

## A study on efficacy of homoeopathic medicines on 12 patients with secondary glaucoma due to closed globe trauma

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**Cite this paper as:** Dr. Rajendrakumar Babubhai Patel (2024). A study on efficacy of homoeopathic medicines on 12 patients with secondary glaucoma due to closed globe trauma. Frontiers in Health Informatics, 13 (8) 1831-1841

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### **Abstract:**

#### **BACKGROUND**

Secondary glaucoma is a major complication following closed globe trauma. It is clinically manifested by elevated intraocular pressure (IOP), that affect optic nerve and lead to loss of visual field. Conventional treatment often focuses on managing IOP through medications or surgery, but there is growing interest in alternative treatments, such as homeopathy, for their non-invasive nature and potential to stimulate the body's self-healing processes.

Practitioners of homeopathy dilute substances to extremely low concentrations, following the belief that similar symptoms to a disease can treat that disease. While traditionally used in various conditions, its efficacy in ophthalmic diseases, particularly secondary glaucoma, remains underexplored.

This study examines the effects of individualized homeopathic treatments on secondary glaucoma in patients with a history of closed globe trauma.

#### **METHODS**

##### **Study Design**

This is a prospective, observational open label study conducted over a period of 1 months with period of weekly follow up. A total of 12 patients, diagnosed with secondary glaucoma following closed globe trauma, were enrolled in the study.

##### **Patient Selection Criteria**

###### **Inclusion criteria:**

Patients aged 18 to 60 years.

Diagnosed with secondary glaucoma after closed globe trauma.

Willingness to participate and provide informed consent.

###### **Exclusion criteria:**

History of pre-existing glaucoma.

Recent ocular surgeries within the last 12 months.

Patients with severe systemic conditions that may interfere with treatment outcomes.

##### **Homeopathic Treatment Protocol**

Each patient received individualized homeopathic remedies based on their specific symptoms, medical history, and overall constitution. Remedies were selected after comprehensive case analysis, and follow-up visits were scheduled

every two weeks.

Commonly prescribed homeopathic medicines for secondary glaucoma included Phosphorus, Osmium, Belladonna, and Bryonia. Potencies ranged from 30C to 200C, and patients were advised on dosage according to symptom severity.

Outcome Measures

**Primary Outcome:** Reduction in intraocular pressure (IOP) measured using Goldmann applanation tonometry.

**Secondary Outcomes:** Visual acuity (measured with a Snellen chart), optic nerve function (assessed by visual field testing), and patient-reported symptoms (such as eye pain, blurring of vision, etc.).

**Statistical Analysis**

Data were analyzed using descriptive statistics. The researchers used paired t-tests to evaluate differences in intraocular pressure (IOP) and visual acuity measurements taken before and after treatment.

## RESULT

Of the 12 patients, 12 completed the study. Baseline IOP ranged from 24 to 35 mmHg. After one month of individualized homeopathic treatment, 8 patients showed significant reduction in IOP, with an average reduction of 8 mmHg ( $p < 0.05$ ). Visual acuity improved significantly in 7 patients, while the other 5 showed mild to moderate improvement.

Patient-reported symptoms, such as headache, dizziness, blurred vision, congestion, eye pain and photophobia, decreased notably in 10 patients while the other 2 showed mild to moderate improvement. Visual field testing showed no further damage to the optic nerve in most cases, suggesting the treatment may have helped stabilize the progression of glaucoma.

## CONCLUSION.

This study provides preliminary evidence that individualized homeopathic treatment may reduce intraocular pressure and stabilize visual function in patients with secondary glaucoma after closed globe trauma. Given the promising outcomes, further research is warranted to explore homeopathy's role as a complementary therapy for secondary glaucoma management.

**Key Words:** Glaucoma, Placebo, Atrophy, Iridodesis, Exotropia, Esotropia, Nystagmus, Keratoglobus, Keratoconus, Hypermetropic eye, Myopic eye, Convergent, Divergent Squint, Amblyopia, Optic Atrophy, Megalocornea

**1. INTRODUCTION:** Secondary glaucoma is a major complication following closed-globe trauma. It is diagnosed with raised IOP which can damage the optic nerve and ultimately lead to a visual field loss. Currently, the main approach is to control the IOP either medically or surgically. Although modern homeopathy is niche, there is an increasing interest because it is non-invasive and may stimulate the body's healing abilities.

