

Pain management with retrobulbar alcohol injection in absolute glaucoma

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Abstract

Ocular pain can be multi-factorial and often refractory to treatment, in spite of the myriad options available to the ophthalmologist for its management. Initial therapy entails the use of topical and systemic pressure lowering agents as well as anti-inflammatory/analgesics for the provision of relief. Those refractory to medical therapy may require surgical intervention in the form of cyclodestructive procedures, retrobulbar injection of absolute alcohol and evisceration or enucleation. A case series of 5 patients of absolute glaucoma who were successfully treated with retrobulbar alcohol injection is reported. Pain was recorded on a verbal analogue score (VAS). All the patients were pain free twelve months after the injection. No significant long term complications were observed. This case series emphasizes the fact that retrobulbar alcohol injection can play an important role in the alleviation of pain in patients with absolute glaucoma.

Keywords: Pain, Retrobulbar alcohol, Refractory glaucoma, Neovascular glaucoma.

Introduction

Retrobulbar alcohol has been used to provide relief to patients with painful blind eyes since the early twentieth century.¹ It provides near instantaneous and continual relief.²

Patients with blind eyes and unsalvageable vision ultimately may experience mild to severe pain which has a negative impact on the patients' quality of life as well as his ability to function in a productive manner.³

The etiology of ocular pain can be multifactorial but the most common reason leading to a painful blind eye is absolute glaucoma.⁴ Other causes include trauma, neoplasia, infections and inflammations.⁵ The pain may originate from the cornea; conjunctiva, sclera, iris or ciliary body. The management of ocular pain is complex and requires a multidisciplinary approach involving specialties such as anaesthesia, ophthalmology, neurology and at times psychiatry.⁶ Various surgical procedures have been described for the alleviation of pain; these include

cyclodestruction, enucleation, evisceration and nerve blocks with retrobulbar alcohol injection. Retrobulbar alcohol injection is a viable option for pain relief in patients who have cosmetically acceptable eyes as well as those who are either unwilling or unfit for surgery.⁷

The aim of this case series was to determine the role of retrobulbar absolute alcohol injection in the management of severe and refractory ocular pain in patients of absolute glaucoma.

Methods

The case series was conducted at the Shifa Foundation Community Health Centre Islamabad over a period of 2 years (March 2012-March 2014). After obtaining approval from the Institutional Review Board. Patients older than 18 years with a painful blind eye due to absolute glaucoma and a normal fellow eye were recruited in the study. Patients with an active orbital disease or a neurological deficit were excluded from the study. Patients' demographics and treatment profiles are shown in Table-1.

A total of five patients were included. Full disclosure of the study was made to all the cases and an informed consent was taken. The surgical procedure was explained and all their queries answered to their satisfaction.

The retrobulbar alcohol injections were given in the operating room under proper asepsis. After instilling anaesthetic (proparacaine hydrochloride 0.5%) drops in the inferior fornix, 2% lignocaine was injected subcutaneously in the inferotemporal quadrant to provide injection site analgesia. A 25-gauge retrobulbar needle was then passed into the retrobulbar space and 2ml of 2% lignocaine was injected. After an interval of 5 minutes the injection site was examined for adequate anaesthetic effect and 2ml of absolute (96%) alcohol followed by another 2ml of 2% lignocaine were injected through the same needle. The intraocular pressure was checked 15 minutes after the procedure and the patients were discharged on the topical antiglaucoma medication that they were already using as well as on oral non-steroidal anti-inflammatory agent.

The severity of pain was recorded using a verbal analogue score (VAS) that ranged from 0-10 with 10

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Table-1: Patient's demographics and medications.

Sr. No	Age(years)	Gender	Eye involved	Medications
Case 1	69	Male	right	Beta blocker, alpha agonist, Carbonic anhydrase inhibitors, Prostaglandin analouge
Case 2	36	Female	Left	Beta blocker, Carbonic anhydrase inhibitors, alpha agonist, Prostaglandin analouge
Case 3	70	Female	Left	Beta blocker, Carbonic anhydrase inhibitors, Prostaglandin analogue., alpha agonist
Case 4	72	Male	Right	Beta blocker, , alpha agonist, Carbonic anhydrase inhibitors, Prostaglandin analouge
Case 5	48	Female	Left	Beta blocker, alpha agonist, Carbonic anhydrase inhibitors, Prostaglandin analouge

being the highest. The patients' VAS for pain was noted before and after the injection. They were followed on the 1st postoperative day, at weekly intervals for 1 month, every month for the first 6 months and at 1 year after the procedure. At each follow up the VAS was noted and the patients assessed for the development of complications.

Results

Patient's demographics and medications are shown in Table-1 while the VAS before and after the injection and on each follow up visit are shown in Table-2.

The mean age was 59.00 ± 16.12 years. Three (60%) patients were females and 2 (40%) were males.

The right eye was involved in 2 (40%) and the left in 3 (60%) cases.

Four (80%) patients were on topical treatment for 1 week after the injection and one (20%) required treatment for a month.

All the patients' developed mild lid oedema and conjunctival chemosis which resolved within a week. One patient developed lower lid ectropion which required surgical correction.

Table-2: Verbal Analogue Score of the patients.

