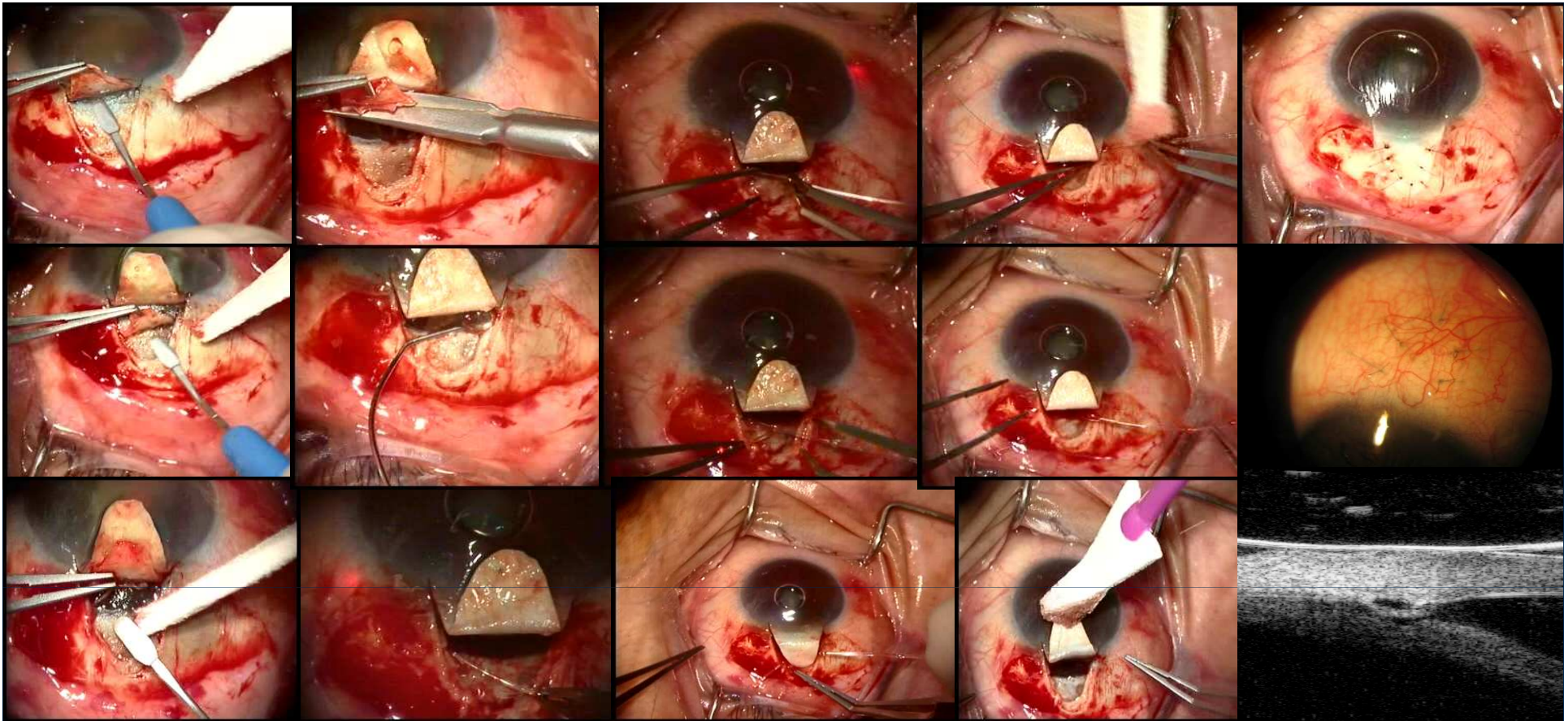


Azienda Ospedaliera di Rilievo Nazionale e di Alta Specializzazione Garibaldi Catania



Unità Operativa Complessa di Oftalmologia

Direttore: Dott. Antonio Rapisarda



La Canaloplastica: Nostra esperienza

A Rapisarda

MG Distefano*, DR Lombardo, L Rapisarda

S.O.SI. 16/04/2010

*



U. O. Oculistica
Dir. Dott. E. Ferrari

Canaloplastica: Premesse

Chirurgia del glaucoma

Chirurgia perforante

Gold Standard

Trabeculectomia

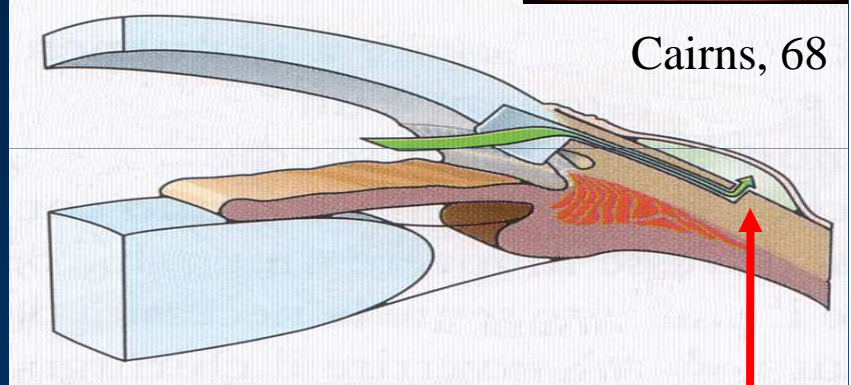
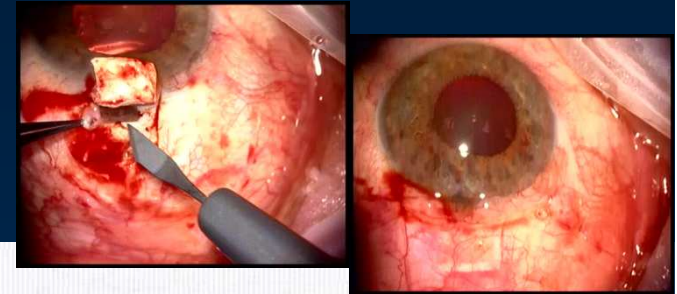
Trabeculectomia + MMC / 5FU