Homeopathy, based on the principle of "like cures like," involves the use of highly diluted substances to treat diseases. While traditionally used in various conditions, its efficacy in ophthalmic diseases, particularly secondary glaucoma, remains underexplored.

The risk of open globe injury is 2.37%, while of closed globe trauma is 3.39% after blunt trauma according to recent studies. Majority of patients who are at risk of developing secondary glaucoma after trauma to the eye since the incidence of eye injury is around 2.5 million patients annually in the United States. Eye injuries are particular in the aged after falls and among young patients due to sports injury or physical trauma. After eye injury an acute rise in IOP due to damage to the trabecular meshwork, inflammation, and other processes. Chances of developing secondary glaucoma depends more on severity of injury. IOP can also increase after many years of injury due to damage in trabecular network. Such type of secondary glaucoma can occur from 10 to 20 years post injury. Such cases can be considered under the heading of secondary glaucoma. It is advisable that patient with such injury should always be evaluated for glaucoma and should be advised regular eye check up at least once in 6 months if suffering from any systemic disease. There are many other reasons that can lead to secondary glaucoma which could be variable across various regions of various countries.

Secondary glaucomas may be subdivided into either angle-closure or open-angle glaucoma by gonioscopy. Various pathological conditions affect the outflow channels of the eye, and may be classified into those causing the iris to be pushed or pulled forwards leading to an angle-closure glaucoma, or those that affect the trabecular meshwork itself, for example, by means of fibrosis, in which the angle remains open on gonioscopy. The common causes of secondary glaucomas are discussed below. They occur more often in eyes predisposed to glaucoma, as in those with a family history

or in whom other risk factors are present. The treatment is usually that of the primary cause, followed by the control of intraocular pressure to an individualized ‘target pressure’. (Ramanjit Sihota, 2023)

Various types of Secondary glaucoma are:

(1) Inflammatory glaucoma. (2) Secondary glaucoma after perforation of the cornea (3) Neovascular glaucoma (4) lens induced glaucoma (5) Aphakic or Pseudophakic glaucoma (6) corticosteroid induced glaucoma (7) Due to Intraocular tumour (8) Pigmentary Glaucoma (9) Malignant glaucoma.

Various studies have been done to study how effective homoeopathic remedies are in eye conditions but there are very few studies regarding secondary glaucoma and particularly closed globe trauma induced secondary glaucoma. Evaluation of the degree of IOP reduction in cases of secondary glaucoma patients taking homoeopathic treatment will accurately define the effectiveness of homoeopathic remedies. Which will also help to compare the outcomes of homoeopathic management of those observed in secondary glaucoma patient.

**2. LITERATURE REVIEW:** Closed-globe, concussion or contusion injury Mode of injuries occurring during blunt trauma to the eye can be ‘coup’ or direct, e.g. corneal abrasions, or ‘contrecoup’ or distant damage due to transmitted pressure waves as in commotio retinae. Numerous lesions may result; indeed, every part of the eye may be so injured by a contusion as to seriously diminish vision. Moreover, in some cases, the changes are delayed or progressive so that in all cases a guarded prognosis should be given and the patient kept under review for months to years. Mechanism of blunt trauma eye: As a general rule, either the anterior segment of the eye in front of the iris–lens diaphragm or the posterior half is preferentially affected. The mechanism is as follows. When a force impinges upon the cornea, this tissue is thrust inwards and may even be forced against the lens and iris; the wave of aqueous pushes these structures backwards and as the compression wave rebounds from the back of the eye, they are thrust forward again. They may thus be severely traumatized. At the same time, there is a horizontal wave of pressure striking the retina and choroid as well as the angle of the anterior chamber, which may do considerable damage. Delayed complications such as secondary glaucoma, cataract, vitreous haemorrhage, retinal detachment or traumatic iridocyclitis may follow.

