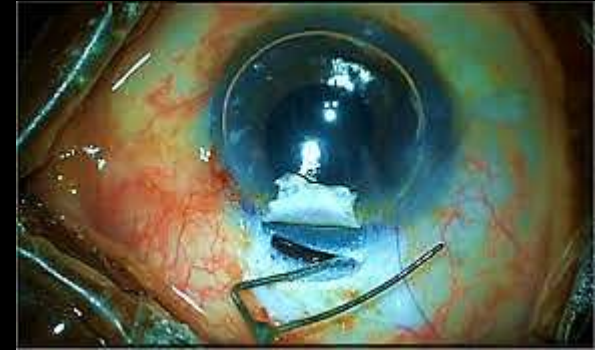
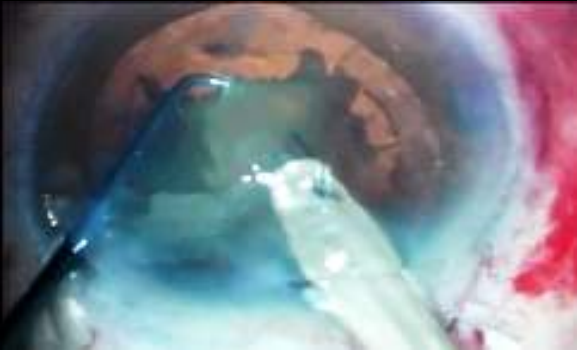


أَمَّنْ خَلَقَ السَّمَاوَاتِ وَالْأَرْضَ وَأَنْزَلَ لَكُمْ مِنَ السَّمَاءِ مَاءً فَأَنْبَتْنَا بِهِ حَدَائِقَ ذَاتَ بَهْجَةٍ مَا (
(كَانَ لَكُمْ أَنْ تُنْبِتُوا شَجَرَهَا) أَلَا مَعَ اللَّهِ بَلْ هُمْ قَوْمٌ يَعْدِلُونَ
[النمل: 60]



BEYOND PHACO ALONE

A SUPERIOR SURGICAL STRATEGY FOR CPACG



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Background: Chronic Primary Angle Closure

Glaucoma (PACG)

CPACG is defined as **synechial angle closure**, obstruction of trabecular outflow, and progressive optic neuropathy causing irreversible vision loss.

Standard management

Includes medications, Laser PI, and Phaco.

Phacoemulsification deepens the AC and lowers IOP but has limitations.

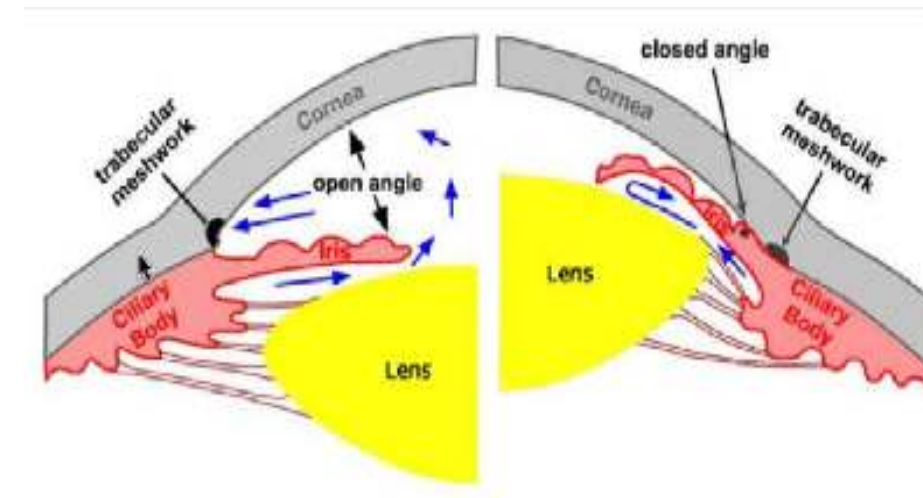
Phaco alone may not reverse permanent trabecular damage or address extensive **PAS**.

Surgical Rationale

Adding **synechiolysis** and **trabecular surgery** (360-suture trabeculotomy) restores physiological outflow and greatly improves IOP control.

Main Pathology

TM Blockage or scarring
Angle Closure with PAS > 100



Elwehidy et al. *BMC Ophthalmology*
(2025)

RESEARCH

Open Access



Visco-circumferential-suture-trabeculotomy-synechiolysis with phacoemulsification versus phacoemulsification alone for chronic primary angle closure glaucoma

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Mostafa AS Elwehidy¹ and Dina Abdelfattah¹

Abstract

Purpose To assess the surgical outcomes of visco-circumferential-suture-trabeculotomy-synechiolysis (VCSTS) with phacoemulsification compared with phacoemulsification alone for the treatment of chronic primary angle closure glaucoma (PACG).

Settings Mansoura Ophthalmic Center, Mansoura, Egypt.

