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Pain management in blind, painful eyes: clinical experience with retrobulbar alcohol injection in 4 cases

Görmeyen ağrılı gözlerde retrobulber alkol enjeksiyonu: Dört olguda ağrı tedavisi

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Summary

Ocular pain is often difficult to treat and may be caused by many eye diseases. The first step in pain management is medical therapy combined with analgesics; however, severe and resistant cases may require neurolytic eye blocks or definitive surgery. Retrobulbar block with neurolytic agents such as alcohol may be preferred, if the eye is cosmetically normal or the patient is medically or psychologically unsuitable for enucleation or evisceration. Here, we present our successful and efficient pain management using retrobulbar alcohol injection in 4 patients with painful blind eyes. Patients with neovascular glaucoma presenting with painful blind eyes were accepted to our clinic for pain management. The patients had continuous pain with an increasing severity in the recent months. We planned to perform retrobulbar alcohol injection as the pain of the patients was resistant to medical therapy. We noted measurement of verbal analogue scale for pain (VAS) before the block (7, 9, 9 and 10, respectively), after retrobulbar lidocaine and alcohol injection, at the postoperative 1st day, 1st, 2nd 3rd and 4th weeks, and 3rd, 4th, 5th, 6th and 12th months. Early and late complications were also recorded. On the first day after injection, no patient required additive analgesic therapy and their VAS scores were 0, 0, 0, and 3, respectively. Except for one patient who underwent enucleation because of a bacterial infection, the other three patients' VAS scores were 1, 0 and 1 at the 12th month assessment. We suggest that neurolytic retrobulbar block is an efficient pain management strategy in blind painful eyes.

Key words: Painful; alcohol; blind eye; retrobulbar injection; neovascular glaucoma.

Özet

Oküler ağrı birçok göz hastalığından kaynaklanabilen ve sıklıkla tedavisi güç bir durumdur. Bu ağrı tedavisinde nedene yönelik medikal tedavi ve çeşitli analjezikler kullanılırken, daha ciddi ve tedaviye dirençli olgularda nörolitik göz blokları ve cerrahi yöntemlere geçilebilmektedir. Ancak, göz kozmetik olarak normal görünümlü ise ve hastalar tıbbi ve psikolojik olarak enükleasyona uygun değillerse, nörolitik ajanlarla retrobulber blok tercih edilmektedir. Nörolitik retrobulber blok için kullanılan ajanlar alkol, fenol ve klorpromazindir. Burada retrobulber alkol enjeksiyonu ile nöroliz sonrası başarılı ve etkin ağrı tedavisi sağlanan neovasküler glokom kaynaklı oküler ağrısı olan 4 olgu sunulmaktadır. Neovasküler glokom tanısı ve absolü görme kaybı ile takip edilen 82, 78, 67, 58 yaşlarında 3 kadın ve 1 erkek hasta kliniğimize ağrı tedavilerinin düzenlenmesi için kabul edildi. Son aylarda şiddeti artan, sürekli oküler ağrısı olan hastaların ilk geliş VAS değerleri sırasıyla 7, 9, 9 ve 10'du. Medikal tedavilerden ağrı açısından yarar görmeyen hastalara tedavi amaçlı absolüt alkol ile retrobulber blok uygulaması planlandı. Hastaların VAS düzeyleri ve komplikasyonlar enjeksiyon öncesi, lidokain ve nörolitik enjeksiyonu sonrası, postoperatif 1. gün, 1., 2., 3., 4. hafta, 2., 3., 4., 5., 6. ve 12. ayda kaydedildi. Enjeksiyon sonrası ilk gün Verbal Analog Skala (VAS) değerleri 0, 0, 0 ve 3 olan hastaların ek analjezik gereksinimleri ortadan kalktı. Blok dışı nedenlerle enükleasyona giden bir hasta dışında, diğer hastaların 12. ay takiplerinde VAS skorları 1, 0, 1 olarak tespit edildi. Oküler ağrı tedavisinde nörolitik retrobulber bloğun multidisipliner yaklaşımda cerrahiden önce etkin bir alternatif yöntem olduğu kanısındayız.

Anahtar sözcükler: Ağrı; alkol; görmeyen göz; retrobulber enjeksiyon; neovasküler glokom.