Chirurgia non perforante

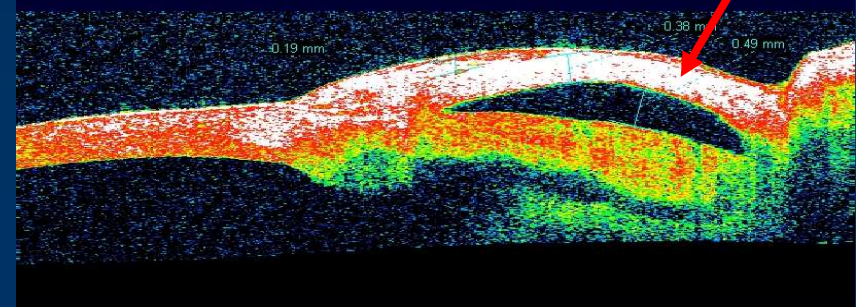
Viscocanalostomia

Sclectomia profonda

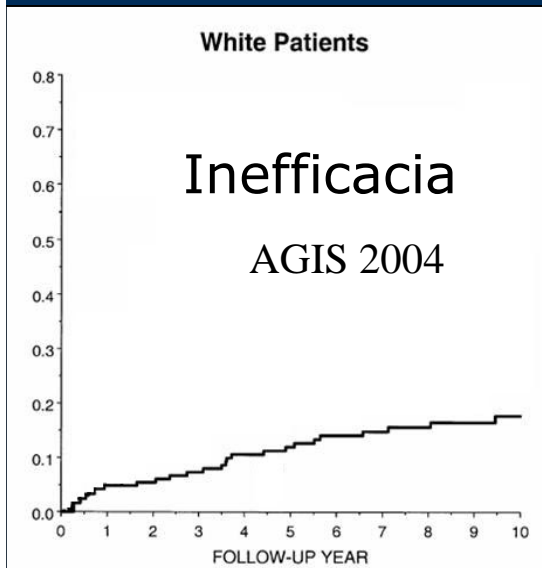
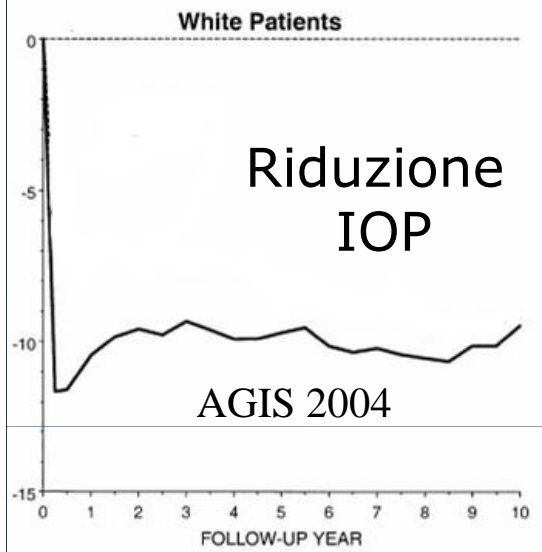
Impianto di protesi drenanti



Bozza filtrante

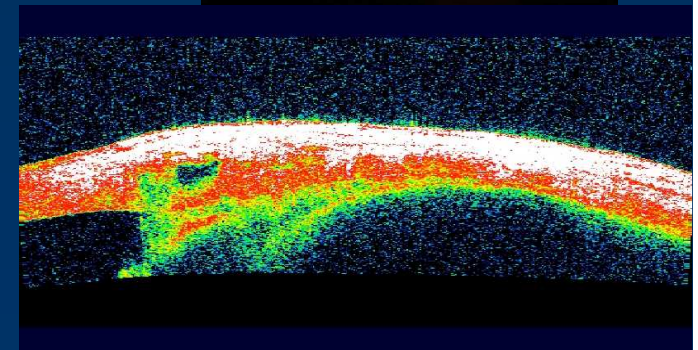
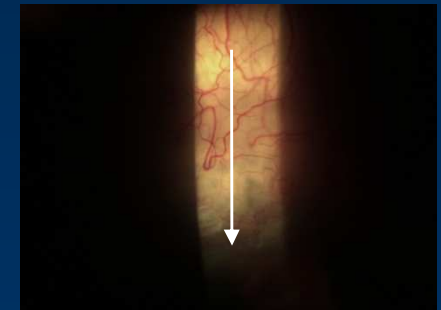


Canaloplastica: Premesse

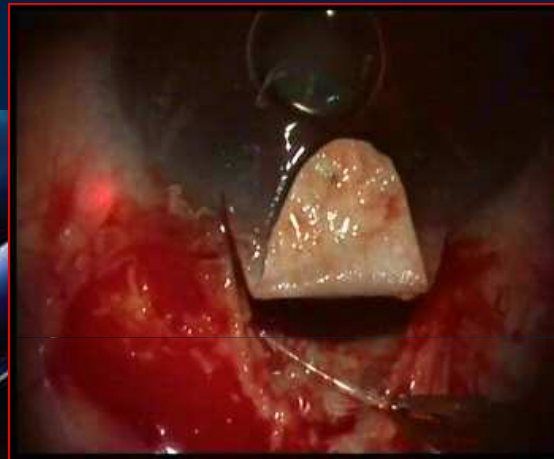
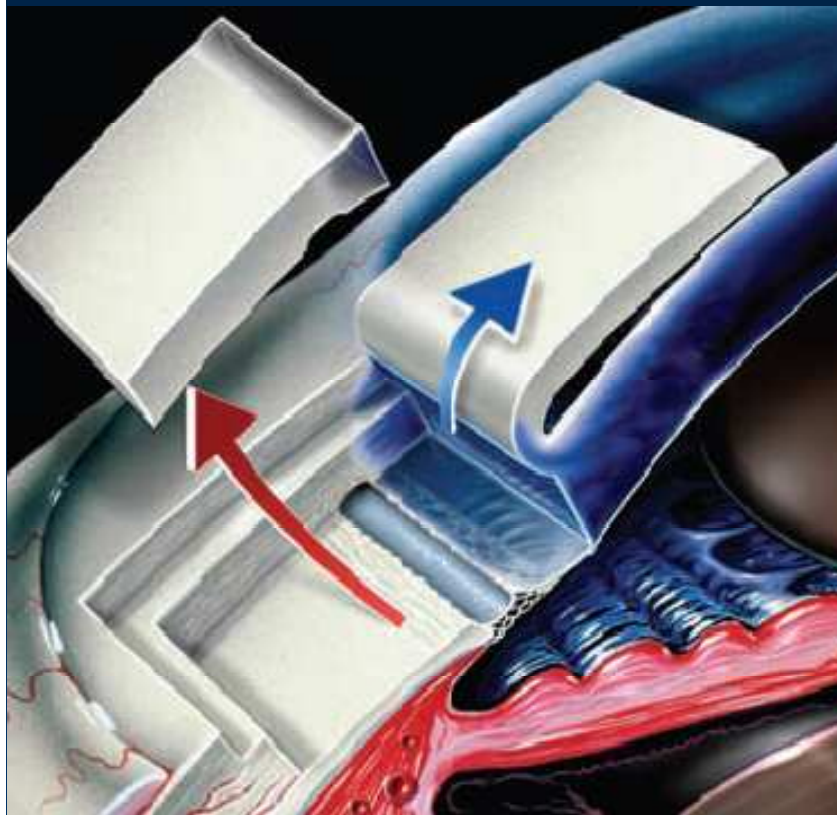


