



**TRANSCONJUNCTIVAL NONVITRECTOMIZING VITREOUS SURGERY  
VERSUS 25-GAUGE VITRECTOMY IN PATIENTS WITH ERM  
A Prospective Randomized Study**

**Reibaldi M.  
Toro M.**

*Dipartimento di Specialità Medico-Chirurgiche*

*Sezione di Oftalmologia*

*DIRETTORE Prof. T. Avitabile*

*Università degli Studi di Catania*

# Membrana Epiretinica

> 50 aa

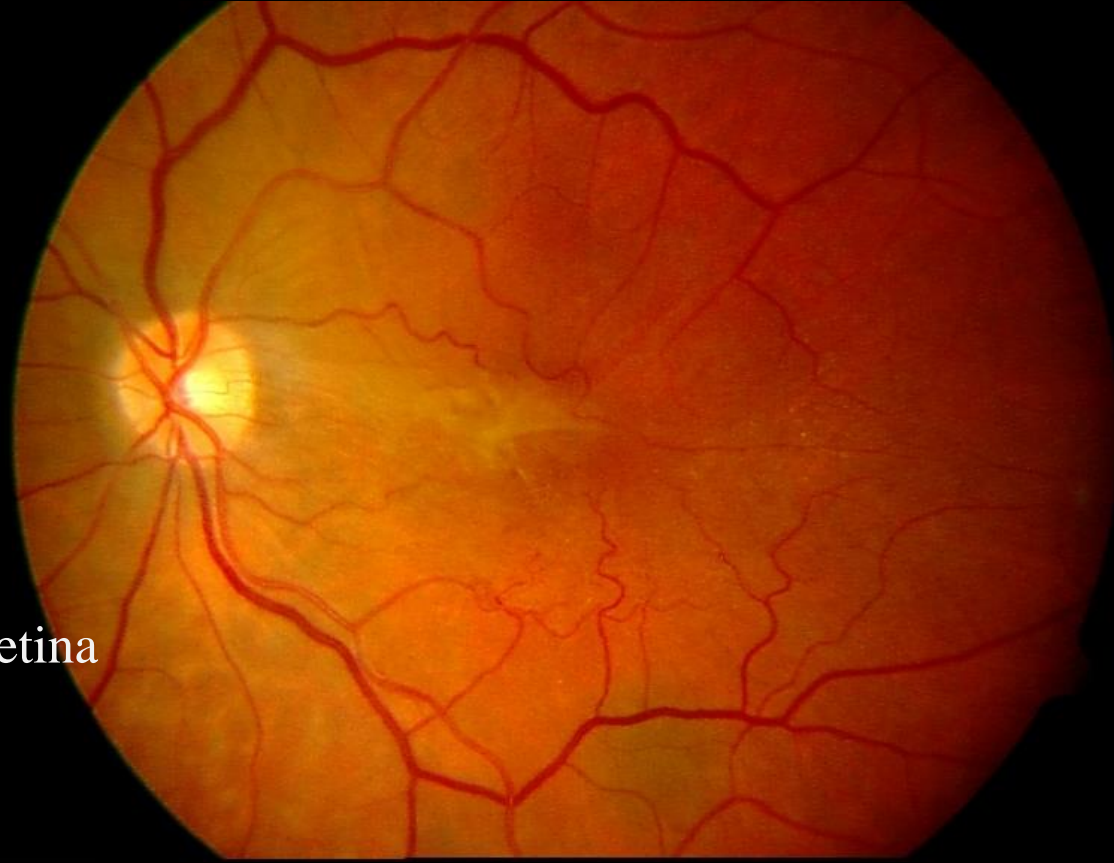
> nel sesso F

Bilaterali 20% dei casi

Idiopatica 70%

## Secondarie (30%):

- chirurgia per il distacco di retina
- fotocoagulazione
- crioterapia
- malattie vascolari retiniche
- infiammazioni intraoculari
- traumi oculari
- degenerazione maculare senile



