

Review Article

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Management of granular myringitis: A systematic review

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Introduction

- Granular myringitis: chronic inflammatory disorder
- Lateral squamous de-epithelialization and granulation of tympanic membrane in the absence of middle-ear disease
- Prevalence: 1.2–1.8 % among adult otology out-patient.

Blevins NH, Karmody CS. Chronic myringitis: prevalence, presentation, and natural history. Otol Neurotol 2002;22: 3–1

Introduction

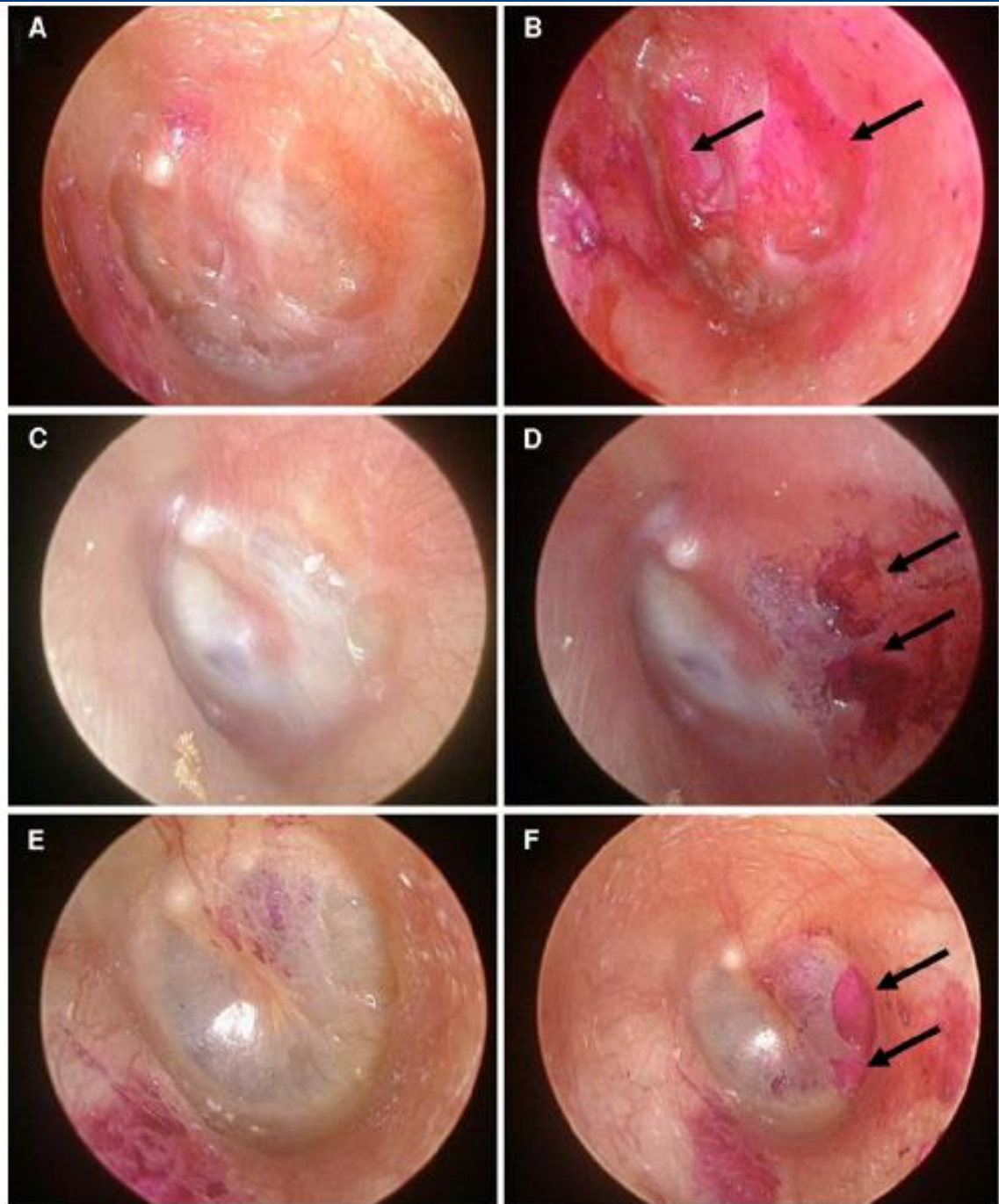
- Etiology: unclear
- A loss of squamous epithelium on the lateral surface of the tympanic membrane → preliminary stages of granulation development

Stoney P, Kwok P, Hawke M. Granular myringitis: a review. *J Otolaryngol* 1992;21:297–8

- Chronic vascular fibroproliferative and ulcerative dermatitis
- GNB: *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Proteus mirabilis*.