Complicanze

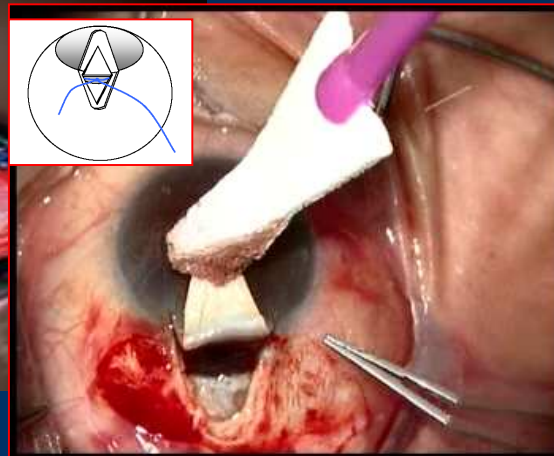
- Leakage - Buttonhole congiuntiva
- Atalamia
- Ipotono precoce - tardivo
- Ipoema
- Glaucoma maligno
- Distaccoo emorragico coroide
- Maculopatia ipotono
- Endoftalmiti - Blebiti
- Fallimento bozza
- Bozza incapsulata
- Bozza diffusa
- Bozza dissecante



Canaloplastica



Cateterizzazione
Viscodilatazione



Tensionamento
polipropilene 10.0

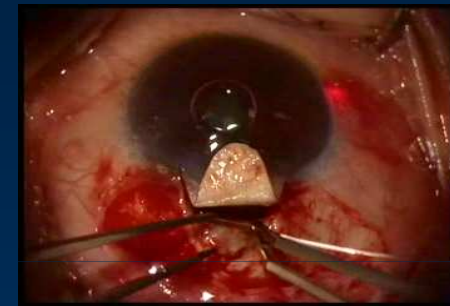
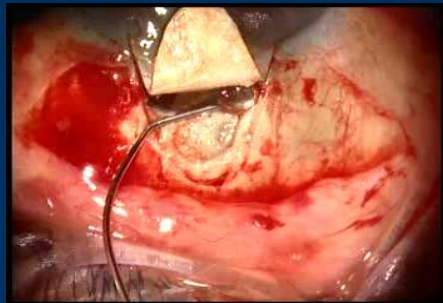
Canaloplastica: Indicazioni

Indicazioni:

OAG Primario, Secondario (PEX, PD)

Rischio fallimento trabeculectomia

*patologia della superficie oculare,
pemfigoide oculare, fallimento della
trabeculectomia nell'occhio contro laterale
o danno glaucomatoso avanzato.*



Controindicazioni:

CAG primario e secondario

Anomalie angolo

*angolo stretto, plateau iris, recessione
angolare, glaucoma neovascolare,
precedente chirurgia o ALT estesa*

Canaloplastica: Strumentazione

iScience Interventional, Menlo Park, California, USA

iTrack



Microcatetere 200 μ
punta atraumatica 250 μ
led rosso laser diodo
Lume interno per iniezione controllata HS 1,4%

iLumin



iUltrasound



80MHz alta risoluzione
5–7 frames/ sec.

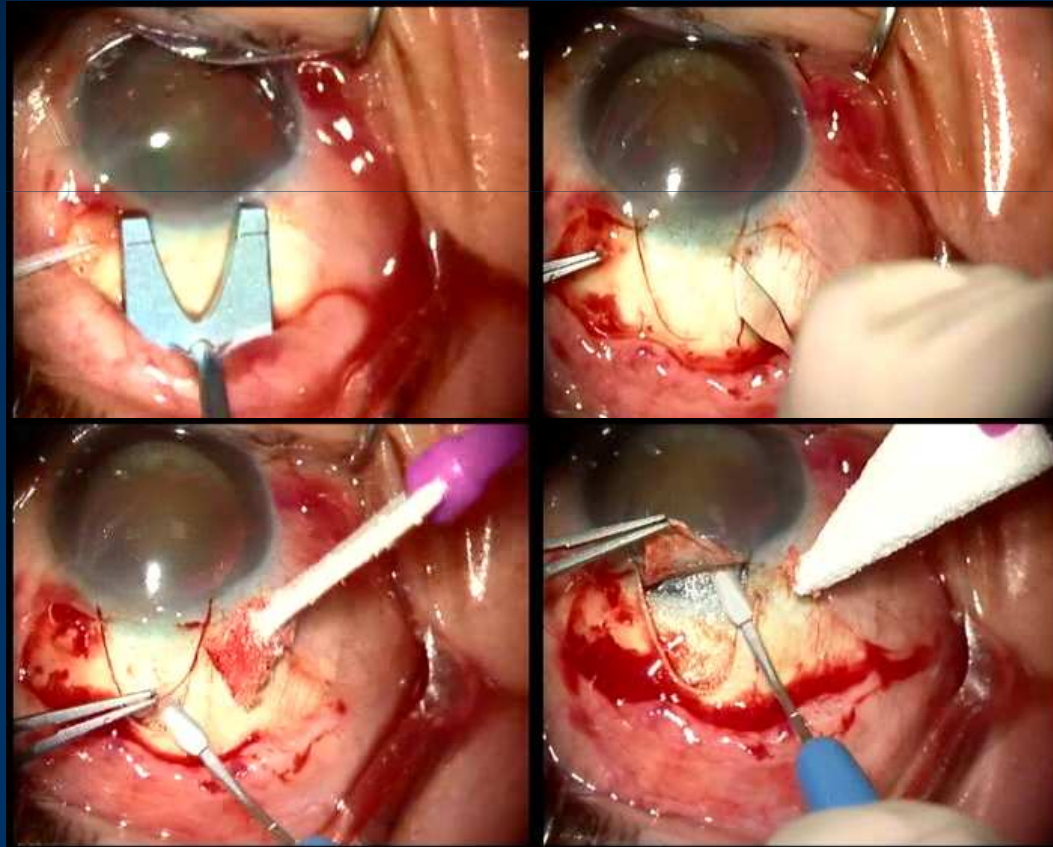
Valutazione AIC e c. Schlemm
Pre – Intra – PostOperatoria

