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CASE SERIES

Intraorbital corticosteroid injection for orbital reactive lymphoid hyperplasia

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Abstract

Purpose **The purpose of this study is to assess the utility of intraorbital injection of triamcinolone acetonide as a primary treatment option for orbital reactive lymphoid hyperplasia (RLH).**
Patients and method **Retrospective, single-centre, interventional case series.**
Results **Intraorbital injection of triamcinolone acetonide was associated with complete resolution of all symptoms and signs in four cases (80%). This was achieved with a single injection in two cases and with two injections in another two cases. Radiological resolution was confirmed in one case. One case developed bilateral multifocal orbital RLH lesions 1 month after the second injection.**
Conclusion **Intraorbital injection of corticosteroid may be a useful treatment option for orbital RLH, and may have a role as a first-line therapy in RLH of the anterior orbit. A significant proportion of patients may require repeat injections to achieve resolution. A larger prospective study is required to validate our findings.**

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Keywords: reactive lymphoid hyperplasia; lymphoproliferative disorders; corticosteroid; drug therapy; orbital disease

Methods

This was a retrospective, single-centre, interventional case series of five consecutive patients with histologically confirmed reactive lymphoid hyperplasia (RLH), initially treated with an intraorbital injection of triamcinolone acetonide. A tissue diagnosis was obtained in all cases. The amount of tissue removed at biopsy is estimated to have constituted less than 25% of the total lesion volume and, therefore, the biopsy procedure did not have a significant debulking effect. The histological diagnosis of RLH was rendered on the basis of a dense infiltration of small, histologically bland lymphocytes, with the formation of reactive lymphoid follicles of varying size. Mitotic activity was restricted to the germinal centres where tingible body macrophages were observed. Fibrous tissue was absent or scanty. Immunohistochemistry and/or molecular genetic techniques were used to rule out the presence of a clonal population. All patients underwent comprehensive infective, haematological, and autoimmune screenings aimed at ruling out systemic infectious, lymphoproliferative, and inflammatory disorders, respectively. Patients with lacrimal gland involvement were tested for SS-A and SS-B autoantibodies. Patients were informed of the potential risks and benefits of intraorbital corticosteroid injection, and written consent was obtained. The injection was directed into the appropriate orbital quadrant, and was repeated after week 4 if there was clinical evidence of residual disease. After each injection, patients were seen at weeks 1 and 4. The frequency of follow-up thereafter was dictated by the clinical course. We certify that all applicable institutional and governmental regulations concerning the ethical use of human volunteers were followed during this research.

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The clinical information of the five patients is presented in Tables 1 and 2. Intraorbital

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Table 1 Clinical characteristics of patients with orbital RLH

Case no.	*Gender/age/ affected eye*	*Duration of symptoms (months)*	*Signs and symptoms*	*Imaging modality: findings*	*Histologic findings*
1	F/50/OS	4	Intermittent tender upper lid swelling, diplopia, proptosis, hypoglobus	CT, MRI, FDG-PET: diffuse expansion of lateral rectus with gadolinium enhancement.	RLH
2	F/63/OS	3	Upper lid tenderness and fullness	CT: diffuse lacrimal gland swelling	RLH
3	F/46/OS	3	Painless upper lid swelling	CT: extraconal superomedial orbital mass.	ALH. Repeat biopsy: RLH
4	M/44/OS	1	Upper lid swelling, diplopia, hypoglobus	CT and MRI: extraconal superomedial orbital mass	RLH
5	F/54/ bilateral	6	Painless upper lid swelling	CT and MRI: bilateral diffuse lacrimal gland enlargement	RLH

Abbreviations: CT, computed tomography; MRI, magnetic resonance imaging; FDG-PET, 18F-deoxyglucose positron emission tomography; RLH, reactive lymphoid hyperplasia; ALH, atypical lymphoid hyperplasia.

Table 2 Treatment and follow-up information of patients with orbital RLH

Case no.	*Intralesional triamcinolone injection*	*Response*	*Follow-up imaging*	*Complications during follow-up*	*Duration of follow-up (months)*
1	Single 20 mg dose	Complete clinical resolution at 14 weeks	None	None	9
2	Single 20 mg dose	Marked improvement at 4 weeks, complete clinical resolution at 12 months	None	None	12
3	First dose: 40 mg; repeat dose: 40 mg at 6 weeks	Partial response at 1 and 6 weeks; complete clinical resolution at 8 weeks; developed multifocal lesions at 12 weeks	CT, 12 weeks: bilateral multifocal orbital lesions. CT, 12 months: complete radiological resolution	Developed multifocal orbital RLH (biopsy-confirmed); complete resolution with systemic corticosteroids and rituximab	64
4	First dose: 40 mg; repeat dose: 20 mg at 4 weeks	Partial response at 4 weeks; complete clinical resolution at 10 weeks	MRI, 6 months: complete radiological resolution	None	23
5	First dose: 20 mg bilaterally; repeat dose: 20 mg bilaterally at 4 weeks	Partial response at 4 weeks, complete clinical resolution at 10 weeks	CT, 4 months: complete radiological resolution on left side, partial response on right	None	12