Introduction

- **Presentation**
- Malodorous otorrhea, intra-meatal itch and a aural fullness.
- Seldom cause hearing deficit
- ***Complication:*** post-inflammatory medial canal fibrosis, canal atresia or stenosis
- **Otoscopic examination**
- Focal, segmental, diffuse or polypoid, red granulation on thickened tympanic membrane
- Mucopurulent discharge



Clinical characteristics of granular myringitis treated with castellani solution Eur Arch Otorhinolaryngol (2011) 268:1139–1146

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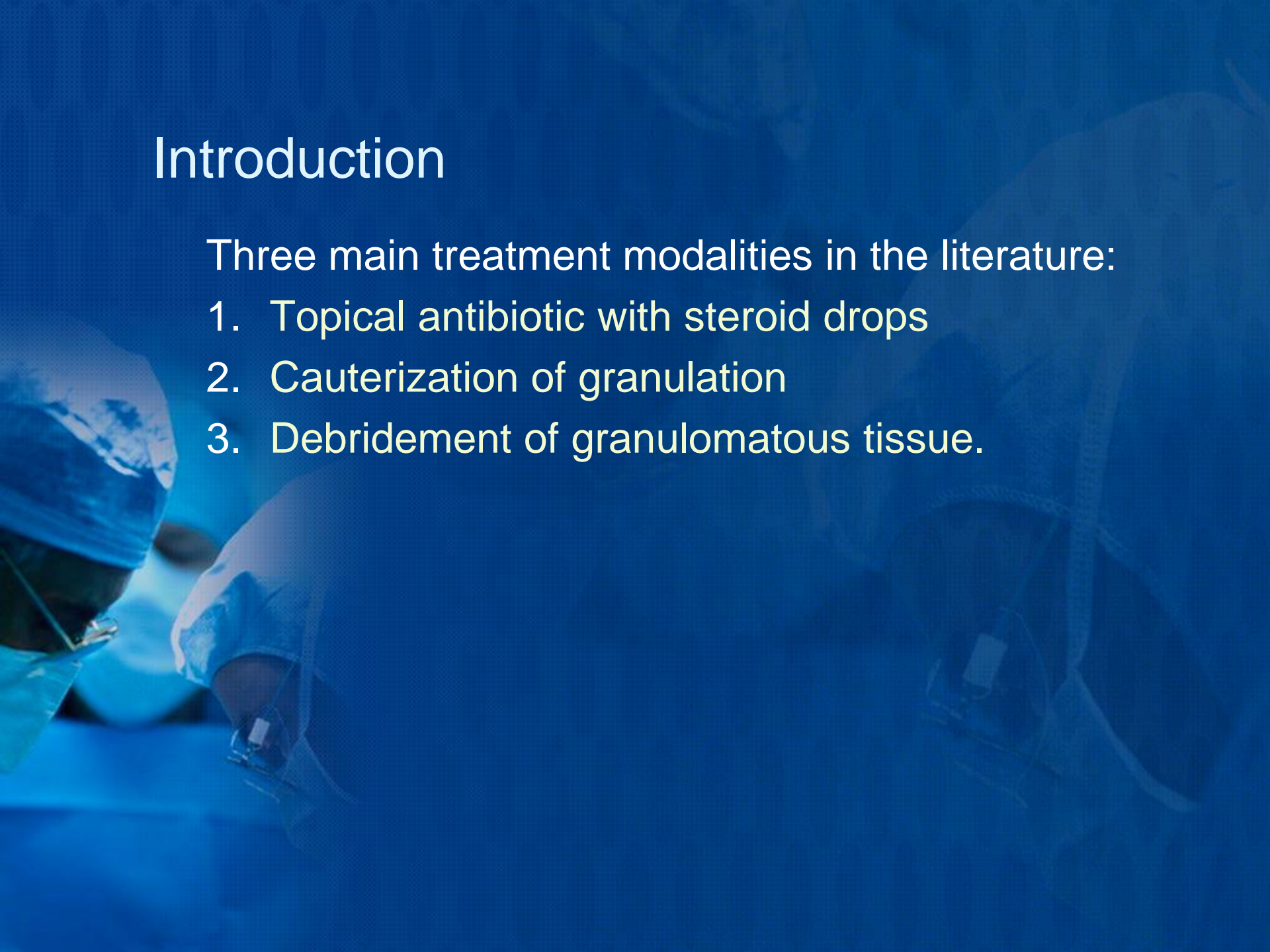
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Introduction

Three main treatment modalities in the literature:

1. Topical antibiotic with steroid drops
2. Cauterization of granulation
3. Debridement of granulomatous tissue.



Introduction

- Topical antibiotic therapy, this does not prevent the condition from recurring.