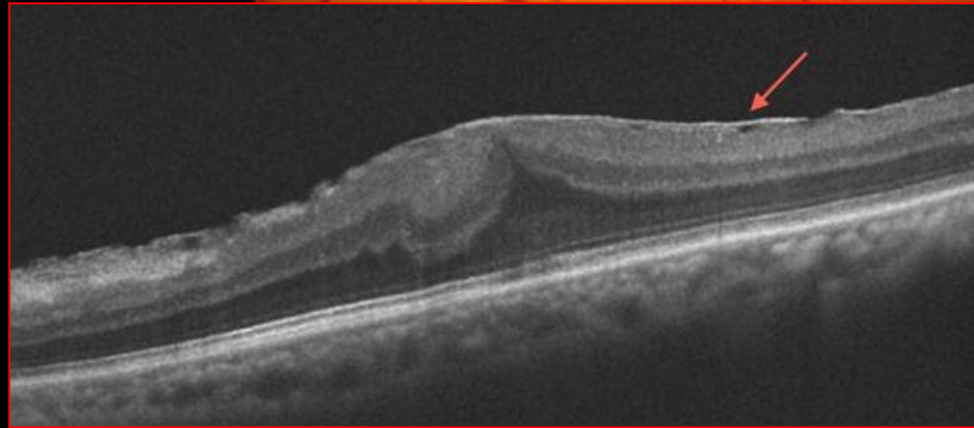
# Membrana Epiretinica

## CLASSIFICAZIONE

- Grado 0 (Cellophane Maculopathy)
- Grado 1 (Crimpled Cellophane Maculopathy)
- Grado 2 (Pucker Maculare)

## DIAGNOSI

- Biomicroscopia
- OCT



# Transizione verso Vitrectomia Small Gauge

20 ga.

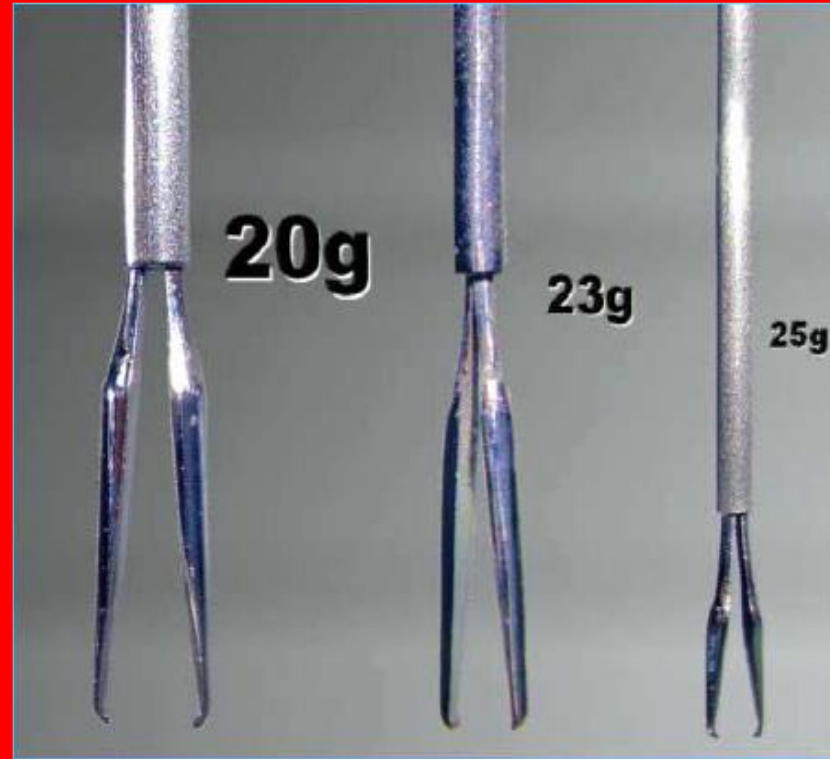
23ga.

25ga.

50% Closer than 20 G

Excellent for probe delamination

Thinner wall gives flow similar to 20 G



# Vantaggi

## Vitrectomia Small Gauge

- Incisioni sclerali di piccolo diametro (0,7-0,5 mm)
- Ridotta infiammazione postchirurgica intraoculare ed in corrispondenza delle sclerotomie
- Ridotto discomfort post-operatorio
- Ridotto astigmatismo post-chirurgico
- Ridotti tempi recupero visivo
- Riduzione cicatrici congiuntivali
- Riduzione tempi chirurgici
- Sclerotomie senza suture (incisioni “self-sealing”, autosigillanti)

# Limiti

## Vitrectomia Small Gauge

- Leakage dalle sclerotomie 2.2 – 38 %
- Ipotonia 3.4 - 6.5 %
- Emorragia supracoroideale
- Distacco di coroide 0.1 - 3.8%
- Incarceramento del vitreo
- Endoftalmiti 0.23 -1.6%
- DISTACCO DI RETINA REGMATOGENO  
secondario a ROTTURE RETINICHE  
periferiche iatrogene 0 – 15.8 %
- PROGRESSIONE DELLA CATARATTA

# NOVITA' IN TEMA DI CHIRURGIA VITREORETINICA



**ARVO 2013 Annual Meeting  
5-9 May, Seattle**



Steve Charles

**“NON VITRECTOMIZING SURGERY” NVS**

To compare the functional and anatomical outcomes, and the rate of complications between 27-G transconjunctival NVS and of 25-G transconjunctival sutureless vitrectomy surgery for idiopathic ERM removal.

