AND AS-OCT FEATURES

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ABSTRACT

We present a case of pseudo necrotizing scleritis (NS,) following inadvertent subconjunctival administration of triamcinolone acetonide. Clinical presentation imitated that of necrotizing scleritis, with features of ulceration and episcleral inflammation. Diagnostic currtage of the lesion ruled out infectious etiology with infiltration of inflammatory cells. Anterior segment optical coherence tomography (AS-OCT) of the lesion was helpul in localizing ruling out true scleritis. Herein we define and highlight the unreported features of pseudo NS as imaged by AS-OCT. A 34 year-old female patient, presented to us two weeks following an intraocular injection performed elsewhere for macular edema. Clinical examination of the anterior segment was suggestive to conjunctivo-scleral necrosis while the fundus examination revealed an active subfoveal choroidal neovascular membrane (CNVM). Taking into consideration the clinical diagnosis and due to the lack of supportive documentation we assumed that the patient had probably received a dose of intra vitreal antivegf. A presumptive diagnosis of NS following needle prick was made, pathological evaluation of the ulcer alongside the OCT features aided in ruling out true NS. The pathological evaluation of the specimen revealed presence of connective tissue with macrophages and triamcinolone particles. AS-OCT showed involvement of the conjunctiva and episcleral tissue with no scleral edema or thickening. Improper administration of peri ocular triamcinolone can cause conjunctival necrosis and can imitate necrotizing scleritis, AS-OCT evaluation of the lesion can be helpful in differentiation from true scleral necrosis.

KEYWORDS: Scleritis , OCT, Necrotizing Scleritis , Triamcinolone.

INTRODUCTION

The use Periocular triamcinolone has been shown to be effective while managing noninfectious inflammatory conditions of the posterior segment. The ease of its administration, low treatment cost and prolonged effect makes it a popular choice amongst ophthalmologists. The universality of its usage makes it essential to understand that an improper administration techniques can lead to conjunctival necrosis due to epitheliotoxicity of triamcinolone when inadvertent injected in the subconjunctival space (1-2).

There are countable reports on conjunctival necrosis arising after triamcinolone injections, however details pertaining to its ASOCT features have never been looked into until now.(3-4) Since triamcinolone can cause both conjunctival as well as scleral necrosis it may become challenging to differentiate the two clinically.(5-7) Herein we present the AS-OCT

features for a case of triamcinolone induced conjunctival necrosis masquerading as focal scleral necrosis. The use of AS-OCT helped in differentiating the lesion from true scleral necrosis.

CASE REPORT

A 34 years old female presented with complaint of periocular discomfort and discoloration of the right eye following periocular injection of steroids for a retinal pathology elsewhere. The details concerning the past clinical condition and treatment was conformed after communication with the treating surgeon. On examination the patient had a vision of 6/36 and the superior sclera showed the presence of an ulcerative lesion measuring 5mm by 3mm, with heaped up and chemosed margins. The ulcerative crater appeared was covered by a retractile tenacious membrane and was surrounded by a creamy subconjunctival deposits suspected to be

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triamcinolone. (Image 1) Fundus examination of the right eye was suggestive of a subretinal scar tissue. The optical coherence tomography (OCT) features confirmed the presence of an active subfoveal type 2 CNVM with subretinal fluid. (image 2)

On the basis of the clinical features the patient was diagnosed as a case necrotizing scleritis following periocular triamcinolone. The patient was initially evaluated and treated as a case of infectious necrotizing scleritis. The Conjunctival smear was obtained from the base and margins of the ulcerative lesion was negative on both smear and culture after which necrosis the patient was started on topical antibiotics which included eye drops moxifloxacin 0.5% and tobramycin 0.3%.

The AS-OCT passing through the lesion revealed a hyper reflective membranous condensation with back scattering at the margin of the ulcerative crater. The

central crater was covered by an iso reflective homogenous undifferentiated tissue having a ground glass texture with minimal back scattering, this was supposed to be the healing granulation tissue.

The reflective membrane over the ulcerative crater obscured the underlying tissue structures, however the adjacent conjunctiva and tenons could be well made out and there was no scleral thinning or intra tissue edema. Triamcinolone deposits was seen as a hyper reflective deposit below the conjunctiva at the margin of the lesion with minimal tissue edema or accumulation of intra tissue fluid. (Image 3)

The OCT features and histopathology of the lesions helped in ruling out true necrotizing scleritis, the patient was advised to undergo excision of the depository preparation and recovered well thereafter with topical soft steroids and lubricating agents alone.