Design Retrospective double armed interventional non randomized comparative study.

Methods A total of 88 eyes (60 patients) with uncontrolled PACG between 2016 and 2023 were subjected to

Study Purpose & Endpoints

Retrospective double armed interventional comparative study.

24-Month Follow-up

Primary Objective

To compare surgical outcomes of **VCSTS with phaco** (VCSTS-PE) versus phaco alone (PE) in chronic PACG.

Primary Endpoints

Assessment of **IOP reduction** and **surgical success rates** at 24 months post-operatively.

Secondary Endpoints

Evaluation of reduction in **AGMs** dependency.

Safety Assessment

Monitoring of intra-operative and post-operative complications and adverse events.



METHODOLOGY

Study Type & Setting

Retrospective, double-armed study conducted at **Mansoura Ophthalmic Center, Egypt** (2016–2022).

Patient Population

Included **88 eyes** diagnosed with chronic PACG.

Success Criteria

Defined as IOP 6–18 mmHg and $\geq 30\%$ IOP reduction.

- **Complete:** Without AGMs
- **Qualified:** With AGMs

Follow-up Period: for **24 months** post-operatively.



METHODOLOGY

Patients' demographics

Baseline characteristics were comparable with no significant difference between both study arms ($p > 0.05$)

Groups:

VCSTS-PE (Intervention Group): 43 eyes of mean Age of 61.1 ± 0.9 yrs

Phaco-Alone (Control Group): 45 eyes of mean Age of $61.7 \pm$

Main Inclusion Criteria:

Synechial angle closure $\geq 180^\circ$

IOP > 21 mmHg on maximally tolerated medications



METHODOLOG Y

Surgical Techniques

- **Combined Procedure (VCSTS-PE)**
 - **360° Trabeculotomy** using 5-0 polypropylene suture with **Synechiolysis**
 - Directly addresses trabecular obstruction & physically lyses PAS via 360° suture passage.
- **Phaco Alone + IOL Implantation (Standard Procedure)**
 - Relies on lens removal to deepen the AC & indirectly open the angle, without direct trabecular intervention.



Key Results

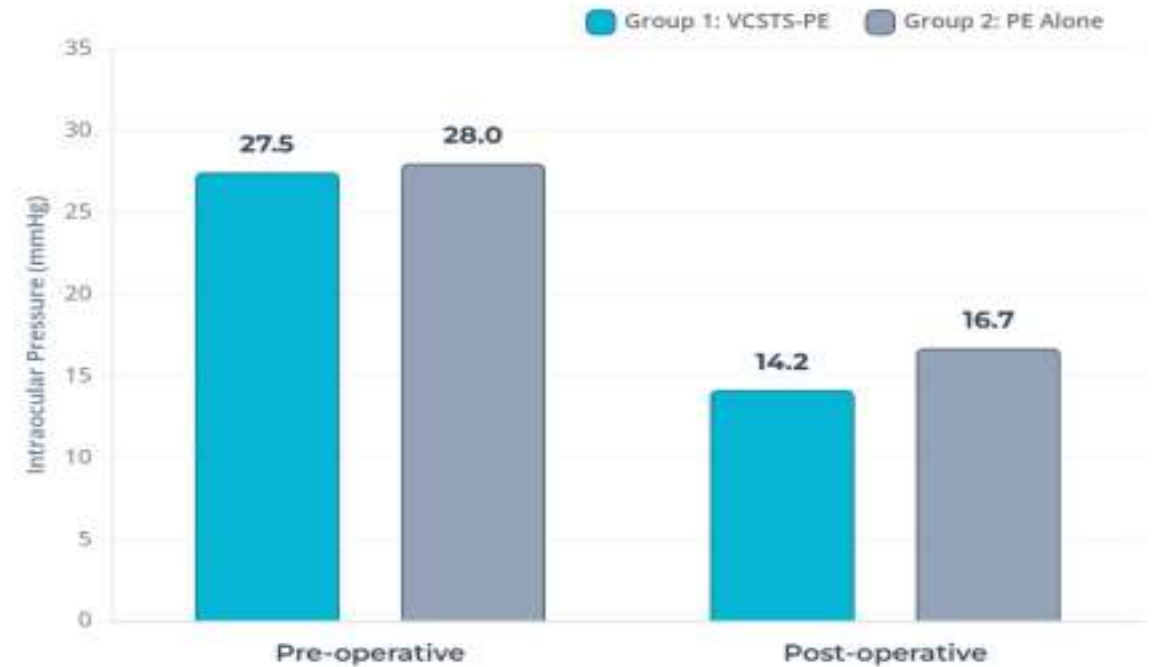
IOP Reduction:

Group 1: VCSTS-PE (COMBINED PROCEDURE)

Mean Reduction: **13.3 mmHg** (48.5%)

Group 2: PE Alone (STANDARD PHACO)

Mean Reduction: **11.3 mmHg** (40.4%)



VCSTS-PE achieved significantly lower postoperative IOP compared to phacoemulsification alone.