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Introduction

Intractable ocular pain may be caused by many eye diseases and is often difficult to treat.[1,2] The most common diagnosis is absolute glaucoma among these patients with painful eyes.[1] The first step in the pain management is the combination of oral and topical analgesics.[2,3] The medical therapy targeting the underlying ocular pathology such as neovascular glaucoma is also essential.[4-6] However, severe and resistant cases with insufficiently controlled glaucoma may require more invasive treatment options such as neurolytic eye blocks or surgery; enucleation and evisceration.[5] Neurolytic retrobulbar block is a preferred and successful option when the eye is cosmetically normal or the patient is medically or psychologically unsuitable for definitive surgery.[1,2]

The purpose of this report is to recall a widely practiced block of ophthalmic anesthesia in the field of pain management. We report successful and efficient pain therapy with retrobulbar alcohol injection in 4 cases with painful blind eyes because of neovascular glaucoma.

Case Report

Case 1- The patient, an 82-year-old woman, was presented with a blind, painful left eye. She was followed with the diagnosis of neovascular glaucoma for 5 years and she suffered from severe pain for 2 years. Her pain was dull and continuous with increasing severity in years and was resistant to medical glaucoma therapy and concomitant analgesics such as non-steroidal anti-inflammatory drugs (NSAIDs) and weak opioids. Her verbal analogue scale (VAS) for pain score was 10 in the pre-treatment examination.

Case 2- A 78-year-old woman suffering from intractable pain in her blind, right eye for 3 years was referred to our clinic for retrobulbar alcohol injection after discussing the possible treatment options. Medical therapy for glaucoma and topical analgesics were inadequate for maintaining pain relief. Pre-treatment VAS was 9 at initial examination.

Case 3- A 67-year-old woman suffering from a throbbing pain in her blind, right eye for 6 months was referred to our clinic. She was diagnosed with neovascular glaucoma, however medical therapy for glaucoma and topical and oral NSAIDs didn't provide sufficient pain relief and her pre-treatment VAS was 9.

Case 4- A 58-year-old man was presented with a blind, painful left eye. He suffered from severe pain for 5 years with the diagnosis of neovascular glaucoma. His pain was continuous and throbbing despite the medical glaucoma therapy and analgesics such NSAIDs, and irregular opioid use. His VAS pain score was 7 in the first examination.

All patients were informed about treatment options including maintenance with the current medical therapy and analgesics, retrobulbar alcohol injection and surgical procedures such as enucleation and evisceration. The possible benefits and complications of all treatment modalities were discussed with the patients and their families. The patients preferred retrobulbar injection as the former medical therapy was presently inadequate and the latter option of surgery was "frightful" or "cosmetically unacceptable" according to the patients. After obtaining informed consents of the patients, we performed retrobulbar alcohol injection.

The blocks were performed in the operating room. Patients received no sedatives and stayed supine. All blocks were performed by the same anesthetist. After providing topical anesthesia with proparacaine HCl 0.5% and regional asepsis at the site of painful eye, 0.2% lidocaine was injected subcutaneously in the inferotemporal quadrant with a 26 G, 13 mm needle (Shandong Qiao Pai Group Co. Ltd, PRC) to provide injection site analgesia in every patient. Then a 25 G, 3.8 cm needle (code no 0120, Sterimedix, Redditch, UK) was inserted percutaneously at the junction of inferior and lateral margins of orbit for retrobulbar block. Two mL of lidocaine 2% was injected to verify the pain relief and the syringe was disconnected but the needle left in place. A syringe containing 2 mL of absolute (96%) alcohol was carefully reattached following the assessment of pain relief in patients after 5 minutes, and the alcohol was injected through needle in place. After removing the needle, an ice pack was placed on the lid for an hour after the block and the patients were discharged home with their regular anti-glaucoma

Table 1. Verbal analogue pain scores (VAS) of patients before and after retrobulbar injection and during 12 months after treatment

VAS	Case 1	Case 2	Case 3	Case 4
Pre-treatment	10	9	9	7
After retrobulbar lidocaine injection	3	1	6	0
After retrobulbar alcohol injection	1	1	8	4
1st day after injection	0	0	0	3
1st week	1	0	0	2
2nd week	0	0	0	2
3rd week	0	0	0	2
4th week	1	0	0	1
2nd month	0	0	–	1
3rd month	0	0	–	1
4th month	1	0	–	0
5th month	1	0	–	0
6th month	1	0	–	1
12th month	1	0	–	1

therapy and a non-steroid anti-inflammatory drug prescribed for a few days for possible pain and edema related to alcohol injection.