## TRANSCONJUNCTIVAL NONVITRECTOMIZING VITREOUS SURGERY VERSUS 25-GAUGE VITRECTOMY IN PATIENTS WITH EPIRETINAL MEMBRANE

### A Prospective Randomized Study

MICHELE REIBALDI, MD, PhD,\* ANTONIO LONGO, MD, PhD,\* TERESIO AVITABILE, MD,\* VINCENZA BONFIGLIO, MD,\* MARIO D. TORO, MD,\* ANDREA RUSSO, MD,\* FRANCESCA VITI, MD,† MICHELE NICOLAI, MD,‡ ANDREA SAITTA, MD,‡ ALFONSO GIOVANNINI, MD,‡ CESARE MARIOTTI, MD,‡

**Purpose:** To compare the clinical outcomes and the rate of complications of 27-gauge transconjunctival nonvitrectomizing vitreous surgery (NVS) and of 25-gauge transconjunctival sutureless vitrectomy surgery for idiopathic epiretinal membrane removal.

**Methods:** In this prospective randomized study, 83 phakic eyes of 83 consecutive patients with an idiopathic epiretinal membrane were randomized to receive 27-gauge NVS (NVS-group) or 25-gauge vitrectomy (Standard-group). Main outcome measures were best-corrected visual acuity, central retinal thickness, nuclear density units' changes, and rate of complications.

**Results:** Thirty-nine eyes of the Standard-group and 40 of the NVS-group were considered in final analysis. Mean best-corrected visual acuity improved significantly in both groups, with a significant better result at 12 months in NVS-group ( $P = 0.039$ ;  $t$ -test). Central retinal thickness decreased significantly in both groups ( $P < 0.001$ , Tukey test), without significant difference between the two groups at any time point. At 12 months, nuclear density increased significantly in the Standard-group (analysis of variance,  $P < 0.001$ ), and it did not change in the NVS-group (analysis of variance,  $P = 0.537$ ). Epiretinal membrane recurred in 5.1% of eyes in the Standard-group and in 7.5% of eyes in the NVS-group (Fisher's exact test,  $P = 1.000$ ).

**Conclusion:** The 27-gauge NVS is an effective surgical procedure in eyes with epiretinal membrane and it induces less progression of nuclear sclerosis than 25-gauge vitrectomy.

RETINA 00:1-7, 2014

Epiretinal membrane (ERM) removal has become a standard technique in vitreoretinal surgery. Vitrectomy is currently being performed in eyes with relatively good visual acuity, because the threshold

for surgery for ERM has decreased due to improvements in surgical techniques.<sup>1</sup>

Recent introduction of transconjunctival small-gauge vitrectomy surgery has provided potential advantages over traditional 20-gauge surgery, including faster wound healing, less conjunctival scarring, decreased operating time, improved patient comfort, and less postoperative inflammation with early visual recovery.<sup>2,3</sup>

However, despite continuous advances to improve safety of vitrectomy for macular diseases, cataract progression and iatrogenic peripheral retinal breaks

From the \*Eye Clinic, University of Catania, Catania, Italy; and †Eye Clinic, Azienda Ospedaliero Universitaria Ospedali Riuniti Umberto I-CM Lancisi-G Salesi di Ancona, University of Marche, Ancona, Italy.

