New Simple Surgical Procedure for Management of Endophthalmitis Phacoanaphylactic Glaucoma

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Abstract:

Introduction: *Phacolytic glaucoma (PG) was usually caused by the hypermature lens and the principal mechanism was the obstructed trabecular meshwork with the leaky lens capsule proteins. The PG with rupture crystalline capsule (anterior chamber was not observed) exactly endophthalmitis phacoanaphylactic glaucoma (EPG) is commonly misdiagnosed and was therefore refused lens extraction by local eye doctors at the district hospital level.*

Objective: To introduce a new simple surgical procedure lens extraction is easily performed at the district hospital for diagnosis as well as treatment.

Methods: *A simple surgical procedure for both diagnosis and treatment is proposed as follow:*

1. A clear corneal incision at 10-12 o'clock for aspirating anterior chamber fluid slowly for examining polynuclear, macrophage…in diagnosis as well as for inspecting of expulsive hemorrhage which rarely occurs in these cases.

2. Irrigation of anterior chamber: After this paracentesis, the anterior chamber and iris will be seen clearer, irrigation of the anterior chamber should be done and then lens extraction will be performed for radical treatment.

3. IOL/posterior chamber in case of with lens capsule or IOL/ anterior chamber in case of without lens capsules.

4. A closed corneal incision with 2 sutures.

5. Remove these sutures 2 weeks later.

Discussion: *The advantage of this technique was safe with no bleeding from the congestion of conjunctiva caused by glaucoma, can easily be observed anterior chamber after aspiration of anterior chamber fluid for diagnosis. Nucleus lens is often small in all cases so extraction of the lens is easily done. Lens extraction will be performed for radical treatment. The disadvantage is on the patient with no perception of light in vision will be restored after lens extraction depending on the during time optic nerve compressed before surgery.*

Conclusion: *Patients suffering from PG especially EPG should be diagnosed and nucleus lens extraction. Medical treatment for reduced IOP and aspiration of anterior chamber fluid could be done first for both diagnosis and treatment. Thereafter nucleus lens extraction is a radical treatment associated with steroid treatment that will help restore vision for patients. With this procedure mentioned above, local eye doctors at the district hospital level will easily be done for diagnosis and treatment, helping lens extraction for patients as soon as possible.*

Keywords: *Phacolytic glaucoma; endophthalmitis phacoanaphylactic glaucoma; nucleus lens extraction*

1. Introduction

In a normal eye, the protein of crystalline lens which minimally escapes from the lens capsule and then the eye has an immunity response but a lot of these proteins excrete into the anterior chamber will lead to severe inflammation. The leaky lens capsule proteins are modified, liquefied and liberated. In these condition macrophages phagocyted these proteins and the trabecular meshwork became obstructed by this phenomenon. Accumulation of lens proteins coexisting macrophages over a short period of time may acutely obstruct the meshwork and result in transient elevation of intraocular pressure (IOP) in association with the exercise of dilation of the pupil. Excessive phacocytosis of lens proteins lead to migration of the trabecular cells spread over the denuded portion of the trabeculae to keep them covered. When the capacity of self repair is lost the denuded trabecular beams degenerate which results in irreparable damage to the meshwork accompanied by phacolytic glaucoma (PG). The inability of self repair may represent a primary defect in the trabecular cells. PG is a severe complication of hypermature lens leading rupture capsule of the crystalline lens and some reduce IOP drugs have little or no effect on it.

For clinical findings there are 3 forms of PG: 1.Phacolytic glaucoma, 2. Lens particle glaucoma (Phacotoxic, phacoallergic) and 3.Phacoanaphylatic glaucoma. The three forms do not separately but each form may also be integrated with another according to cases. PG caused by leaky lens capsules proteins from hypermature cataract but phacoallergic glaucoma did not exclude and it is also called phacolytic uveitis glaucoma.with: high IOP (41mmHg), conjunctiva and episclera : dilated vessels, cornea: epithelial and stroma oedema, anterior chamber: opacity. The crystalline lens and others components of the posterior chamber: no observe. Tyndall's phenomenon: positive. Anterior chamber fluid: macrophages, polynuclears, lymphocytes…The functional signs included ocular pain, redness, blurred vision, nausea, vomiting…

For medical treatment there are: 1.Therapy of glaucoma: Over the past several years, a number of new

medicines have become available that have changed physician's prescribing patterns for both mono and adjunctive therapy of glaucoma [1][2]. 2. Therapy of lens induced uveitis is local steroids included topical, injection sub conjunctiva, periocular and general steroids.