(Between Groups: $p < 0.001$)

Key Results

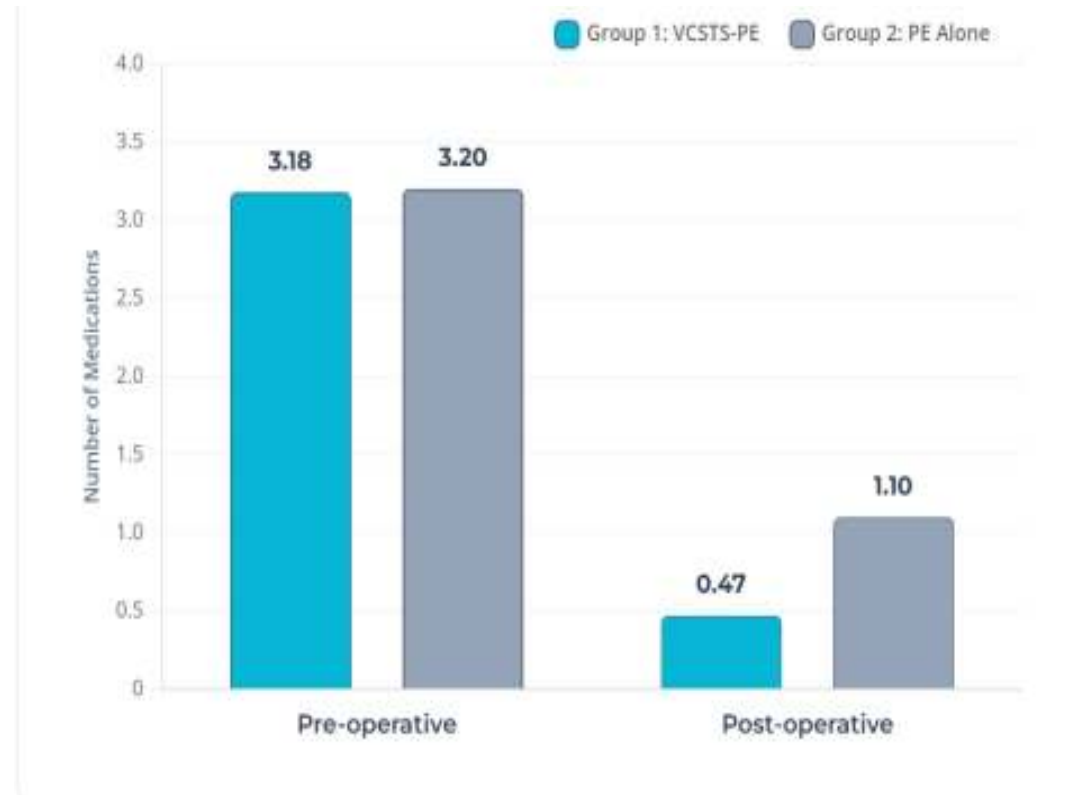
Medication Reduction

Group 1: VCSTS-PE(COMBINED PROCEDURE)

Post-op Mean: **0.47** meds (85.2%)

Group 2: PE Alone (STANDARD PHACO)

Post-op Mean: **1.1** meds (65.6%)



VCSTS-PE group demonstrated a significantly lower dependency on AGMs compared to the phaco-alone group. (Post-op Comparison: $p = 0.035$)

Key Results

SURGICAL OUTCOMES

Success Rates (24 Months)

Comparison of Qualified (Kaplan-Meier) & Complete Success Rates



While qualified success rates were comparable, **VCSTS-PE** demonstrated a markedly higher rate of complete (medication-free) success (83.7% vs 62.2%), highlighting its potential to reduce long-term medication burden.

Post-operative Complications:

- 1-Mild, self-limited **hyphema** was most frequent in combined group, resolving without intervention.
- 2-**Fibrinous exudation** occurred in 5 eyes (combined group) versus 2 eyes (phaco group), managed with standard anti-inflammatory therapy.
- 3-**Transient Hypotony**: observed in 3 eyes in combined group but was transient, manageable & without long-term sequelae.

Safety Profile

The combined procedure demonstrates an acceptable & manageable safety profile with self-limited events & without **vision-threatening** complications.

Conclusions & Recommendations

1-Superior Surgical Strategy

VCSTS combined with Phacoemulsification is **superior to Phaco alone** for managing chronic PACG.

2-Enhanced Efficacy

Achieved **greater IOP reduction** & significantly **higher complete success** rates compared to the control group.

3-Reduced Burden

Significant **reduction in post-op. AGM dependency**, improving patient quality of life.

4-Favorable Safety

Profile characterized mostly by mild, self-limited complications (e.g., transient hyphema).

5-Clinical Recommendation

Consider **VCSTS-PE as a primary option** for chronic PACG patients presenting with extensive PAS & uncontrolled IOP

THANK YOU