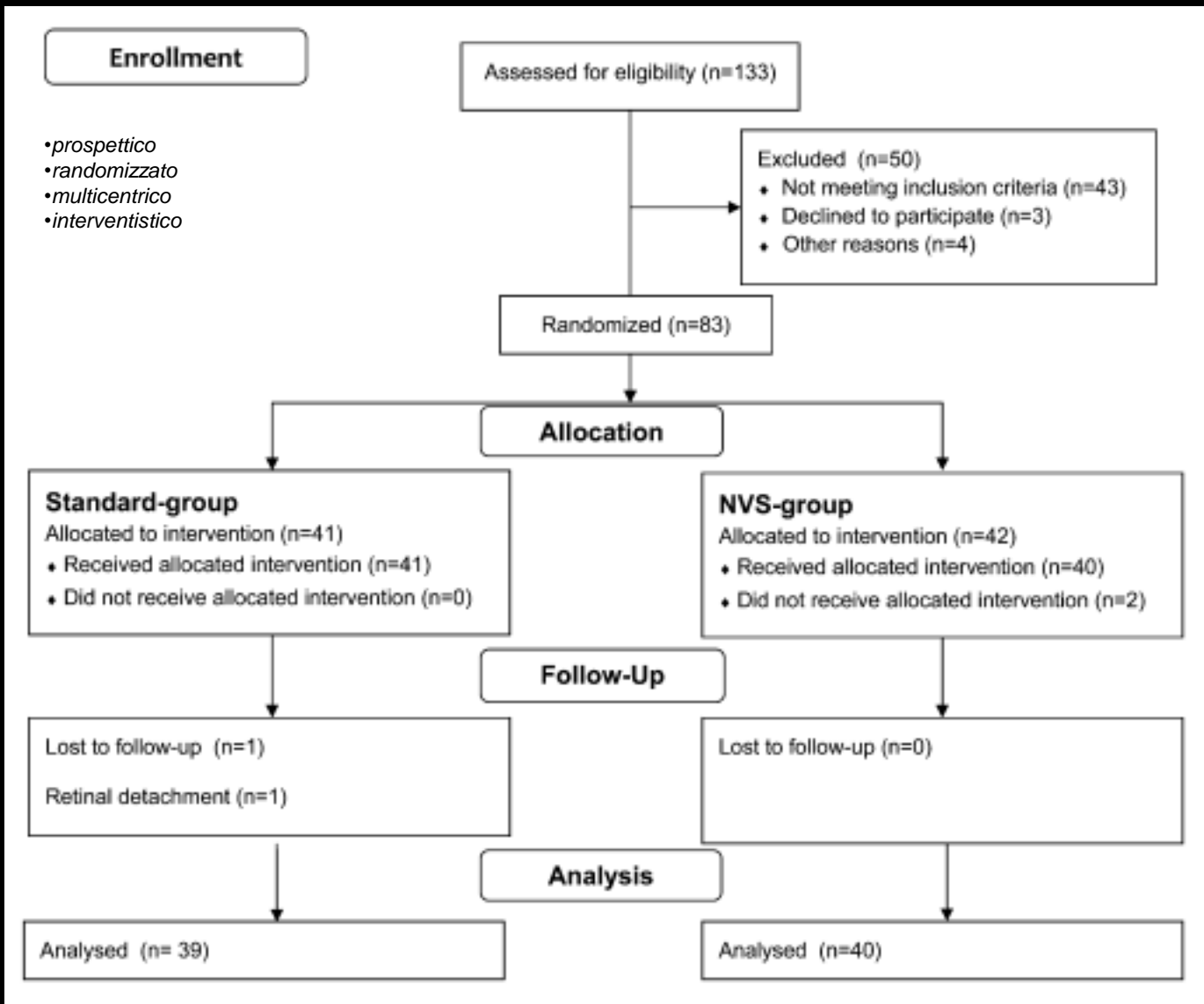
None of the authors have any financial/conflicting interests to disclose.

Reprint requests: Antonio Longo, MD, PhD, Eye Clinic, University of Catania, Via Santa Sofia 78, Catania, Italy; e-mail: ant-longo@libero.it



# Materials and Methods

Clinica Oculistica Università di Catania  
Clinica Oculistica Università delle Marche



Flow diagram of the study that shows progress through the four phases (enrollment, allocation, followup, and analysis) of the parallel randomization of the Standard-group and the NVS-group.

# Materials and Methods

## INCLUSION CRITERIA:

- IDIOPATHIC ERM WITHIN THE TEMPORAL ARCADES CLEARLY VISIBLE THROUGH BIOMICROSCOPY;
- CLEAR VITREOUS;
- BEST-CORRECTED VISUAL ACUITY (BCVA)  $> 0.2$  LOGMAR;
- METAMORPHOPSIA;
- ABSENT-TO-MODERATE CATARACT (GRADE 0.0–2.0 OF THOMPSON CLASSIFICATION)

- BCVA (LOGMAR)
- BIOMICROSCOPIA DEL SEGMENTO ANTERIORE E DIGITAL SCHEIMPFLUG LENS PHOTOGRAPHY
- IOP (MMHG)
- ESAME FUNDUS CON INDENTAZIONE
- LUNGHEZZA ASSIALE (A-SCAN ULTRASOUND)
- SPECTRALIS OCT

