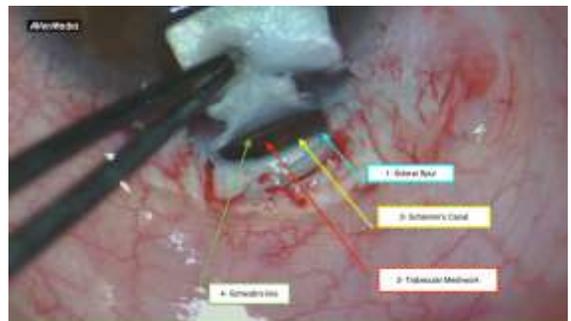


Deep Sclerectomy and Modifications

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History and Rationale

- Fyodorov and Kozlov DS in 1990
 - Addresses the area of maximum outflow resistance
 - filtration of aqueous through TDM into the intrascleral reservoir
 - Subconjunctival filtering bleb
 - Intrascleral filtration
 - Subchoroidal passage through sclera
 - Episcleral veins via SC



Deep Sclerectomy

Advantages

- NO sudden decompression
- LESS hypotony
- LESS Inflammation
- LESS bleeding
- BETTER recovery

Disadvantages

- Harder
- Longer OR time
- More instruments
- Perforation
- IOP ??

Indications

- Uncontrolled IOP
 - Primary OAG
 - Pigmentary glaucoma
 - Pseudo-exfoliative glaucoma
 - Normal-tension glaucoma
 - Secondary OAG (uveitic glaucoma)
 - Steroid-induced glaucoma
 - Pseudophakic glaucoma
 - Congenital/juvenile OAG

Contraindications

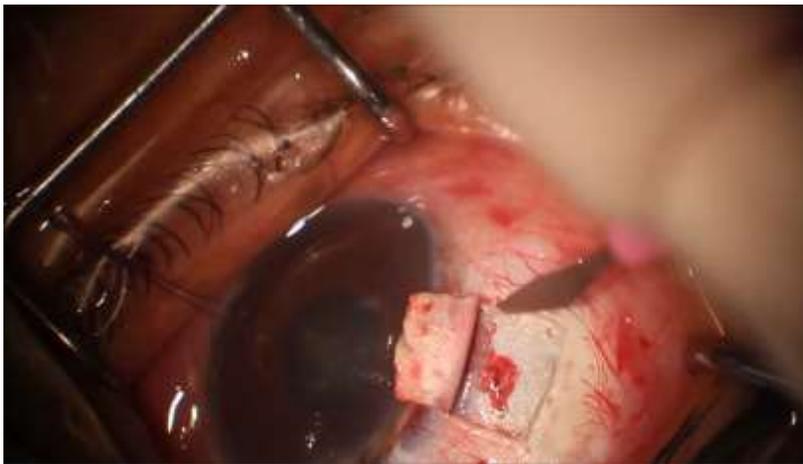
Absolute

- Primary ACG
- Secondary ACG
- NVG

Relative

- Increased episcleral pressure
- Narrow angle
- Traumatic glaucoma

Technique



Courtesy of Prof Dr AM Abdelrahman



Courtesy of Prof Dr AM Abdelrahman



Modifications

Maintain
intrascleral lake

- Implants
- Sutureless DS
- Sub flap Ahmed suture

Combination with
other techniques

- MMC
- CO2 laser assisted sclerectomy surgery CLASS
- With trabeculotomy

Implants

Absorbable

Non absorbable

Collagen

Amniotic

SK gel

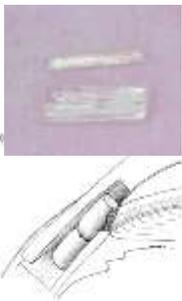
Healon GV

T flux

Esnoper

Mermoud X

PMMA



Sutureless Deep Sclerectomy: A Preliminary Report

Ahmed M. Abdelrahman, MD, FRCSED, Rasha EITanamy, MD,
and Mohamed Sabry, MD

Abstract: This study describes a modification of deep sclerectomy, making it completely sutureless, with a 6-month follow-up period. This was a prospective pilot phase that included 24 eyes of 16 patients, 13 male individuals and 3 female individuals, with medically uncontrolled open-angle glaucomas despite maximally tolerated medical therapy. After excising the deep flap, no sutures are added to the superficial scleral flap or to the conjunctiva. A statistically significant reduction of the intraocular pressure was reported during all the follow-up visits without serious complications.