Manipolatori



Creazione
finestra
trabecolo-
descemetica

Canaloplastica: Tecnica chirurgica



➤ Peritomia

➤ Dissezione 1° sportello

➤ Dissezione 2° sportello

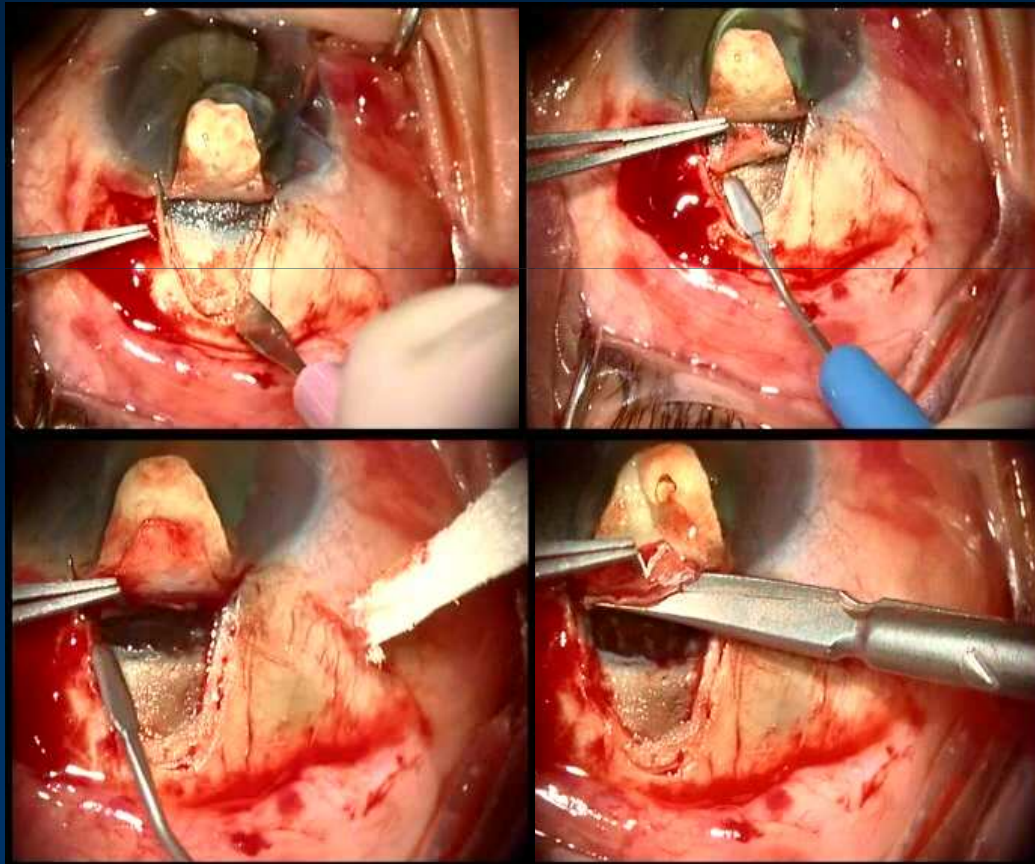
➤ Creazione finestra trabecolodescemetica