Various effects of closed globe injury: (1) In orbital cavity fracture of medial wall and floor of the orbit, hematoma and fistula (2) Upper/Lower lid hematoma and CLW (3) Subconjunctival haematoma (4) Traumatic cataract, angle recession, Subluxation of lens (5) Rupture and perforation of the sclera (6) Vitreal detachment and haemorrhage (7) Choroidal rupture and haemorrhage (8) Oedema, Detachment, haemorrhage of retina (9) Oedema, haemorrhage, hole and detachment of macula. (10) Damage and atrophy of optic nerve.

Rupture of the globe & sclera results injury occurring from inside outwards. This may lead to pressure in orbital walls. It is often caused by a fall upon some projecting object, such as a knob or a key in a door. The force usually comes from the inferotemporal direction, where the eyeball is least protected by the orbital margin and the globe is pushed against the pulley of the superior oblique muscle. The sclera gives way upwards and at its weakest part, in the neighbourhood of the canal of Schlemm or just posterior to the insertion of the recti. The wound runs obliquely outwards and backwards from the canal through the sclera to appear more or less concentric with the corneal margin and about 3 mm behind it. The conjunctiva is often intact, but there are always severe injuries to other parts of the eye. The iris is generally prolapsed or torn away (iridodialysis) or retroflexed. The lens may be expelled from the eye, escape under the conjunctiva (subconjunctival dislocation of the lens) or be forced back into the vitreous, in which case the anterior chamber becomes deep. Intraocular bleeding may be profuse, filling the anterior chamber and vitreous, and the condition may be complicated by a detachment of the retina with or without subretinal or suprachoroidal haemorrhage (Ramanjit Sihota, 2023)

**Glaucoma in Homoeopathy**

Homoeopathy has various therapeutic methods for treatment in cases of visual defects. Treatment is based on the similimum and constitutional data. The treatment protocol uses remedies at three dilution levels: low potency (4C),

medium potency (7C), and high potency (15C). Few choices of remedies used in treatment of glaucoma.

Belladonna: Throbbing deep in eyes on lying down. Pupils dilated. Inflammation of eyes, staring, brilliant; conjunctiva red; Exophthalmos, dry, hot; photophobia; shooting in eyes. Ocular illusions; fiery appearance. Diplopia, squinting, spasms of lids. Sensation as if eyes were half closed. Eyelids swollen. Fundus congested.

Cedron: Shooting over left eye. Intense tenderness in eyeball, with radiating pains around eye, shooting into nose. Scalding lachrymation. Supra-orbital neuralgia periodic. Iritis, choroiditis.

The patient exhibits symptoms of glaucoma when treated with Comocladia Dentata, characterized by a sensation of enlarged eyeballs and excessive pressure within the eye. Motion of eyes aggravates. The patient reports pain in the ciliary nerves, with a sensation of eye enlargement and protrusion, particularly on the right side. Symptoms worsen when near heat sources like stoves, with a feeling of outward pressure. Vision in the left eye is limited to only perceiving faint light.

Phosphorus: Glaucoma. Thrombosis in retinal vessels also presence of degenerative changes in retinal cells. The elderly patient presents with degenerative eye conditions characterized by pain and distorted vision with curved lines. They are experiencing retinal problems accompanied by visual disturbances including light sensitivity and visual hallucinations.

Physostigma: dim Vision, Nystagmus; from blur or film; objects mixed. Pain while using eyes; , flashes of light, floating black spots, twitching of lids and muscles of eyes.

Osmium: Glaucoma; with iridescent vision. lachrymation Violent neuralgia in supra and infra-orbital; violent pains.

Green colors surround candlelight. Conjunctivitis. Increase in intra-ocular tension, dim sight, photophobia.

Spigelia Anthelmia: Feel too big; pain on pressing pain on turning or moving them. Pupils dilated; photophobia; rheumatic ophthalmia. Severe pain ideep into socket. Ciliary neuralgia seen in a true neuritis (Mathew, October / 2021).