El-Seifi A, Fouad B. Granular myringitis: is it a surgical problem? Am J Otol 2000;21:462–7

- Prevent complications
 - The need for identification of successful, evidence-based treatment guidelines for clinical practice

Methods

- The range of studies collected covered the years 1964 – 1995
- Randomized controlled trials, controlled case studies and observational reports

Methods

Type of patient

- 3 week duration
- Otoscopic findings of focal, diffuse or segmental granulation of the lateral tympanic surface
- Co-morbid middle-ear disease were excluded

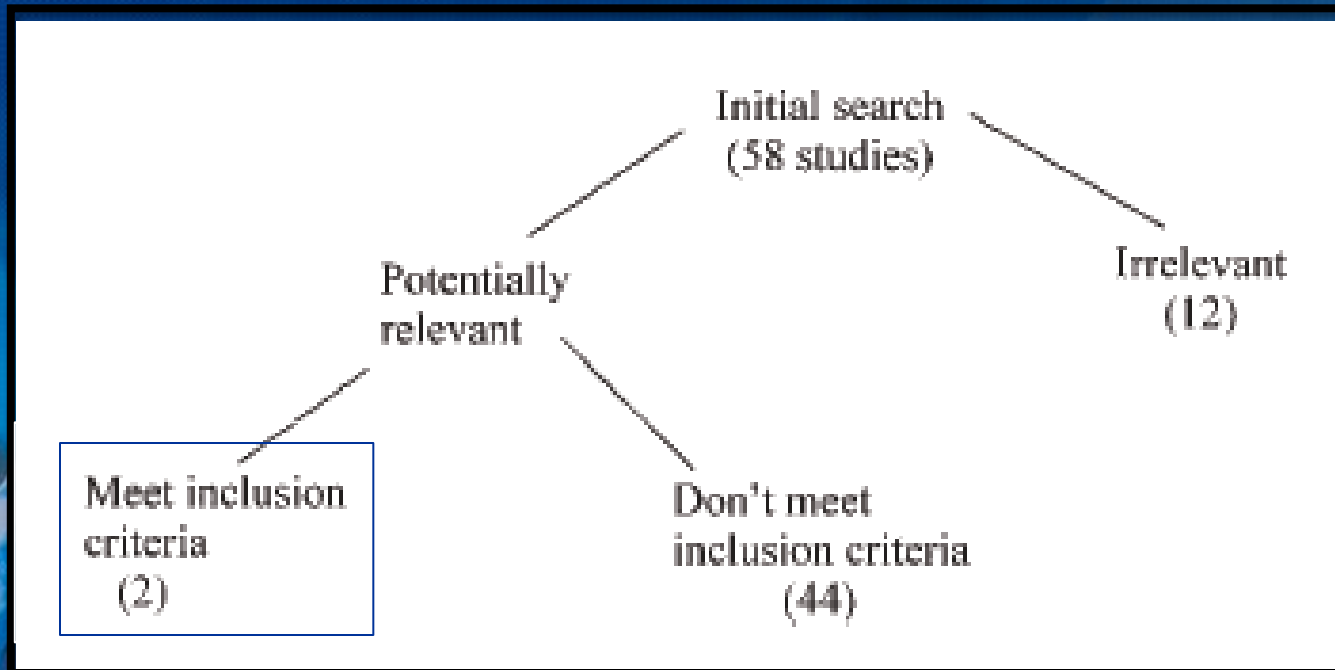
Types of intervention

- Any proposed management of granular myringitis

Types of outcome

- Proposed intervention reduced the risk of recurrence of granular myringitis.

