

Sequelae of neglected senile cataract

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Azhany Y, Hemalatha C, Nani D, Rosediani M, Liza-Sharmini AT. Sequelae of neglected senile cataract. *Malaysian Family Physician* 2013;8(1):33-7

Keywords:

cataract,
phacomorphic,
phacolytic, glaucoma

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Abstract

Cataract is the most common cause of blindness in the world. An attack of phacolytic and phacomorphic glaucoma as a result of neglected cataract constitutes a medical emergency that must be addressed immediately. Ocular emergencies such as these is challenging for the surgeon with guarded or poor prognosis. We describe the presentation, management and prognosis of three cases of phacomorphic and phacolytic glaucoma. All three patients underwent aggressive management of intraocular pressure. Despite successful cataract operation with implantation of intraocular lens, there was only mild improvement of the vision. Optic nerve and pupil functions were permanently affected following the insult. Phacomorphic and phacolytic glaucoma present a very challenging problem to the surgeon with poor visual outcome. Public health education and awareness are important and health workers should encourage patients with cataract to seek early treatment for better prognosis.

Introduction

An estimated 45 million people worldwide fulfil the World Health Organization's criterion for blindness, defined as best corrected vision of less than 3/60 in the better seeing eye.¹ Nearly 135 million people are visually disabled ('low vision') and about 80% of blindness is avoidable (preventable or curable). Nine out of 10 of people with blindness live in a developing country.¹ The Malaysian National Eye Survey in 1996 found that cataract was the leading cause of blindness (39%) followed by retinal diseases (24%).²

Cataracts are a slow progressive condition which, if left treated, will result in patients developing phacomorphic or phacolytic glaucoma, typically in the sixth decade.³ Phacolytic glaucoma (PG) is the sudden onset of open-angle glaucoma while phacomorphic glaucoma is secondary angle-closure glaucoma due to lens intumescence. A 1998 study at

an eye hospital in Nepal found that 72% of cataract patients had phacomorphic glaucoma and the rest phacolytic glaucoma.³ The National Cataract Surgery Registry of Malaysia reported that in 2004, out of 18,392 cataract surgeries performed, 118 patients had phacomorphic cataracts while 79 patients had phacolytic glaucoma.⁴ A study by Ho et al noted that lack of awareness, scarce knowledge of the disease and unwillingness to seek early medical intervention contributed to the development of complicated cataracts.⁵

Cataract surgery in those with phacomorphic glaucoma poses challenges due to high intraocular pressure (IOP), risk of expulsive hemorrhage, positive pressure, and zonular dialysis.⁶ The three case studies below examine untreated and complicated cataracts.

Case 1:

A 77-year old Malay man presented to an outpatient clinic with a five-day history of

progressive left-sided headache. The patient experienced nausea but no vomiting. He has a past history of hypertension. His blood pressure was 190/100mmHg and he was admitted to a medical ward for further management. His headache worsened after admission. His left eye turned red and the cornea became cloudy. Further history revealed that his vision of the left eye had deteriorated over the past six months. There was no history of eye trauma, contact with patients with conjunctivitis or recurrent episodes of ocular pain. He was referred to an ophthalmologist for further assessment.

On examination, his visual acuity (VA) was 6/24 on the right eye (pin hole (PH) of 6/12) and he was only able to perceive light on left eye. Anterior segment examination of the left eye showed inflamed conjunctiva with circumciliary injection pattern (Figure 1). There was no eye discharge. The cornea was hazy as a result of generalised oedema. The anterior chamber was shallow and there was presence of whitish lens material. She had a mid-dilated left pupil which was not reactive to light. Reverse relative afferent pupillary defect was noted and the red reflex was absent. Ocular examination revealed swollen and intumescent cataract. Intraocular pressure of the left eye was high at 54mmHg. His right eye showed immature cataract with an IOP of 12mmHg.