According to article by JS D. S in International Journal of Homoeopathic sciences in 2023 on Glaucoma and Homoeopathy, Homeopathy is very effective at treating the signs of glaucoma and has a high success rate. It reverses the genetic predisposition and vulnerability to Glaucoma. Homeopathic therapy for glaucoma improves blood supply to the eye, promotes normal aqueous humour generation, circulation, and drainage (JS, 2023)

Also article by Dr. R.B Patel on Effectiveness of phosphorous in the management of Glaucoma in The Homoeopathic Heritage in 2024 says that the description and discussion regarding this study are going towards the prevalence ratio of vision in community. Different homoeopathic medicines are liable to control IOP, to prevent retinal blindness to maintain the optical status and functional condition of glaucomatic structures, prevention of complication after glaucoma diagnosis (Patel, 2024).

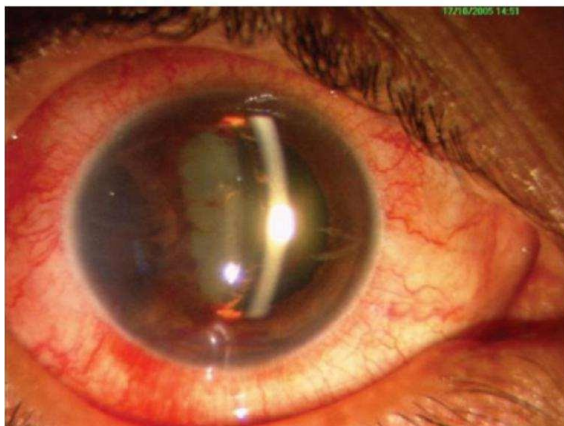


Fig 1.1



Fig 1.2





Fig 1.3



Fig 1.4



Fig1.5



Fig 1.6



Fig 1.7



Fig 1.8



Fig 1.9



Fig 1.10

#### VARIOUS IMAGES RELATED WITH CLOSED GLOBE TRAUMA CAUSING SECONDARY GLAUCOMA

**3. OBJECTIVES / AIMS:** The primary objective of the study is to evaluate the efficacy of homeopathic remedies in reducing intraocular pressure and improving visual function in patients who developed secondary glaucoma following closed globe trauma.

#### 4. RESEARCH METHOD /METHODOLOGY:

##### Study Design

This is a prospective, observational open label study conducted over a period of 1 months with period of weekly follow up. A total of 12 patients, diagnosed with secondary glaucoma following closed globe trauma, were enrolled in the study.

##### Patient Selection Criteria

##### Inclusion criteria:

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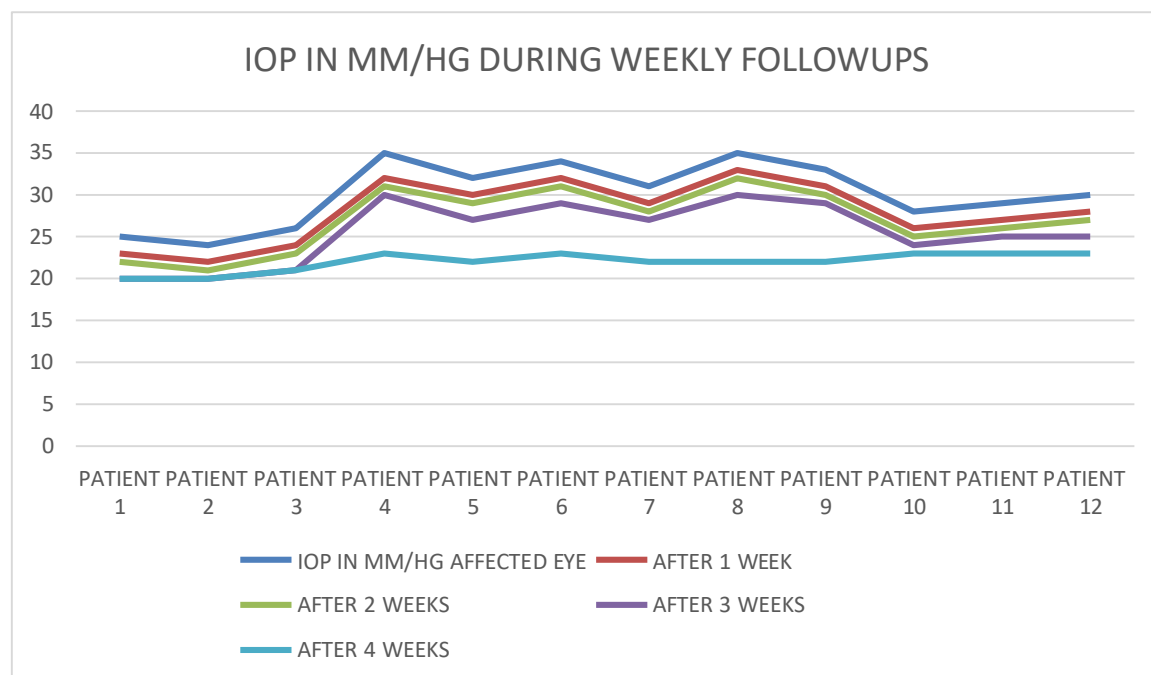
##### Statistical Analysis