The patients' VAS scores for pain were noted before the block, after retrobulbar lidocaine and alcohol injection, at postoperative 1st day, 1st, 2nd 3rd and 4th week, 3rd, 4th, 5th, 6th and 12th months (Table 1). Their VAS scores in the post-injection first day were 0, 0, 0, 3, respectively. No patient required additive analgesic therapy during post-injection period until the time this report was written after a year. We also assessed the possible early and late complications (Table 2). Three patients developed edema in eyelids which was released in a week without any specific treatment. Bacterial corneal ulcer secondary to bullous keratopathy developed in one patient after two months, and evisceration was performed because of the resistance to medical therapy and corneal melt.

Discussion

The ocular pain resulting from neovascular glaucoma is often severe and devastating.[7,8] The ultimate pain treatment options are evisceration and enucleation for these patients. However, having their globes removed is not an easy decision to make for the most of patients and is often refused.[1,6] Also, the complete pain relief cannot be guaranteed as some patients may still suffer from severe pain after removing the eye.[5] In this situation, retrobulbar block with neurolytic agents remains as a valuable alternative treatment.

The retrobulbar block had been a common practice for ocular anesthesia for many intraocular surgeries.[3] During this block, the needle is inserted intraconally toward the apex of the orbit behind the globe where the exit of sensory nerves and entry of motor nerves are present.[9] But, because of its possible complications, peribulbar and sub-Tenon's blocks are gaining popularity especially for cataract surgery in many countries.[3] However, one must be aware of that peribulbar and sub-Tenon's blocks are not suitable and applicable for neurolytic agent administration, since the risks of extensive tissue diffusion and leak from the injection site exist.[3]

The neurolytic agents used for retrobulbar injection include alcohol, phenol and chlorpromazine.[3,6,7,10,11] The retrobulbar administration of alcohol has been used for pain control since the 1900s with reported

Table 2. Complications observed in patients after retrobulbar alcohol injection in early and late period

	Complications	
	Early period (During 1 week after injection)	**Late period (>1 week)**
Case 1	–	–
Case 2	Edema in the upper eye lid and chemosis	–
Case 3	Edema in the upper eye lid	–
Case 4	Edema in the upper eye lid and chemosis	–

success rates of 20-87% and the duration of pain relief of 2 weeks to 2 year.[1] The pain relief with alcohol is provided by the coagulation of proteins and precipitation of lipids of the sensory nerve fibers and the recurrence of the pain is related to the degree of nerve destruction.[1,6] The insufficiently destroyed sensory nerves may recover approximately in six months and the pain may re-occur. But if the needle for retrobulbar block is placed near the nerve successfully, the duration of the pain relief may last for two years which may also be longer with repeated injections. However, in our patients, the painless period was being continued for a year since this report was written.

The retrobulbar alcohol injection has some potential complications which should also be considered carefully.[12,13] These complications may be due to both alcohol and the block itself. Alcohol may cause cellulitis, eyelid edema and conjunctival chemosis by penetrating intraocular tissues and forming a temporary tissue reaction.[13] Blepharoptosis and external ophthalmoplegia are associated with the infiltration of the motor nerves by alcohol or retrobulbar hemorrhage. However, these complications are frequently temporary and require no specific treatment in blind eyes and resolve in days.[1] Nonetheless, the clinicians should also be aware of some deleterious complications of retrobulbar block such as perforation or penetration of the globe, especially if the block was performed in a seeing eye, and brainstem anesthesia.[12] During the brainstem anesthesia, the anesthetic or neurolytic agent may spread along the optic nerve sheet and may be related to mortality. Performing the retrobulbar block with local anesthetics prior to alcohol or any other neurolytic agent injection allows clinicians to assess the pain treatment and alleviates the significant burning pain associated with alcohol injection.[1,3,14] Also, waiting for 5 minutes with the detached needle in situ ensures the position of the needle for the final block by avoiding a second needle placement and may allow some time for manifestation of neurological complications.[3,6]

In our case series, all patients suffered from intractable pain despite their medical therapy for neovascular glaucoma and analgesics and their ultimate options were removal of the globe which they were reluctant to. Both ophthalmology and anesthesia team assessed the patients and discussed the treatment modalities with the patients and their families. The patients and their families were informed about the procedures and possible complications. Three of the patients who agreed to have retrobulbar block with alcohol had adequate and considerably long-lasting relief of pain. In our cases, there were no systemic or severe complications which required medical treatment in our series. One patient who had to undergo evisceration due to causes unrelated to retrobulbar block was also pain-free until the operation.

In this report, we aimed to recall neurolytic eye blocks for non-cancer ocular pain management in blind eyes, and, according to this clinical experience, we suggest that neurolytic retrobulbar block with alcohol may be a useful and practical option for pain management in blind painful eyes.

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