In view of high IOP and swollen mature cataract, he was diagnosed to have phacomorphic glaucoma in the left eye and was transferred to a tertiary hospital. The patient was advised to undergo a cataract operation and was given a guarded prognosis. Topical timolol, dorzolamide, latanoprost and oral acetazolamide were administered which led to the reduction of IOP (34mmHg). The headache improved and the BP was stabilised at 150/80mmHg after oral beta blocker was given. The patient underwent an extracapsular cataract extraction (ECCE) with intraocular lens (IOL) implantation under local anaesthesia (LA). Post-operatively, his VA improved to 1/60 and IOP 14mmHg. On

the third day, without antiglaucoma drugs, his VA improved to 6/60 (PH 6/36) and IOP 18mmHg. His cornea was clear but the pupil remained mid dilated with poor reaction to light. There was hyperaemia of the optic nerve but his retina was normal.

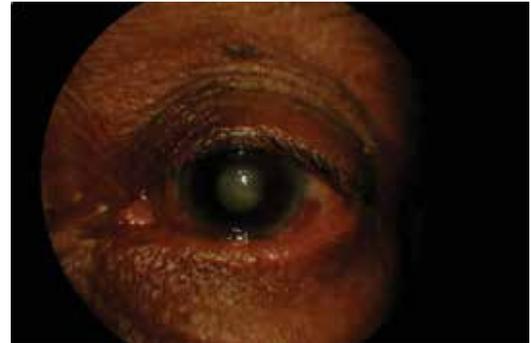


Figure 2.

Phacomorphic glaucoma in the left eye at the time of cataract extraction

Case 2:

An 87-year old woman presented with bilateral poor vision that had worsened in the past three months. There was no redness. Her VA was at level of 'count finger' (CF) on the right eye and perception to light (PL) on the left eye. The pupillary reaction to light was normal. She was diagnosed to have mature cataract and was referred to an ophthalmologist.

The patient developed a two-day history of left sided headache without nausea or vomiting before the consultation. Ocular examination revealed mild circumciliary injection of the conjunctiva and a hazy cornea. (Figure 2) The anterior chamber was deep with whitish lens material at the inferior part. The patient had mature cataract and the left pupil was dilated. The IOP was 52mmHg. Her right eye also showed mature cataract. In view of high IOP with presence of mature cataract and lens materials in the anterior chamber, she was diagnosed with phacolytic glaucoma. She agreed to undergo a cataract operation. Patient successfully underwent left extracapsular cataract extraction (ECCE) with IOL implantation under LA. On day one postoperatively, the VA of her left eye

remained at CF and the IOP 9 mmHg. At day seven postoperatively, her VA was improved to 6/36 (same for PH). The IOP remained normal at 12 mmHg without anti-glaucoma drugs. Her left pupil remained mid-dilated and non-reactive to light. The retina and optic nerve appeared normal.



Figure 2.
Phacolytic glaucoma in the left eye

Case 3:

A 60-year old Chinese man presented to an eye clinic with a two-week history of redness and pain in the right eye. There was no eye discharge, recent trauma or contact with people with conjunctivitis. He had a history of blunt force trauma to the right eye 10 years ago and was treated conservatively. His right eye vision progressively worsened over the years. He lost his vision completely in the last three years. There was no family history of blindness or glaucoma. His left eye vision was good but was sensitive to glare at night.

His right eye VA was at the level of hand movement (HM). On examination, his left VA was 6/9 and PH of 6/6. There was circumciliary conjunctival injection on the right side and the cornea was hazy due to oedema. His right anterior chamber was deep and the pupil was fixed and mid-dilated. There was whitish lens material at the angle of the anterior chamber. She also had a posterior subluxated cataractous lens and the IOP was 52mmHg. His left eye was normal with early cataract and the IOP was 14mmHg. There was a reverse relative afferent pupillary defect (RAPD). In view of the high IOP with posterior subluxated mature cataract and presence of lens materials in the

anterior chamber, she was diagnosed to have phacolytic glaucoma with subluxated lens. The patient was admitted to the eye ward for stabilisation of the IOP medically and planned for intracapsular cataract extraction (ICCE) and anterior chamber IOL under LA.