For surgical treatments, lens extraction with or without an intraocular lens is suitably chosen. The PG with rupture crystalline capsule (anterior chamber was not observed) exactly endophthalmitis phacoanaphylactic glaucoma (EPG) is commonly misdiagnosed with endophthalmitis having vision only no perception of light and was therefore refused lens extraction by local eye doctors at the district hospital level.

For this reason a simple surgical procedure was proposed for management endophthalmitis phacoanaphylactic glaucoma.for eye doctors at the district/provincial hospital level.

2. Methods:

A simple surgical procedure for both diagnosis and treatment is proposed as follow:

1. A clear corneal incision at 10-12 o'clock for aspirating anterior chamber fluid slowly for examining polynuclear, macrophage…in diagnosis as well as for inspecting of expulsive hemorrhage which rarely occurs in these cases.
2. Irrigation of anterior chamber: After this paracentesis, the anterior chamber and iris will be seen clearer, irrigation of the anterior chamber should be done and then lens extraction will be performed for radical treatment.
3. IOL/posterior chamber in case of with lens capsule or IOL/ anterior chamber in case of without lens capsules.
4. A closed corneal incision with 2 sutures 10.o
5. Remove these sutures 2 weeks later.

3. Discussion:

3.1 The incidence: The incidence of PG in our hospital where the backlog of cataract was relatively high was 3% of operated glaucoma, 1% of cataract surgeries [3] [4]. According to Julia Song, and R. Rand Allingham, special to EyeNet (AAO 2014 Chicago): Will the increase in the number of under- and uninsured patients lead to an increase in this condition? [5][6]

3.2 Medical treatment for glaucoma: [7] [8] (Table I)

Table I :Medical Treatment Glaucoma

Immunotherapy agents:
-Beta adrenergic blockers:
-Brimonidine tatrate 0.2% is a relatively selective □2 adrenergic antagonic.
Lantanoprost 0.005% is an F2 □ prostaglandin.
Early adjunctive agents:
-Pilocarpine, epinephrine, acetazolamide.
-Timolol 0.5% and pilocarpine 2%, 4%.
-Timolol 0.5% and dorzolamide 2% (fixed combination)
-Brinzolamide 1%.
Late adjunctive therapy:
-Mitotics, epinephrine compounds, carbonic anhydrase inhibitor.
New types of glaucoma agents:
Treatment of glaucoma does treat not only the IOP but also treat the optic nerve.
-Enhanced optic nerve head blood flow.
-Neuroprotection.
-Optic regeneration.
-Genetic therapy.

3.3 The surgery: Surgical options in the management of coincidental cataract and glaucoma continue to evolve and improve. Visual recovery is better and more rapid than with expected patients. Combined cataract and glaucoma surgery is the favor approach for all patients with lens induced glaucoma or phacolytic glaucoma [2]. Some cases of the PG with rupture crystalline capsule (anterior chamber was not observed) exactly endophthalmitis phacoanaphylactic glaucoma (EPG) is commonly misdiagnosed and was therefore refused lens extraction by local eye doctors. (District hospital level). So this surgical procedure was proposed. With this preferred technique a clear corneal incision from 10- 12 o'clock according to nucleus lens diameter was done. Nucleus lens is often small in all cases. If the lens capsules remained, extracapsular cataract with or without an intraocular lens was done. The advantage of this technique was safe with no bleeding from congestional conjunctiva glaucoma. More recently, the mid- 1999s has witnessed an increase in the use of clear corneal incision for cataract surgery. I preferred this technique for these cases which may easily observe anterior chamber after aspiration. In our experience, five expulsive hemorrhage patients were seen, included the incidence 0, 1% (2/2,000 cases) of coincident of cataract and glaucoma operation, the incidence 0.03% (3/8,000 cases) of cataract extraction alone. [3][4].

The advantage of this technique was safe with no bleeding from the congestion of conjunctiva caused by glaucoma, which can easily be observed anterior chamber after aspiration of anterior chamber fluid for diagnosis. Nucleus lens is often small in all cases so extraction of the lens is easily done. Lens extraction will be performed for radical treatment. The disadvantage is on the patient with no perception of light in vision will be restored after lens extraction depending on the during time optic nerve compressed before surgery.

4. Conclusion:

This simple surgical procedure mentioned above with some advantages for local eye doctors at the district hospital level will help diagnosis better and lens extraction on patients who were suffered from phacolytic glaucoma especially endophthalmitis phacoanaphylactic glaucoma. The nucleus lens extraction is a radical treatment associated with steroids that will help restore vision for these patients.

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Duong Dieu received the MD (1978) and PhD (2003). He was chief of Ophthalmology Department for over 30 years with clinician/surgeon. From 2010 to now he is a senior lecturer of Faculty of Medicine of Nguyen Tat Thanh University in HCM city- Vietnam