## Follow-up 12 mesi

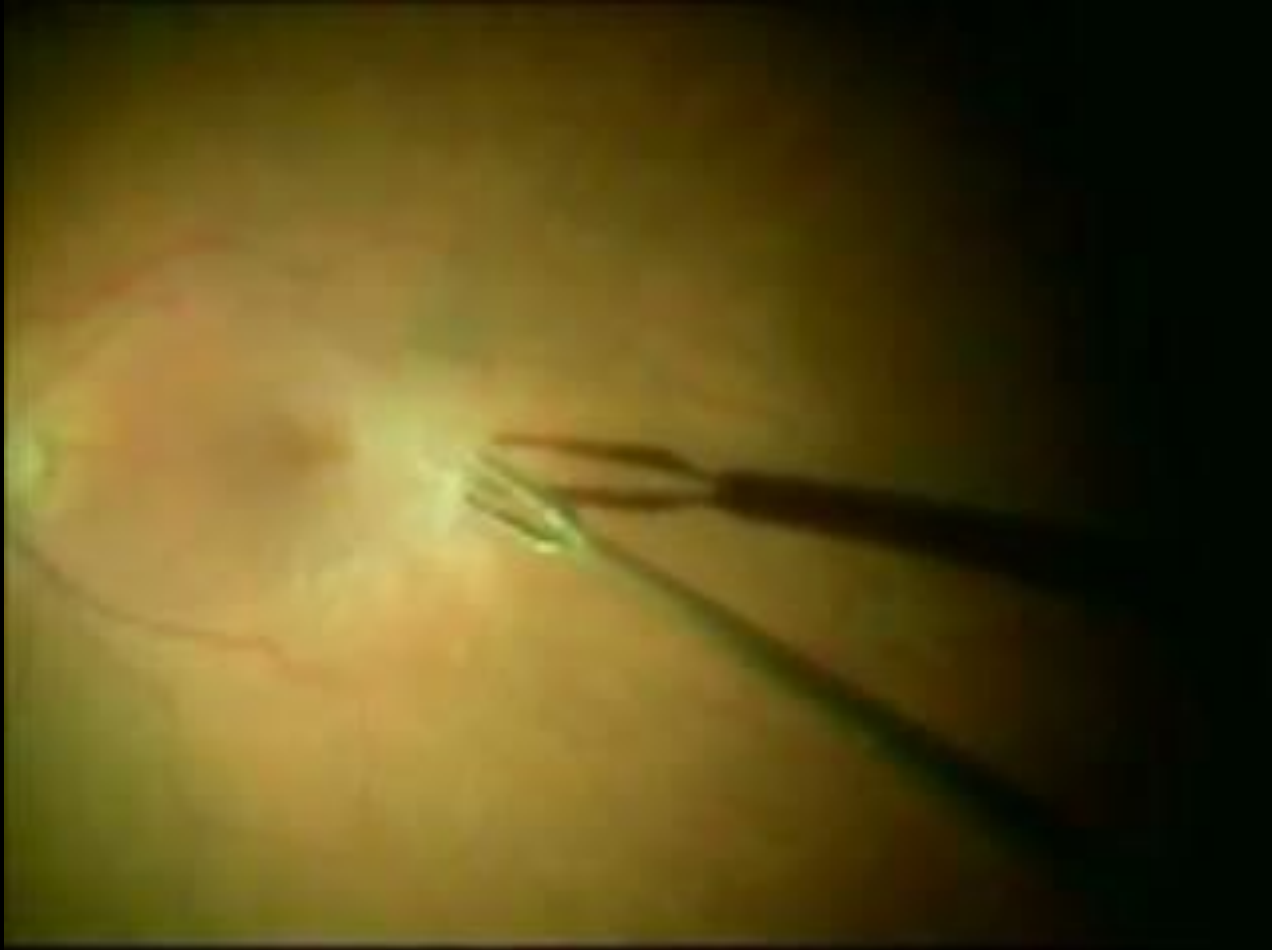
## EXCLUSION CRITERIA:

- SECONDARY ERM,
- PREOPERATIVE RETINAL BREAKS,
- PREVIOUS OCULAR SURGERY,
- MYOPIA WITH AN AXIAL LENGTH  $> 26$  MM,
- AMBLYOPIA,
- DIABETIC RETINOPATHY,
- RETINAL VASCULAR OCCLUSION,
- MACULAR DISORDERS,
- CORNEAL DISORDERS,
- PROLONGED USE OF TOPICAL OR SYSTEMIC CORTICOSTEROIDS,
- OR ANY OTHER KNOWN CONDITION THAT MAY HAVE
- ALTERED THE RATE OF CATARACT PROGRESSION AFTER VITRECTOMY.