➤ Intubazione e Viscodilatazione c. Schlemm

➤ Passaggio e Tensionamento Polipropilene 10.0

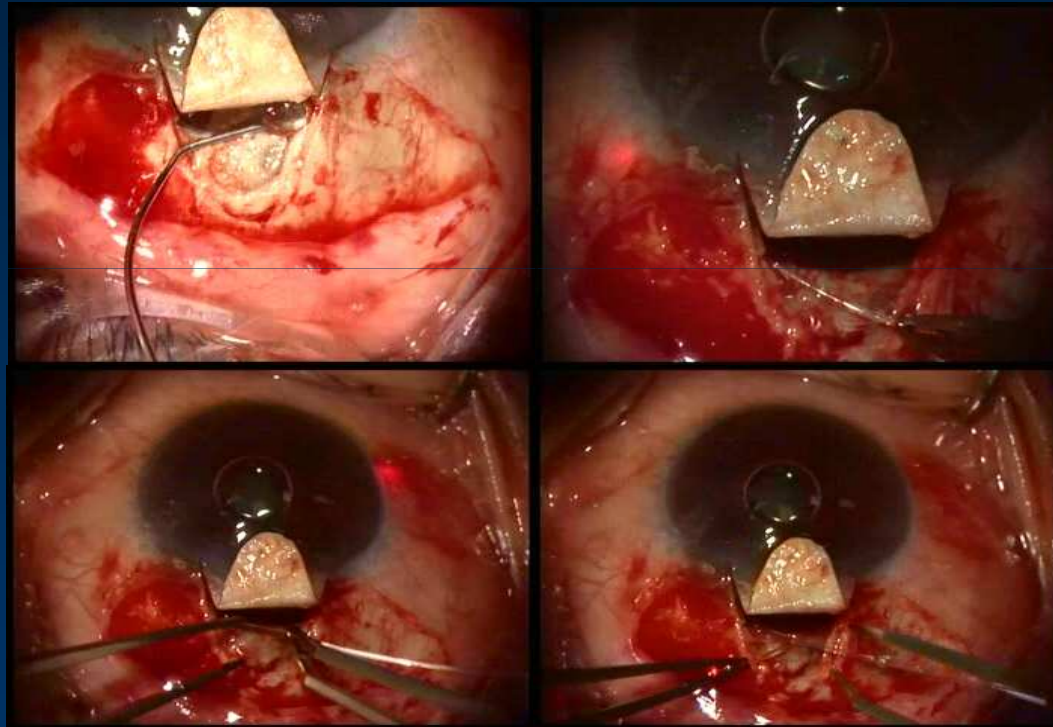
➤ Sutura

Canaloplastica: Tecnica chirurgica



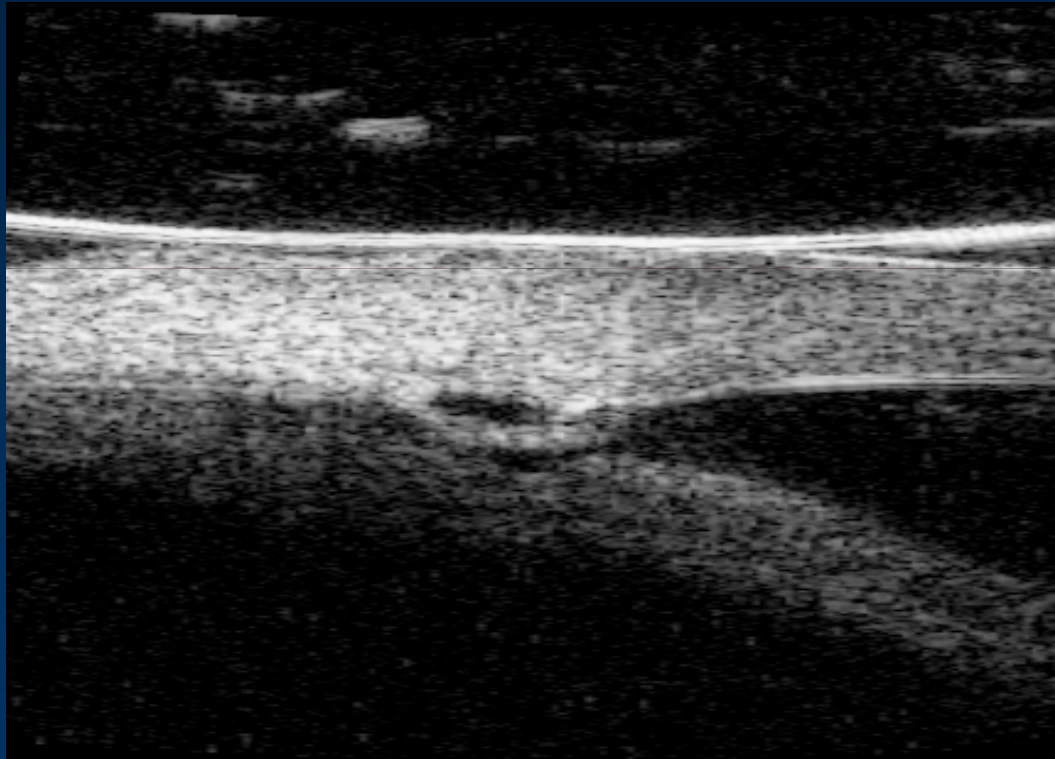
- Peritomia
- Dissezione 1° sportello
- Dissezione 2° sportello
- Creazione finestra trabecolodescemetica
- Intubazione e Viscodilatazione c. Schlemm
- Passaggio e Tensionamento Polipropilene 10.0
- Sutura

Canaloplastica: Tecnica chirurgica



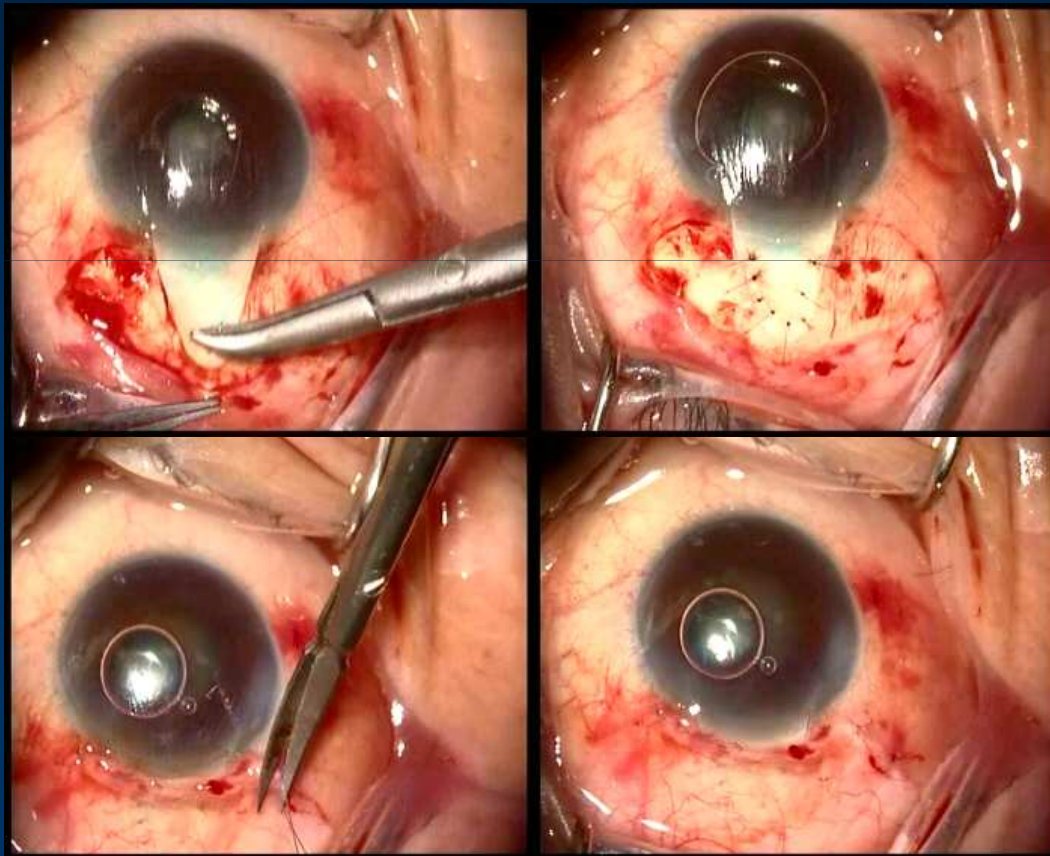
- Peritomia
- Dissezione 1° sportello
- Dissezione 2° sportello
- Creazione finestra trabecolodescemetica
- Intubazione e Viscodilatazione c. Schlemm
- Passaggio e Tensionamento Polipropilene 10.0
- Sutura

Canaloplastica: Tecnica chirurgica



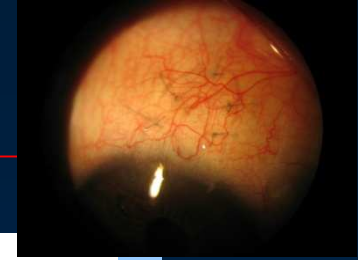
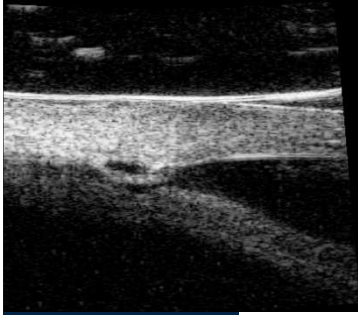
- Peritomia
- Dissezione 1° sportello
- Dissezione 2° sportello
- Creazione finestra trabecolodescemetica
- Intubazione e Viscodilatazione c. Schlemm
- Passaggio e Tensionamento Polipropilene 10.0
- Sutura