On day one postoperatively, the VA of his right eye remained at HM and the IOP was 10mmHg. Six months later, the VA was 6/60 with the IOP of 16mmHg without medication. The anterior chamber IOL was stable. (Figure 3) The right pupil was not reactive to light and the optic disc was pale. (Figure 4a and 4b)

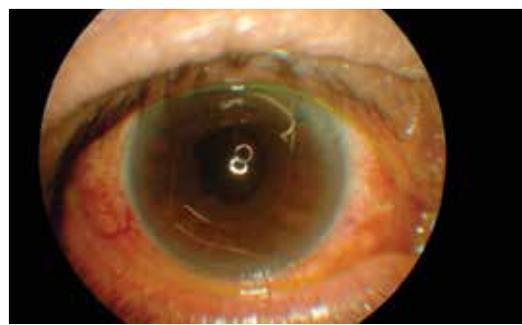


Figure 3.
Post-operative finding of right eye showed anterior chamber intraocular lens

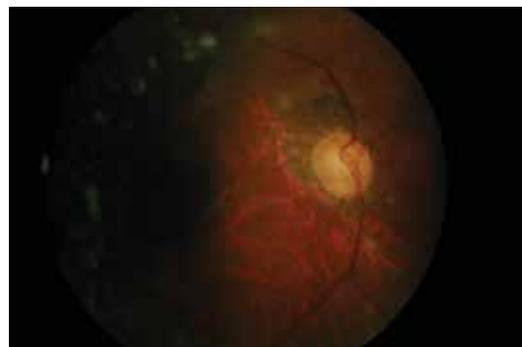


Figure 4a.
Optic atrophy of right eye



Figure 4b.
Normal optic disc of left eye

Discussion

Cataract and glaucoma are the main causes of visual impairment in the world, particularly among the elderly. Both conditions can occur either simultaneously or sequentially. As illustrated by the three cases above, a delay in the extraction of mature cataracts may result in either phacomorphic or phacolytic glaucoma. Lack of knowledge regarding the nature and progression of cataract, concomitant chronic diseases, old age and financial constraints are the primary reasons for a patient's delay in seeking medical help⁷. In addition, some health care providers perceive that cataracts in elderly are not dangerous and there is no screening programme for cataract locally.

Recognition of the red flags in cataract is important in identifying patients who are at risk of developing complications such as glaucoma. Patients may present with non-specific complaints such as unilateral headache. Removing a cataract only when it becomes mature is no longer practiced in most parts of the world. This is because a delay in cataract surgery may lead to multiple lens-related complications. Phacomorphic glaucoma (secondary close angle glaucoma), phacolytic glaucoma (secondary open angle glaucoma) and hypermature cataract with subluxated lens are among the most common problems. Phacomorphic glaucoma occurs as a result of forward displacement of the mature cataract, giving rise to pupillary block or iridocorneal angle closure. Phacolytic glaucoma is characterised by an acute rise in IOP associated with aqueous flare and cell in advanced cataracts. The pathogenic mechanism is attributed to microleakage of high molecular weight lens proteins through an intact anterior lens capsule. This causes an inflammatory response leading to obstruction of the aqueous

drainage channels by proteins, protein-laden macrophages, and inflammatory debris.⁸ Hypermature cataract with subluxated lens can cause the lens to be dislocated anteriorly or posteriorly causing complications such as inflammation and glaucoma.

Cataract extraction remains the only definitive treatment for an intumescent cataract. Cataract surgery in phacomorphic glaucoma is challenging due to the high intraocular pressure that increases the risk of expulsive hemorrhage. Positive pressure and zonular dialysis also makes surgery difficult.⁶ Phacomorphic glaucoma, characterised by a shallow anterior chamber with high IOP, is a common condition in developing countries. Extra-capsular cataract extraction requires a large incision in the globe and with very high IOP; it increases the risk of complications such as astigmatism, optic atrophy and blindness^{6,9}. Complicated cataracts carry a poor prognosis. Surgical intervention relieves patients' symptoms, but may not restore the vision. Patients with complicated cataracts can eventually develop corneal decompensation, glaucoma and optic atrophy. In view of this, there is a need to educate patients and health workers of the dangers of neglected cataracts as the prognosis is poor especially when treatment is delayed.⁸

Conclusion

Early diagnosis, a comprehensive medical eye evaluation and timely surgical intervention are crucial in the management of cataract. Structured community programmes are essential to increase awareness on the risks of cataract complications. Cataract complications are preventable and family physicians play an important role in identifying and referring these high-risk patients early for management.

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