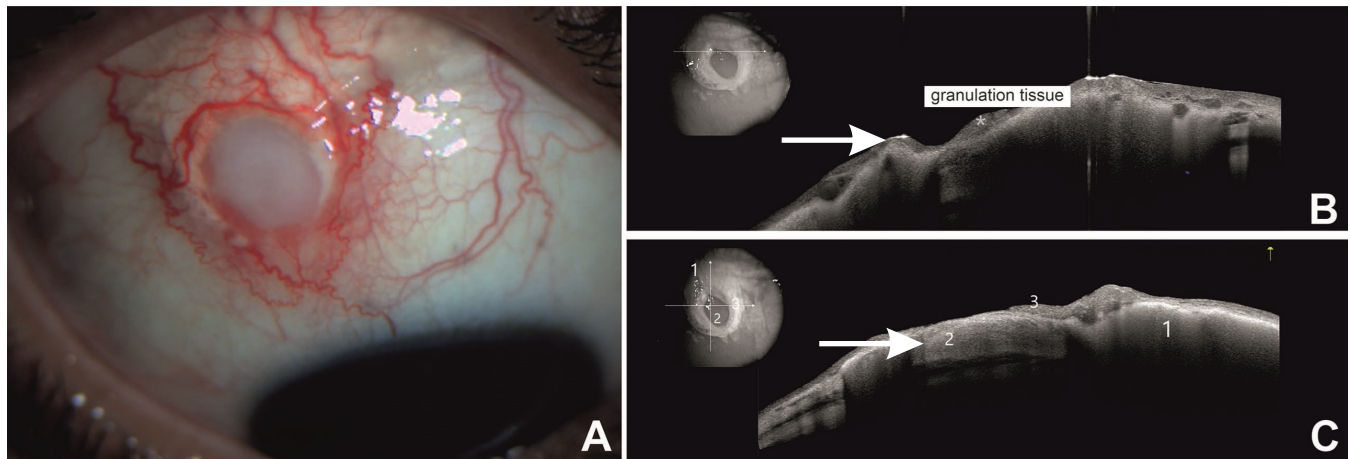


Fig. 1: A) Ulcerative crater seen in the superior temporal quadrant, appears to be covered by a retractile tenacious membrane and was surrounded by a creamy subconjunctival deposits suspected to be triamcinolone. B) Anterior segment OCT shows ulcerative changes , the base of the crater shows homogenous deposits with hyper-reflectivity of the margins associated with backscattering

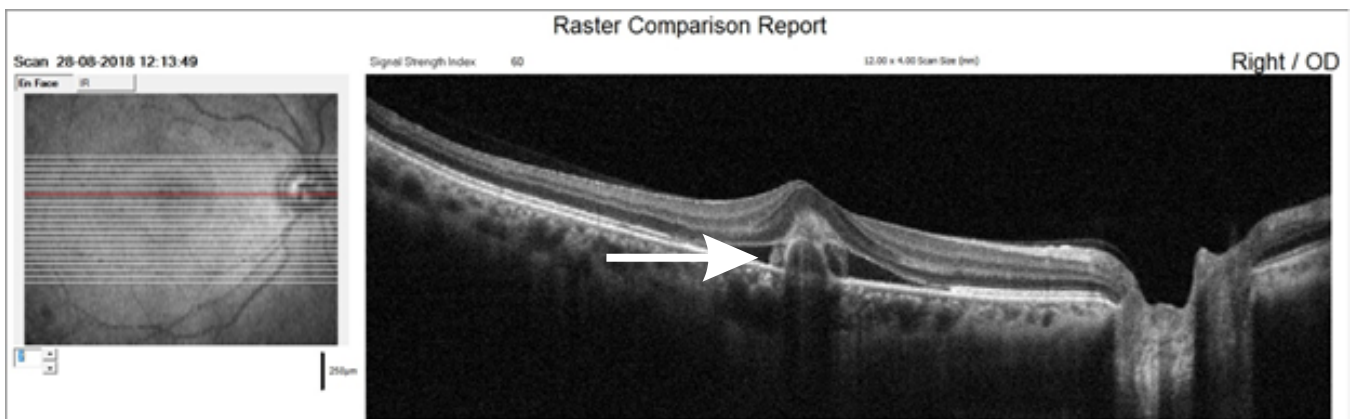


Fig. 2: The Optical Coherence Tomography (OCT) features confirmed the presence of an active Subfoveal type 2 CNVM with sub-retinal Fluid