Canaloplastica: Tecnica chirurgica



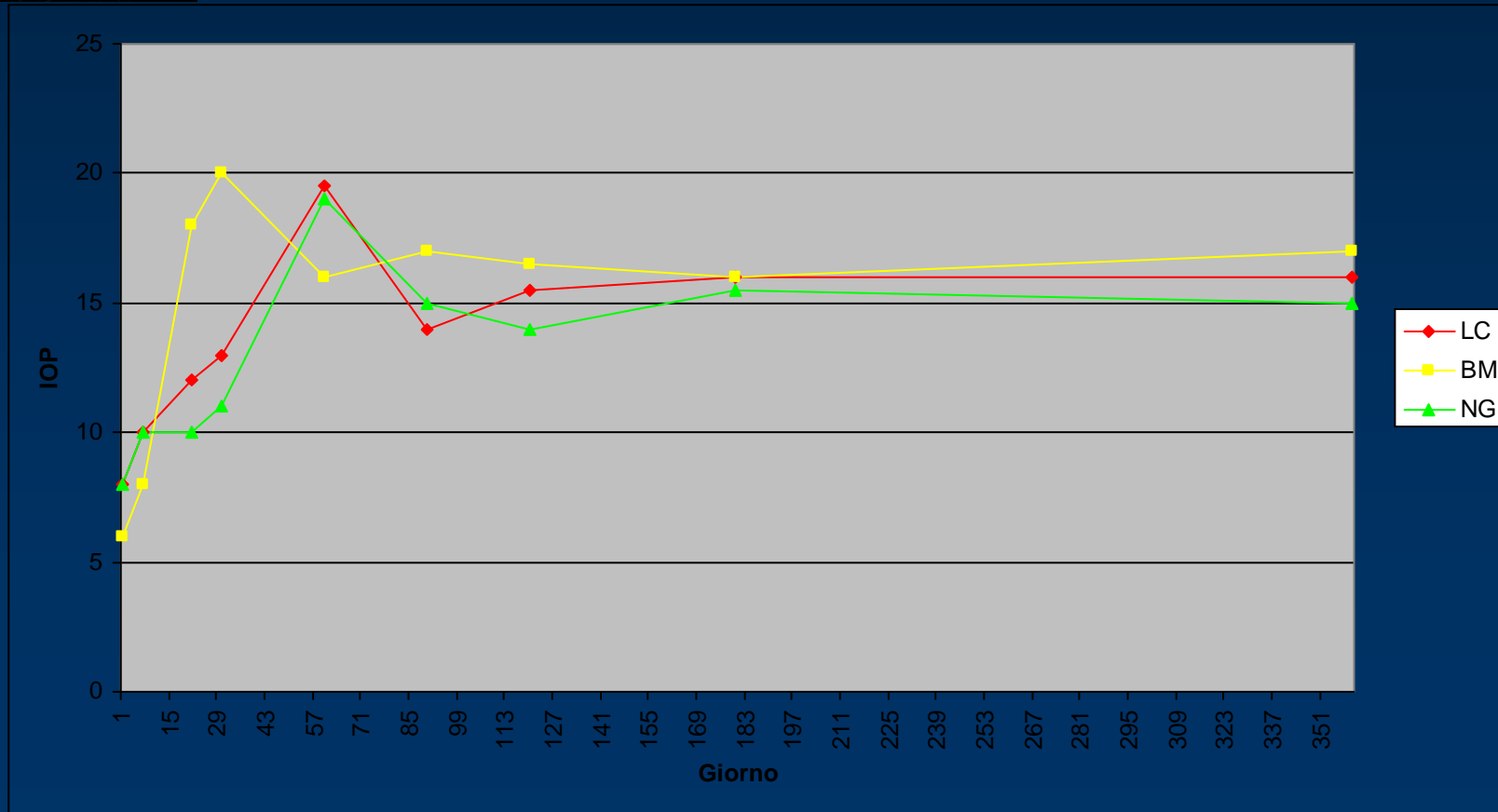
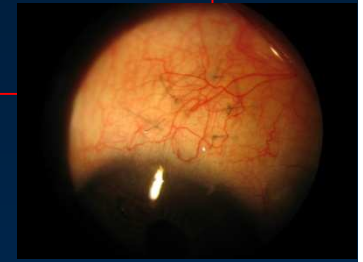
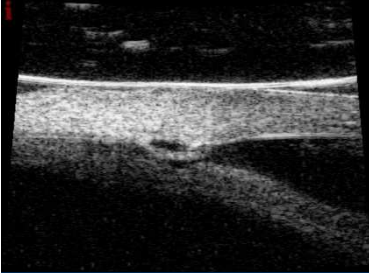
- Peritomia
- Dissezione 1° sportello
- Dissezione 2° sportello
- Creazione finestra trabecolodescemetica
- Intubazione e Viscodilatazione c. Schlemm
- Passaggio e Tensionamento Polipropilene 10.0
- Sutura

Canaloplastica: Casistica



Paziente	LC ♂ 75aa	BM ♀ 78 aa	NG ♀ 56aa
Patologie sistemiche	Ipertensione, Parkinson, BPCO	Ipertensione, Cardiopatìa	DM II tipo, Ipotiroidismo
Tipo di Glaucoma	OAG Allergia Alphagan, trusopt	OAG	OAG
Procedure pregresse	OS Facò - GMS	OO LPI OS Facò-Trab	OS Facò-Trab
C/D	0.7 - 0.8	0.6 - 0.7	0.6 - 0.7
N farmaci baseline	1	3 + CAI sistemici	3 + CAI sistemici
IOP baseline	21	20	20
Occhio ed intervento	OD Canaloplastica	OD Canaloplastica	OD Facò+Canaloplastica
Postoperatorio	Ipoema Ipotono	Ipotalamia Ipotono	Ipoema Ipotono
Procedure postoperatorie		Cataratta 7gpo	Lavaggio CA 2gpo
Durata follow-up	1 anno	1 anno	1 anno
IOP finale	16	17	15

Canaloplastica: Casistica



Canaloplasty: Circumferential viscodilation and tensioning of Schlemm canal using a flexible microcatheter for the treatment of open-angle glaucoma in adults. two-year interim clinical study results
 Lewis RA JCRS 2009

Multicentrico 14 centri (US, GE) - 16 chirurghi

Canaloplastica

127 occhi :

POAG, SOAG (PEX, PS), Misto CAG

ALT (max. 2) - PLI

Incannulazione completa 108 – 85%

Facocanaloplastica 30 - 24%

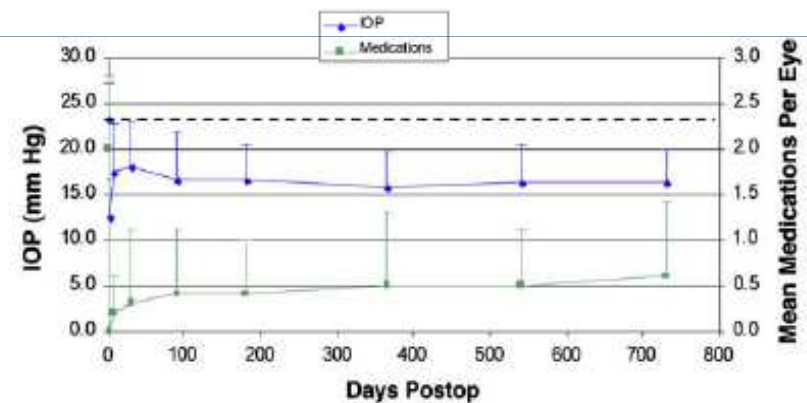


Figure 5. Group 2 efficacy (canaloplasty alone) showing mean IOP (\pm SD) and mean medications. The dashed line indicates the baseline IOP of 23.2 mm Hg (IOP = intraocular pressure).