Data were analyzed using descriptive statistics

Using paired t-tests changes in IOP and visual acuity were compared before and after treatment.

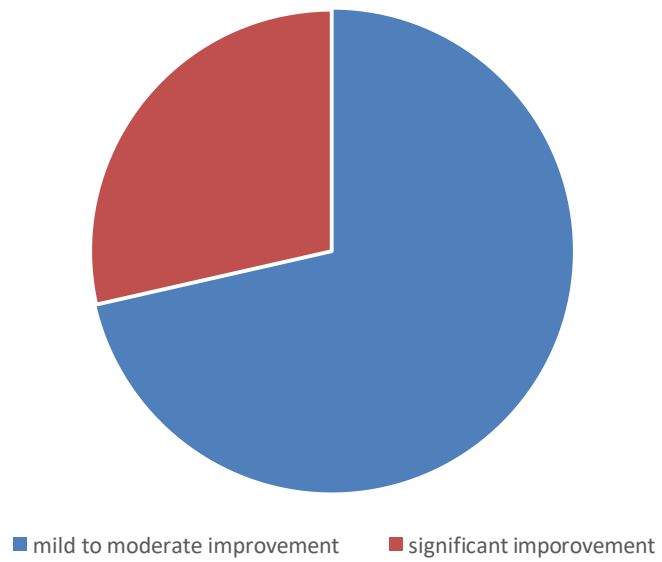
**5. RESULT /FINDINGS:** Of the 12 patients, 12 completed the study. Baseline IOP ranged from 24 to 35 mmHg. After one month of individualized homeopathic treatment, 8 patients showed significant reduction in IOP, with an average reduction of 8 mmHg ( $p<0.05$ ). Visual acuity improved significantly in 7 patients, while the other 5 showed mild to moderate improvement.

Patient-reported symptoms, such as headache, dizziness, blurred vision, congestion, eye pain and photophobia, decreased notably in 10 patients while the other 2 showed mild to moderate improvement. Visual field testing showed no further damage to the optic nerve in most cases, suggesting the treatment may have helped stabilize the progression of glaucoma.