Abbreviations: CT, computed tomography; MRI, magnetic resonance imaging.

injection of corticosteroid was associated with a positive response in all five cases. Complete resolution of all symptoms and signs occurred in four cases (80%); however, one of these cases had persistence of some abnormal tissue on imaging (Case 5). Radiological resolution was confirmed in one case (Case 4) (Figure 1). Complete resolution of symptoms and signs was achieved with a single injection in two patients and with two injections in another two patients. No patients developed an IOP rise >6 mm Hg or were felt to require pressure-lowering therapy. One case developed bilateral multifocal orbital RLH 1 month after the second injection, despite a good initial response (Case 3). Complete clinical and radiological resolution was achieved in this patient with systemic corticosteroids and rituximab.

Discussion

This case series highlights that intraorbital injection of corticosteroid may be a useful treatment option for orbital RLH, and may have a role as a first-line therapy in RLH of the anterior orbit. A larger prospective study is required to validate our findings. A significant proportion of patients may require repeat injections to

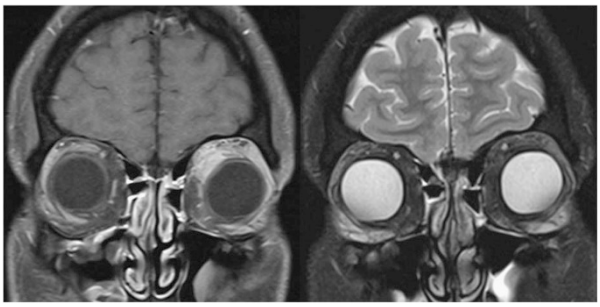

Figure 1 MRI scans of patient four before and after treatment. Left: pre-treatment coronal T1-weighted MRI with fat suppression and gadolinium contrast showing a mass in the superomedial left orbit. Right: coronal T2-weighted MRI 6 months post intraorbital triamcinolone injection showing complete radiological resolution.

achieve resolution. Historically, management options for orbital RLH have included observation, surgical debulking, systemic corticosteroids, and local radiotherapy. Recent reports suggest that targeted therapy with rituximab may be effective;[1] however, this agent carries a risk of severe infusion reactions, reactivation of latent infections, and progressive multifocal leukoencephalopathy.[2] Intraorbital injection of corticosteroid may be a useful alternative for steroid intolerant patients, and possibly a first-line therapy in selected cases. Most ophthalmologists are comfortable performing the procedure in their consultation rooms, and the corticosteroid preparation is relatively inexpensive. Periocular steroids are an established treatment option for many ophthalmic conditions, including uveitis, idiopathic orbital inflammation (IOI), orbital capillary hemangiomas, chalazia, thyroid-associated orbitopathy, saroidosis, vernal keratoconjunctivitis, and orbital xanthogranuloma.[3,4] Although the use of intraorbital steroids has been well described for IOI,[4] there are only two reports of intralesional steroids being used in the treatment of conjunctival RLH, and no reports of this technique being used in orbital RLH. Of the two patients with conjunctival RLH, both were diagnosed in their eighth decade of life, received 20 mg of intralesional triamcinolone, and experienced complete lesion regression by 3 months without complication. One patient had no recurrence during 42 months of follow-up, and the other died from an unrelated cause 9 months after treatment without evidence of disease.[5,6]

The most devastating complication of intraorbital corticosteroid injection is retinal artery occlusion caused by embolization of corticosteroid particulates and retrograde arterial flow induced by high injection pressures.[4] Fortunately, this is rare and is primarily associated with injections into capillary hemangiomas. The risk may be minimized by withdrawing the plunger before injecting, using a 27-gauge needle or larger, and monitoring visual acuity during and after the procedure.[4] Recalcitrant ocular hypertension is a rare but well-described complication that can be avoided by identifying steroid responders before injection. Other possible adverse effects include skin necrosis, atrophy of subcutaneous fat, scleral necrosis, adrenal suppression (one case), and cataract.[3,4]

Summary

What was known before

- There are only two reports of intralesional steroids being used in the treatment of conjunctival RLH, and no reports of this technique being used in orbital RLH.
- Of the two patients with conjunctival RLH, both experienced complete lesion regression by 3 months without complication.

What this study adds

- This study is a series of five consecutive cases, all of which had a positive response to intraorbital corticosteroid injection for management or orbital RLH.
- Four cases (80%) had complete resolution of all signs and symptoms.
- Our results suggests that intraorbital injection of corticosteroid may be a useful treatment option for RLH of the anterior orbit; however, a significant proportion of patients may require repeat injections.

Conflict of interest

The authors declare no conflict of interest.

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