Results



Results

Study	Disease of interest	Sample size (n)	Mean age (yr)	M:F	Setting	Design	Blinded?
Jung <i>et al</i> ⁶	GM	30	38.4	7:23	2° care	Case-control	No
El-Seifi & Fouad ⁴	GM	74	29	49:45	3° referral centre & private otology practice	Case series	No

Follow up (Range, (mean))	Loss to follow up	Intervention group	Control group	Outcome
Min 6 mth, max not given	Nil	2-3/day vinegar	Topical ofloxacin*	Time to healing
6 mth-12 yr (6.25 yr)	Nil	Surgical excision of granular tissue	Acetic acid + antibiotic steroid drops*	Recurrence Healing without recurrence

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March 2002, Vol. **116**, pp. 176–180

Vinegar treatment in the management of granular myringitis

HAK HYUN JUNG, M.D.* , SUNG DONG CHO, M.D.* , CHAN KI YOO, M.D.* , HYUN HO LIM, M.D.* ,
SUNG WON CHAE, M.D.*

- 30 patients with granular myringitis (23 F, 7 M) over a seven-year period
- Non-blinded study
- Two groups of 15 patients

Description of studies – Jung et al

- **Group 1:** conventional treatment with ofloxacin ear drops four times daily
- **Group 2:** Aural toilet with vinegar solution once or twice daily
- Treated until otoscopy showed a dry tympanic membrane with no granulations.
- Followed 6 months

End point

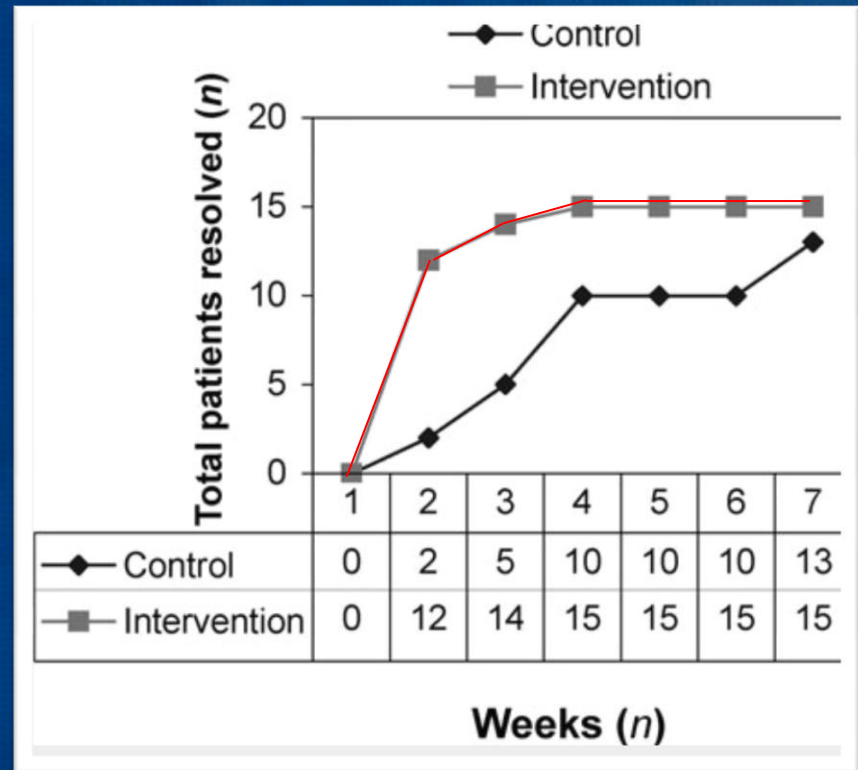
- Recurrence rate, recovery time, therapeutic efficiency and tolerance of therapy.