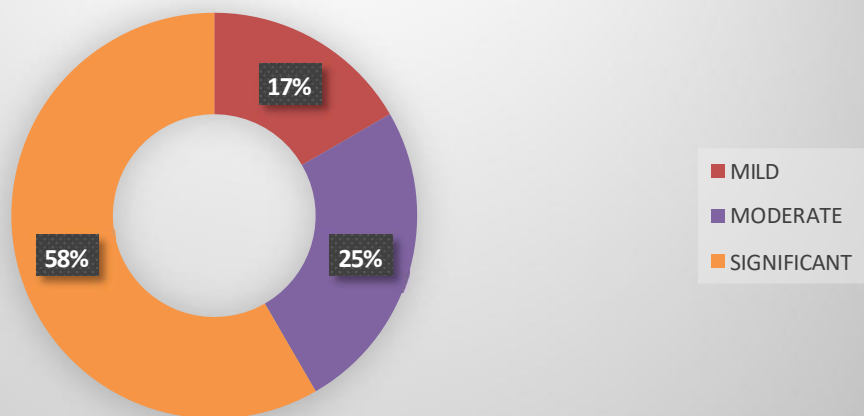


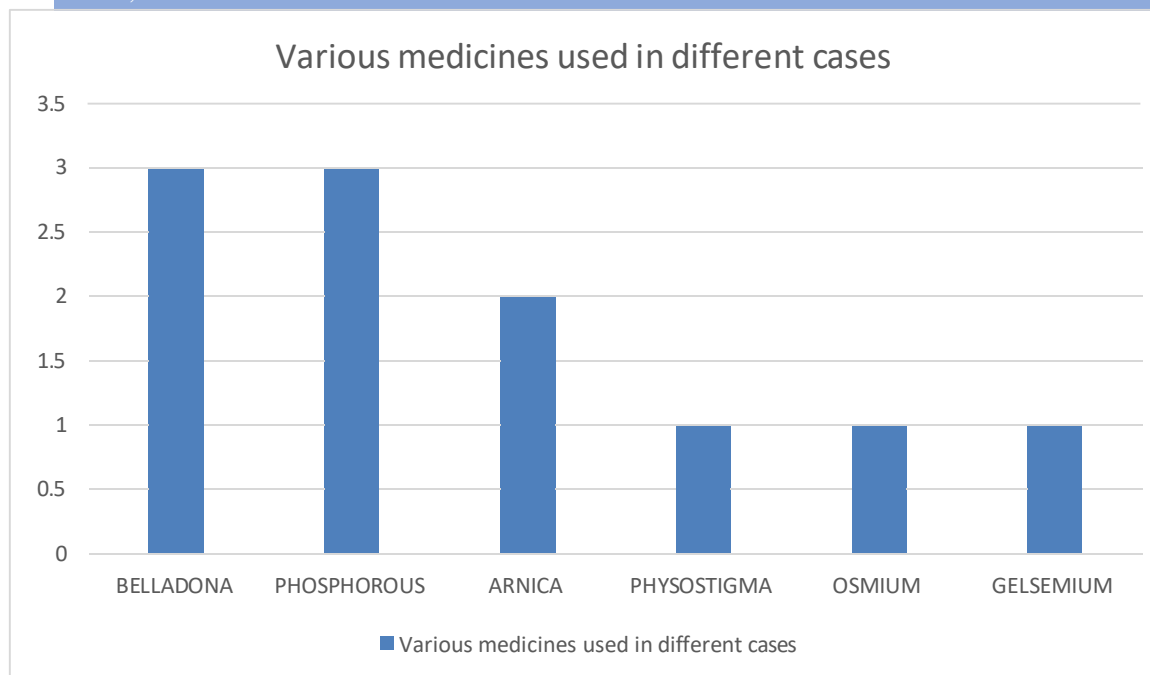


### improvement in symptoms after 1 month



### IMPROVEMENT IN VISUAL ACUITY AFTER 1 MONTH





**6. DISCUSSION / ANALYSIS:** The results of this study indicate that homeopathic treatment may play a role in managing secondary glaucoma following closed-globe trauma. Although this is a small observational study, the significant reduction in IOP and stabilization of visual function in most patients suggest that Homeopathic remedies are believed to stimulate the body's innate healing processes, but further studies with larger sample sizes and randomized control trials are needed to establish definitive conclusions. A major limitation of this study is the small sample size and lack of a control group, making it difficult to generalize the findings. Additionally, homeopathy's individualized approach makes standardizing treatments for larger studies challenging.

**8. CONCLUSION / SUMMARY:** Homeopathic therapy might be potentially helpful for patients with secondary glaucoma following closed-globe trauma and warrants further study; this pilot investigation offers some proof of this hypothesis. To pursue the goal of developing homeopathy as an additional complementary therapy, which would help manage the condition of patients with secondary glaucoma and produce such results, further research is needed.

#### 9. LIMITATIONS:

1. In cases of secondary glaucoma due to closed globe trauma with other systemic diseases.
2. Cases that already got blindness post-secondary glaucoma
3. Effects of homeopathic remedies were limited in cases with surgery within the previous six months.
4. In very late stages of secondary glaucoma.

#### 10. RECOMMENDATIONS:

- It is recommended that closed-globe trauma be studied further to evaluate the exact effect of homeopathic remedies.
- Also, a comparative study must be conducted to study the pros and cons of various managements.
- Homoeopathic remedies how shown better and gentler effects in cases of secondary glaucoma due to closed-globe trauma and hence awareness must be made regarding the same.

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