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 polymuclear, 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 seen 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 phacoctysis of lens proteins lead to migration of the trabecular cells spread over the denuded portion of the trabecule to keep them covered. When the capacity of self repair is lost the denudged 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.Phacoanaphylactic glaucoma. The three forms do not separately but each form may also be integrated with another according to cases. PG caused by leaky lens capsul proteins from hypermature cataract but phacoallergic glaucoma did not exclude and it is also called phacoletic 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, polymnuclears, 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
drug 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
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 without lens capsules.
4. A closed corneal incision with 2 sutures 10.0
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>
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<tr>
<th>Immunotheapy agents:</th>
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<tr>
<td>-Beta adrenergic blockers:</td>
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<td>-Brimonidine ttrate 0.2% is a relatively selective □2</td>
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<td>adrenergic antagonist.</td>
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<td>Lantanoprost 0.005% is an F2 □ prostaglandin.</td>
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<th>Early adjunctive agents:</th>
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<tr>
<td>-Pilocarpine, epinephrine, acetazolamide.</td>
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<tr>
<td>-Timolol 0.5% and pilocarpine 2%, 4%.</td>
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<tr>
<td>-Timolol 0.5% and dorzolamide 2% (fixed combination)</td>
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<td>-Brinzolamide 1%.</td>
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<th>Late adjunctive therapy:</th>
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<tr>
<td>-Mitotics, epinephrine compounds, carbonic anhydrase</td>
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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,
including the incidence 0, 1% (2/2,000 cases) of coincident
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.

**References**
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 treatment of glaucoma, Incurrent Opinion In


Author Profile

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