VAS	Case 1	Case 2	Case 3	Case 4	Case 5
Before injection	10	8	10	7	9
After injection	5	1	8	1	3
1 day after injection	2	0	3	0	0
After 1 week	1	0	1	5	0
After 2 week	1	0	1	5	0
After 3 week	1	0	1	1	0
After 4 week	1	0	1	0	0
After 2 month	1	0	0	0	0
After 3 month	1	0	0	0	0
After 4 month	0	0	0	0	0
After 5 month	0	0	1	0	0
After 6 month	0	0	1	0	0
After 1 year	0	0	1	0	0

Discussion

A blind, painful eye presents several challenges for ophthalmologists with regards to its evaluation and management.² Retrobulbar injections of neurolytic agents are a simple and effective method to control pain. Alcohol and other neurolytic agents exert their effect by destroying the nerve fibers by coagulative necrosis.^{1,6} The technique of retrobulbar injection must be accurate; the alcohol has to be injected in close proximity to the nerve fibres barring which only a dampening of nerve fibre conduction is achieved and the pain recurs with time.

A short acting local anaesthetic such as lignocaine is administered before injecting absolute alcohol, which not only ensures correct placement of the needle in the retrobulbar space, but also provides an anaesthetic effect that reduces intraoperative pain.⁸

The pain relief provided by retrobulbar alcohol was rapid and long lasting with 4 patients being pain free within 1 week and all 5 at 1 year after injection. This is comparable to the results of other studies.

The success rate of retrobulbar alcohol injection for pain relief is variable and ranges between 20-87% in medline indexed literature. Cok et al conducted a similar study in which they observed the effect of retrobulbar alcohol injection on 4 patients of absolute glaucoma.⁹ They reported a period of pain relief lasting up to 1 year; which closely matches the results of our study.

Maumenee studied effect of retrobulbar alcohol in 35 blind and 15 seeing painful eyes. He reported pain free period of 1-3 months with no permanent long term complications.¹⁰ These findings are comparable to those observed in our study.

Kumar reported a case of adenoid cystic carcinoma of the maxillary sinus. The patient was suffering from severe intractable pain in orbital region due to exposure and compression effect of the tumour.⁶ The pain was not controlled by maximum dose of analgesics. Like our study the pain was eradicated using a single injection of retrobulbar alcohol injection. The patient was pain free for

a period of 6 months prior to his death.

Al-faran reported a variable period of pain relief ranging from 2 weeks to 2 years. A total of 39 eyes were included in the study; of which 31 had protracted ocular pain caused by end stage glaucoma.⁴ It was concluded that retrobulbar alcohol may be a useful alternative to evisceration or enucleation in the management of painful blind eyes.

Another study was done by Brick to observe the effect of retrobulbar phenol injection in painful eyes. Eight out of 10 patients who were included in the study were suffering from absolute glaucoma.¹¹ They observed a mean pain free period of 15 months after the injection.

The postoperative complications encountered, were anaesthesia of the skin overlying the cheek, lid and brow, conjunctival chemosis and lid oedema. These were comparable to those seen in published literature.¹² All these complications were temporary and resolved without any intervention. The complications associated with post-injection retro-bulbar haemorrhage documented in medline indexed literature including transient ptosis, proptosis and external ophthalmoplegia in our patients were not observed in this study.

Conclusion

The effect of retrobulbar alcohol injection was studied in

the presented cases, which was found to be safe and effective.

References

1. Skorin L. Treatment of blind and seeing painful eye. [online] Jan 16, 2004 [cited 2014 March 5] Available from: URL:www.optometry.co.uk
2. Merbs SL. Management of blind painful eye. *Ophthalmol Clin North Am* 2006; 19: 287-92.
3. Tarantini A, Lanzetta P, Cuqini C. Peribulbar tramadol, clonidine and ropivacaine in blind and seeing painful eyes. *Eur J Ophthalmol* 2007; 17: 976-8.
4. al-Faran MF, al-Omar OM. Retrobulbar alcohol injection in blind painful eyes. *Ann Ophthalmol* 1990; 22: 460-2.
5. Chen TC, Ahn Yuen SJ, Sangalang MA, Fernando RE, Leuenberger EU. Retrobulbar chlorpromazine injections for the management of blind and seeing painful eyes. *J Glaucoma* 2002; 11: 209-13.
6. Kumar CM, Dowd TC, Hawthorne M. Retrobulbar alcohol injection for orbital pain relief under difficult circumstances: a case report. *Ann Acad Med Singapore* 2006; 35: 260-5.
7. Shah-Desai SD, Tyers AG, Manners RM. Painful blind eye: efficacy of enucleation and evisceration in resolving ocular pain. *Br J Ophthalmol* 2000; 84: 437-8.
8. Webber SK, McGhee CN, McMenamin PG. Precautionary note on retrobulbar alcohol injections. *Br J Ophthalmol* 1995; 79: 192-4.
9. Çok OY, Eker HE, Cantürk S, Yayıcıoğlu R, Ariboba A, Arslan G. Pain management in blind, painful eyes: clinical experience with retrobulbar alcohol injection in 4 cases. *Agri* 2011; 23: 43-6.
10. Maumenee AE. Retrobulbar alcohol injections; relief of ocular pain in eyes with and without vision. *Am J Ophthalmol* 1949; 32: 1502-8.
11. Birch M, Strong N, Brittain P, Sandford-Smith J. Retrobulbar phenol injection in blind painful eyes. *Ann Ophthalmol* 1993; 25: 267-70.
12. Olurin O, Osuntokun O. Complications of retrobulbar alcohol injections. *Ann Ophthalmol* 1978; 10: 474-6.