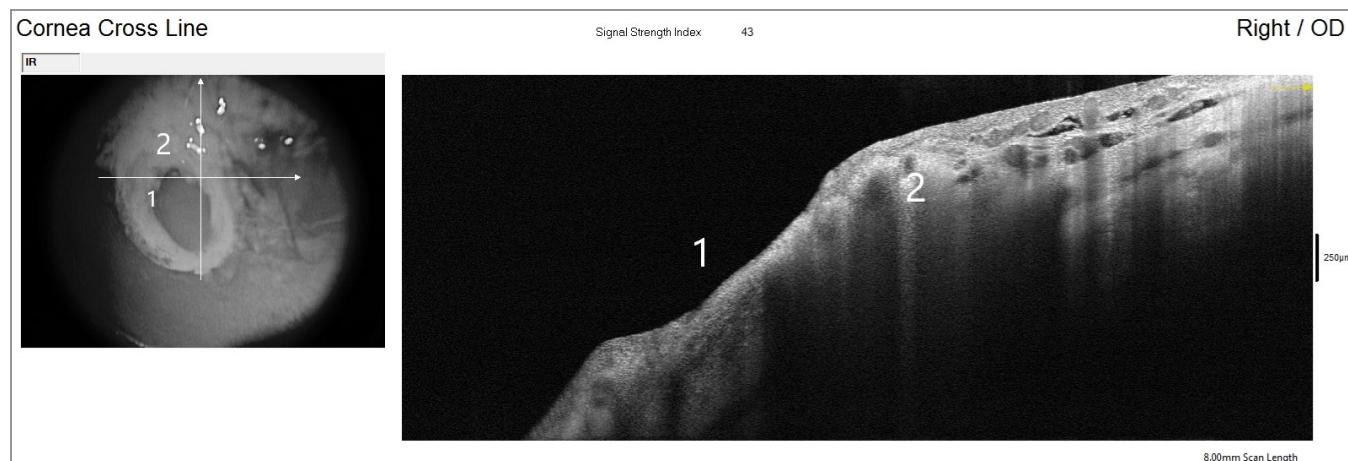


Fig. 3: AS-OCT through the lesion shows a central depression involving the epi-scleral tissue is seen (1) Triamcinolone deposits are seen as a hyper reflective deposit below the conjunctiva at the margin of the lesion (2) with minimal tissue edema or accumulation of intra tissue fluid.

DISCUSSION

Periocular steroids using the Nosiks approach remains a common and convenient technique for administration for depot steroids, allowing a heightened localized effect without any systemic effects, however these depot preparations are notorious for causing conjunctival and episcleral necrosis when improperly injected or if they migrate in sub conjunctival space. (4-5) Conjunctival necrosis have been reported even with the use of methylprednisolone and betamethasone, triamcinolone too can cause necrosis of the overlying conjunctiva when present subconjunctivally (6-8)

Even though triamcinolone associated epithelial toxicity has not been proven, the handful of case reports on triamcinolone associated conjunctival necrosis suggest the possible role of toxic necrosis due to the deleterious effects posed by the preservatives. Benzalkonium chloride (BAK) is a common preservative used in triamcinolone formulation, it is well known for its toxicity to the conjunctival epithelium and can potentiate necrosis causing localized inflammation, as the sclera and episclera are predominantly acellular they are less affected by its toxicity as compared to the conjunctiva (9).

Histopathological studies are commonly preferred for studying NS, as they give insight into the disease process and also helps in ruling out infectious causes, however it is not uncommon to find the smear being contaminated by the patient's own nosocomial flora this creates a diagnostic dilemma and often leads to erroneous diagnosis and futile overtreatment with vigorous antibiotics.

AS-OCT being a non-invasive real time study, helps in studying of the tissue interfaces thus permitting easy

localization and extent of the lesion. With regards to the ocular coats there exist two interfaces, the first interface is found between the conjunctiva and episclera and the second is present between the episclera and sclera (image 4). These interfaces are common site for inflammatory fluid localization seen as hypo reflective pockets, also the tissue defect in any one of the layers can be well made out by recognition and tracing back of visible tissue interface.