IOP	16.3 ± 3.7	↓ 30%
Ipotonizzanti	0.6 ± 0.8	↓ 70%

Canaloplasty: Circumferential viscodilation and tensioning of Schlemm canal using a flexible microcatheter for the treatment of open-angle glaucoma in adults. two-year interim clinical study results
 Lewis RA JCRS 2009

Facocanaloplastica

Multicentrico 14 centri (US, GE) - 16 chirurghi

127 occhi :

POAG, SOAG (PEX, PS), Misto CAG

ALT (max. 2) - PLI

Incannulazione completa 108 – 85%

Facocanaloplastica 30 - 24%

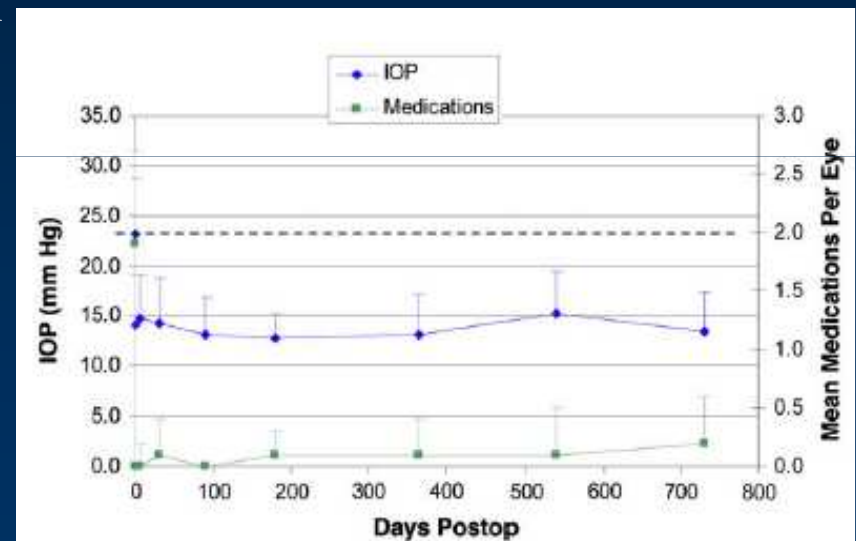
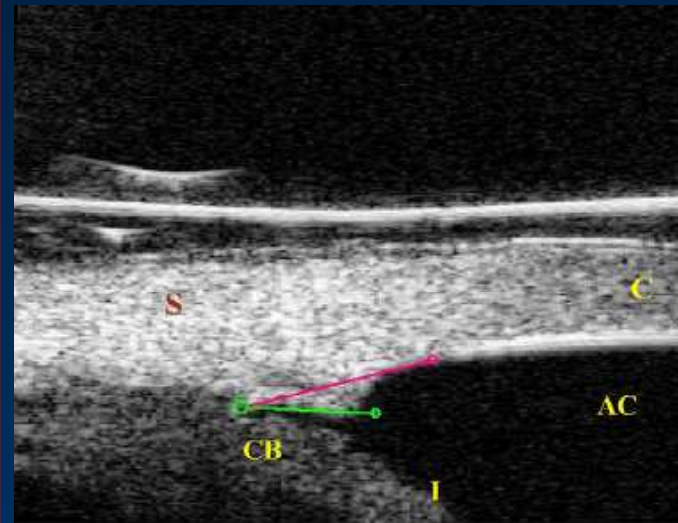
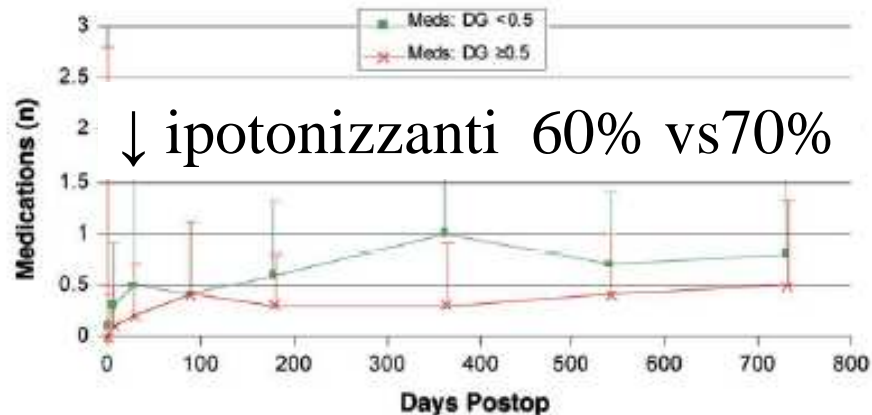
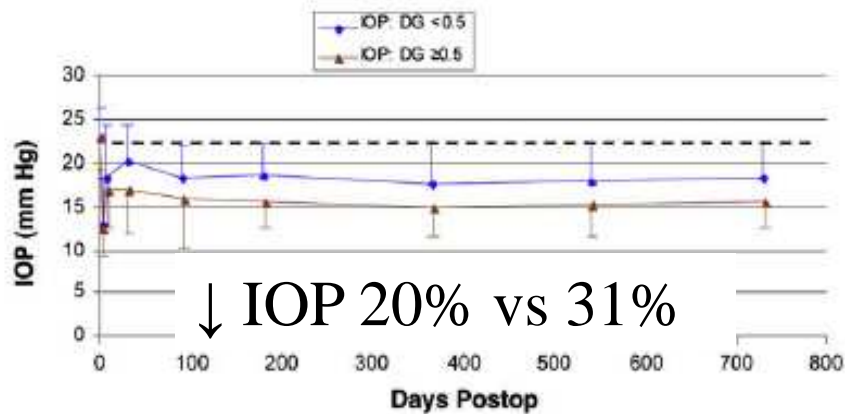


Figure 6. Group 3 efficacy (phacocanaloplasty eyes) showing mean IOP (\pm SD) and mean medications. The dashed line indicates the baseline IOP of 23.1 mm Hg (IOP = intraocular pressure).