- BCVA
- Progressione cataratta
- Incidenza Rotture Retiniche
- Ricorrenza ERM

# Surgical Techniques

---



# Results

## BCVA ( logMAR )

	Standard-Group (n = 39)	NVS-Group (n = 40)	P*
BCVA (logMAR) (Mean ± SD) (Snellen Units)			
Baseline	0.41 ± 0.13 (20/51)	0.39 ± 0.16 (20/49)	0.554
1 month	0.33 ± 0.15 (20/43)	0.31 ± 0.18 (20/41)	0.594
6 months	0.30 ± 0.12 (20/40)	0.26 ± 0.13 (20/36)	0.115
12 months	0.27 ± 0.20 (20/37)	0.18 ± 0.15 (20/30)	0.039
P†	0.001	<0.001	—
P‡	0.016§, <0.001¶	0.001§, <0.001¶	—

BCVA of both groups significantly improved after surgery (*ANOVA*,  $p \leq 0.001$ ): at 12 months, mean BCVA improved significantly in both groups, (both  $p < 0.001$  vs baseline, *Tukey-Kramer* test) with a significant better result at 12 months in NVS-group ( $p = 0.039$ ; *t*-test)

## Cataract progression (NDUs)

	Standard-Group (n = 39)	NVS-Group (n = 40)	P*
NDUs (n°) (Mean ± SD)			
Baseline	69 ± 14	70 ± 15	0.700
1 month	71 ± 16	70 ± 13	0.779
6 months	77 ± 15	73 ± 15	0.175
12 months	87 ± 18	74 ± 16	0.001
P†	<0.001	0.537	—
P‡	<0.001¶	—	—

Statistical analysis by repeated measures *ANOVA* showed that the mean NDUs changes significantly in the Standard-group (*ANOVA*,  $p < 0.001$ ), with a significant increase vs baseline at 12 months ( $p < 0.001$ , *Tukey-Kramer* test); no changes were found in the NVS-group (*ANOVA*,  $p = 0.537$ ); an higher NDU value was seen at 12 months in Standard-group ( $p = 0.001$ ; *t*-test).

Table 3. Incidence of Complications in Eyes With ERM Treated by Standard 25-Gauge Vitrectomy (Standard-Group) or 27-Gauge Transconjunctival NVS-Group

	Standard-Group (n = 39), n (%)	NVS-Group (n = 40), n (%)	<i>P</i> *
Retinal breaks intraoperative	2 (5.1)	0 (0)	0.241
Retinal breaks postoperative	1 (2.6)	0 (0)	0.494
Bleeding	3 (7.6)	2 (5)	0.675
Hypotony	2 (5.1)	1 (2.5)	0.615
Early floaters	2 (5.1)	8 (20)	0.087
Persistent floaters	2 (5.1)	5 (12.5)	0.432
Clinical cystoid macular edema	1 (2.6)	0 (0)	0.494

\*Fisher's exact test.

# Conclusions

---

- La NVS, in casi selezionati, è una tecnica certamente efficace, ma soprattutto sicura perché priva di serie complicanze intra e postoperatorie.
- Il suo utilizzo è giustificato in primis dalla riduzione del tasso d'incidenza della cataratta e da minore incidenza di rotture retiniche.
- Nei casi di incompleta rimozione della ERM o recidiva è possibile comunque convertire o reintervenire con tecnica di vitrectomia standard.



November 2014 • June 2015

# European Frontiers in Ocular Pharmacology

Tenth Series

Aula Magna del Rettorato  
Palazzo dell'Università  
Piazza Università, 2 - Catania

21<sup>st</sup> May 2015

17:15-17:30	Introduction
17:30-18:30	Reducing medical error and improving patient safety: a global initiative Richard L. Abbott (USA)
18:30-19:30	Meet the expert session

con il contributo dei comitati di



Under the auspices of the  
ITALIAN SOCIETY OF PHARMACOLOGY

Scientific secretariat

Giulio Bocchi  
Carmelo Ligresti

Promoted by

Pharm Group  
Società Italiana