Thickening of the ocular coats or the presence of fluid within the tissue interface are indicative of an inflammatory disease process, which was absent in our case. We have used the term pseudo necrotizing scleritis for these cases of conjunctival-episcleral necrosis following triamcinolone injection, because there is no true scleral involvement evident on AS-OCT, even though the clinical findings are near similar to that seen with necrotizing scleritis arising out of infectious or inflammatory causes but on ASOCT the inflammation and necrosis remains confined to the episclera and conjunctiva alone, hence ruling out true scleral necrosis.

In a series of 30 cases of scleritis and episcleritis by shoughy et al, they noted increase in scleral thickness on AS-OCT, along with hypo reflective pockets within the scleral and episcleral tissue. They suggested that the hypo reflective pockets were suggestive of tissue edema characteristically found with scleritis and these would eventually resolve over time with successful treatment.

In our case, contradictory to the findings of scleritis the scleral thickness remained unchanged also there were no hypo reflective pockets suggestive of tissue edema. The positive findings in our case of pseudo NS included, an area of disorganized tissue with ground glass appearance which filled the clinically evident central ulcerative crater, we attribute this ground glass

appearance to the healing granulation tissue which on histopathology too showed a disorganized tissue mass, the cellular component within the lesion stained positive for poly morphonuclear cells and the acellular were diagnosed as connective tissue on staining.

Also it is of significance to note that, at the margin of the ulcerative lesion the conjunctival tissue was well made out, with increased reflectivity of episcleral –scleral interface reflecting inflammatory cellular infiltrate and residual TA, this obscured the underlying scleral details due to back scattering (image5). The scleral tissue beyond the deposits could be well made out. (Image 5).

Initially feared to be scleritis of necrotizing variety, the AS-OCT helped in reassuring the diagnosis and monitoring the treatment response as the lesion healed. The importance of AS-OCT in evaluating scleritis cannot be undermined, careful assessment of the imaging can aid in augmentation of the diagnosis.

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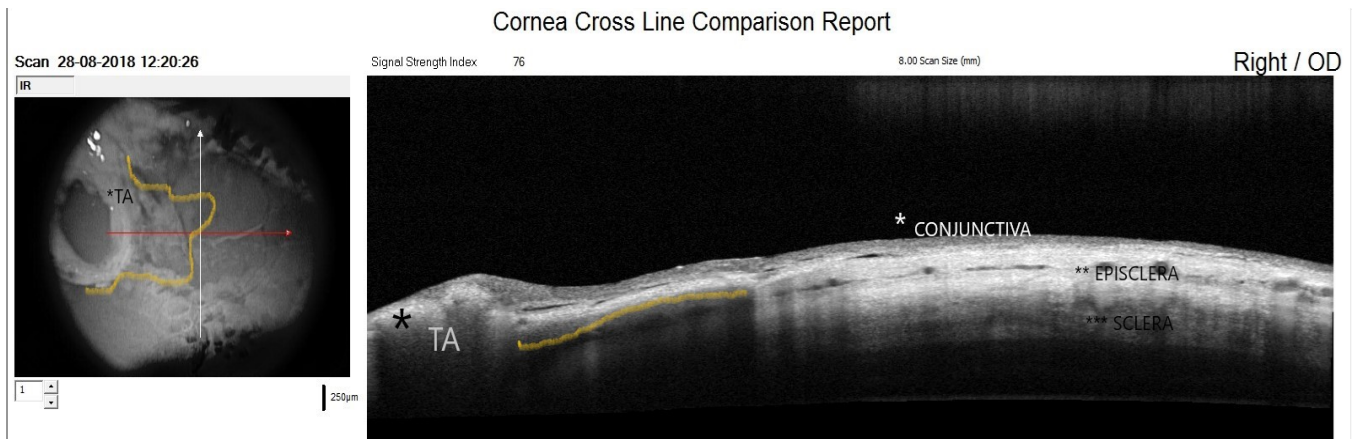


Fig. 4: With regards to the ocular coats there exist two interfaces, the first interface is found between the conjunctiva and episclera and the second is present between the episclera and sclera. The lesion TA(*) deposits can be seen in the episcleral strata



Fig. 5: AS-OCT shows increased reflectivity of episcleral – scleral interface reflecting inflammatory cellular infiltrate and residual TA, this obscured the underlying scleral details due to back scattering. The scleral tissue beyond the deposits could be well made out.

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