IOP	13.4 ± 4.0	↓ 42%
Ipotonizzanti	0.2 ± 0.4	↓ 88%

Canaloplasty: Circumferential viscodilation and tensioning of Schlemm canal using a flexible microcatheter for the treatment of open-angle glaucoma in adults. two-year interim clinical study results
 Lewis RA JCRS 2009



Distensione trabecolato

Distensione Schlemm

Microfratture trabecolato

↑ Metabolismo Matrice Extracell.

Azione indiretta sul Corpo Ciliare

Canaloplasty: Circumferential viscodilation and tensioning of Schlemm canal using a flexible microcatheter for the treatment of open-angle glaucoma in adults. two-year interim clinical study results

Lewis RA

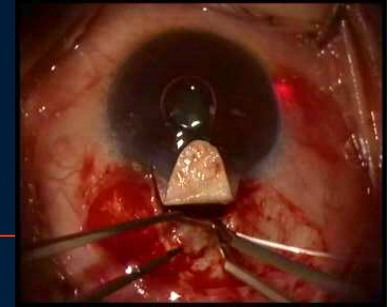
JCRS 2009

Complicanze	N (%)
Microipoema (<1.0 mm)	10 (7.9)
Iperono precoce (0–3 mpo)	10 (7.9)
Ipoema (>1.0 mm)	8 (6.3)
Bozza a 24 mpo	4 (3.8)
Iperono tardivo* (>3 mpo)	3 (2.4)
Emorragia sito chirurgico	3 (2.4)
Ipoema cospicuo	2 (1.6)
Distacco della m. Descemet	2 (1.6)
Estrusione della sutura in Ca	2 (1.6)
Ipotono	1 (0.8)

Procedure postoperatorie	N (%)
Facoemulsificazione	11 (8.6)
Goniopuntura Laser	6 (4.7)
Revisione congiuntiva	5 (3.9)
Nd:YAG capsulotomia	5 (3.9)
Iridotomia laser	2 (1.6)
Ciclofotocoagulazione	1 (0.8)
Iridoplastica	1 (0.8)
Paracentesi	1 (0.8)
SLT	1 (0.8)
Revisione ferita	1 (0.8)
Sinechiolisi Nd:YAG laser	1 (0.8)

*Tp medica; Trab 6 mpo; Tube 18 mpo.

Conclusioni



Trabeculectomia

"Gold standard" chirurgia glaucoma

Bozza filtrante

Canaloplastica

Chirurgia non perforante

**Deflusso
Trabecolocanalicolare**

- **No cause di fallimento correlate alla bozza filtrante**

Conclusioni

Tecnica articolata

Training (non superiore alla viscocanalostomia)

Device dedicati (*iTrack*, *iLumin*, *iUltrasound*)

Complicanze scarse e non gravi (risoluzione spontanea e rapida)

Sanguinamento, Ipertono precoce

Ipotono*

Efficace nel ridurre la IOP

Valutare effetti a lungo termine

Valutare Canaloplastica vs trabeculectomia

Non-Penetrating Schlemm's Canaloplasty versus Trabeculectomy

Diamond Y Tam* MD, Jennifer Calafati** MD, Iqbal Ike K. Ahmed**, MD, FRCSC

50 Canaloplastica vs 51 Trabeculectomia

Retrospectivo - 1 anno

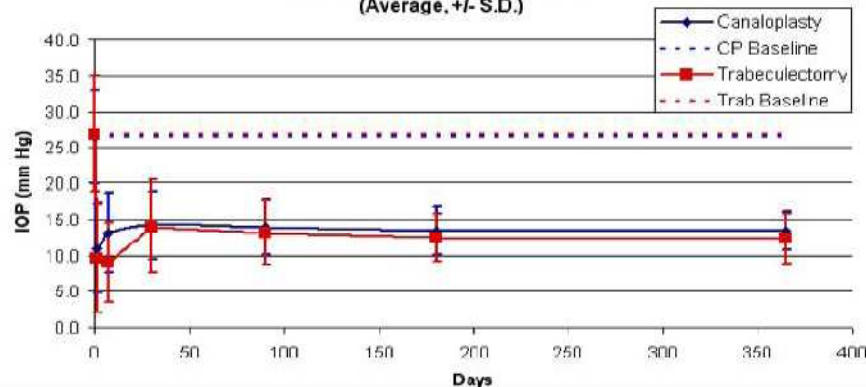
IOP Control (mmHg)

	Preop IOP	6 mo IOP	p-value*	Preop IOP	1 yr IOP	p-value*
Canaloplasty	26.4±6.5	13.4±3.3	<0.001	26.4±6.5	13.4±2.7	<0.001
Trabeculectomy	26.8±8.1	12.5±3.3	<0.001	26.8±8.1	12.3±3.5	<0.001
p-value**	0.803	0.172		0.803	0.103	

*IOP control within groups p-value

**IOP control between groups p-value

Intraocular Pressure Results
Canaloplasty vs Trabeculectomy
(Average, +/- S.D.)



Postoperative Complications

Complication	Canaloplasty	Trabeculectomy	p-value*
	N, (%)	N, (%)	
Choroidal effusion	1 (2)	14 (28)	<0.001
Transient hypotony (IOP ≤ 6 mmHg for at least 2 visits + resolved)	1 (2)	13 (26)	<0.001
HypHEMA/microhypHEMA	9 (18)	9 (18)	0.482
Shallow/flat anterior chamber	0	8 (16)	0.002
Inadvertent bleb formation	11 (22)	N/A	-
Loss of >2 lines Snellen VA	1 (2)	8 (16)	0.008
Bleb fibrosis	0	6 (12)	0.006
IOP spike (increase in IOP ≥ 10 mmHg from one visit to next)	5 (10)	2 (4)	0.118
Wound leak	0	5 (10)	0.012
Bleb encapsulation	0	4 (8)	0.022
Cataract	3 (6)	3 (6)	0.490
Iris incarceration	3 (6)	2 (4)	0.317
Persistent hypotony (IOP ≤ 6 mmHg for at least 2 visits + resolved)	1 (2)	2 (4)	0.286
Localized Descemet's detachment	2 (4)	0	0.080
Iris bombé	1 (2)	0	0.161
Malignant glaucoma	0	1 (2)	0.161
Bleb dyesthesia	0	1 (2)	0.161
Blebitis	0	1 (2)	0.161
Corneal decompensation	0	1 (2)	0.161
Cystic bleb	0	1 (2)	0.161
Epiretinal membrane	0	1 (2)	0.161
Persistent anterior chamber inflammation	1 (2)	0	0.161
Chronic cystoid macular edema	1 (2)	1 (2)	0.494
Retinal detachment	0	1 (2)	0.161
Late bleb leak	0	0	-
Endophthalmitis	0	0	-

GRAZIE !