Key Words: deep sclerectomy, sutureless glaucoma surgery, non-penetrating glaucoma surgery, Schlemm canal

(*J Glaucoma* 2017;26:e255–e256)

Abdelrahman et al

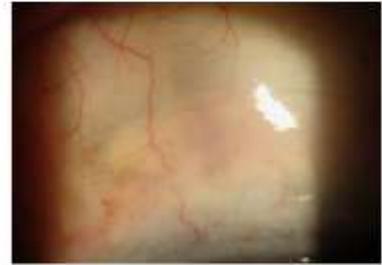


FIGURE 1. The conjunctiva at the site of sutureless deep sclerectomy 1 month after the operation. It shows a diffuse bleb. The superficial scleral edges are seen without sutures.

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Non-penetrating deep sclerectomy with the sub flap (Ahmed's) suture: a 12-month comparative study

Ahmed Mostafa Abdelrahman¹, Lamecca Moustafa Hassan^{2,3*} and Mina Maged Habib⁴

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PURPOSE: To assess the IOP-lowering effect of adding a mattress suture (Ahmed's suture) to non-penetrating deep sclerectomy (NPDS), in patients with open angle glaucoma over a 12-month follow-up period.

METHODS: This is a randomized controlled study comparing 52 eyes with a sub-flap Ahmed's suture modified NPDS (group A) and 51 with a conventional NPDS (group B). Success of surgery was categorized as complete success if the IOP remained between 6 and 18 mmHg without medications and as qualified if topical medications were required.

RESULTS: The post-operative IOP at the 1st week, 3rd, 6th, 9th & 12th months follow ups in group A were significantly lower (7.3 ± 2.1 , 12.0 ± 2.3 , 12.6 ± 2.7 , 13.6 ± 3.4 & 13.8 ± 3.8 mmHg) than in B (9.2 ± 1.9 , 14.0 ± 3.1 , 14.8 ± 2.9 , 15.4 ± 2.6 & 15.7 ± 2.7 mmHg) ($p = 0.001$, $p = 0.001$, $p = 0.002$, $p = 0.027$ & $p = 0.029$ respectively). The percentage of IOP reduction after 1 year was significantly higher in group A than in group B (49% vs. 36.5%). At the end of the 12-month follow-up, 81% of group A and 69% of group B were considered as complete success. Multivariate regression analysis showed lower 1st week post-operative IOP was associated with better outcome.

CONCLUSION: In conclusion, the Ahmed's suture, a simple, novel and economic modification, maintains lower IOP levels and has a higher success rate over conventional DS as it is 30% more effective in reducing the IOP.

Eye (2023) 37:1308–1313; <https://doi.org/10.1038/s41433-022-02102-6>

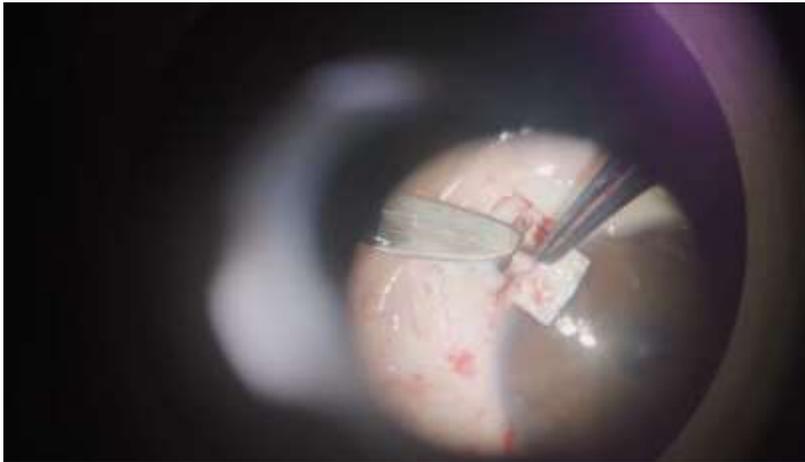
Modifications to maintain the scleral lake



SC peel & Ahmed's suture courtesy of Prof Dr AM Abdelrahman



DS combined with Trabeculotomy



Tips for success

- High magnification is imperative.
- The deep scleral flap should almost reach the choroid posteriorly.
- Loosen the corneal traction suture during the deep flap dissection and SC peeling.
- Paracentesis helps avoid penetration during SC peeling.
- Gentle movements and avoid downward pressure when peeling SC wall.

Take home message

- Harder to learn yet way less complications
- Indicated in a wide array of cases
- Don't worry!! You can still convert to trabeculectomy