Results

TABLE III

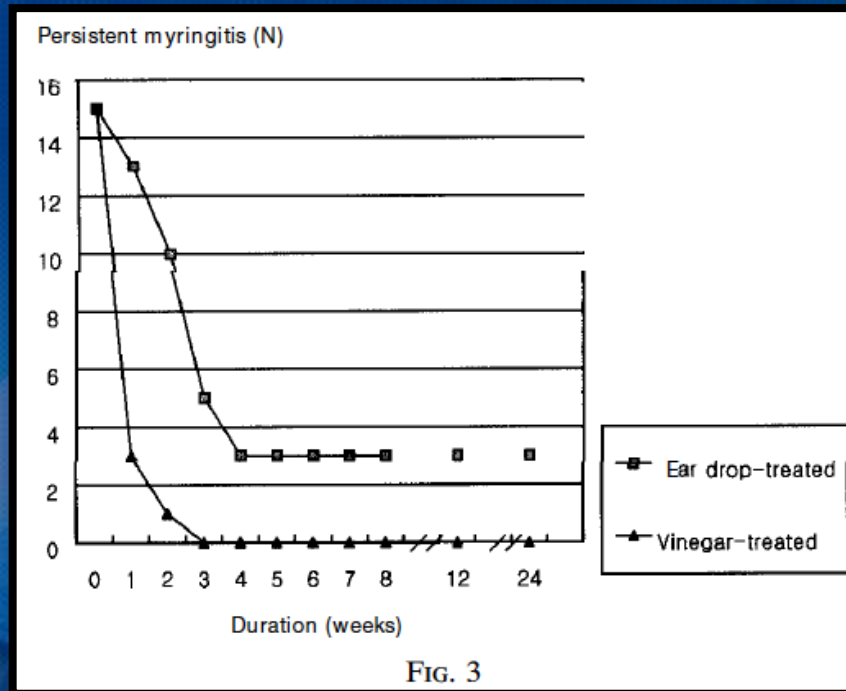
RESULTS: JUNG ET AL.⁶

	No recurrence	Recurrence	Total
Intervention group	15	0	15
Control group	13	2	15



- A dry ear could be attained more quickly in the dilute vinegar-treated group than the ear drop-treated group, at 6 weeks and 6 months respectively $p < 0.01$

Results



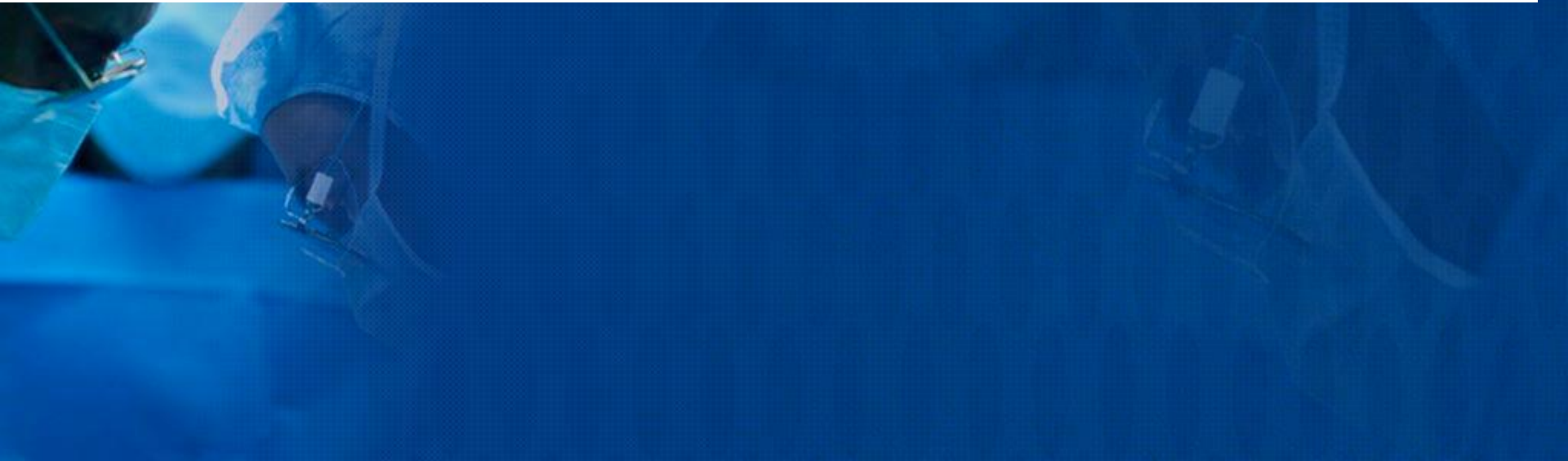
- Reduce the time to resolution of symptoms, compared with conventional antibiotic treatment

Am J Otol. 2000 Jul;21(4):462-7.

Granular myringitis: is it a surgical problem?

El-Seifi A, Fouad B

Department of Microsurgery, The Military Medical Academy, Cairo, Egypt.



Description of studies – El-Seifi and Fouad

- Retrospectively reviewed 94 patients (49 M, 45 F)
- Granular myringitis over a period of 28 years
- 74 included

Group 1: 26

- 1.5 % acetic acid, followed by application of gentamicin/neomycin with dexamethasone drops.

Group 2: 48

- Excision of all granular material from the tympanic membrane and the meatal wall. Grafted by underlay cartilage from the tragus.
- Follow up 6 months-12 years
- End point: recurrence rate

Results

TABLE IV
RESULTS: EL-SEIFI & FOUAD⁴

	No recurrence	Recurrence	Total
Intervention group	46	2	48
Control group	0	26	26

- 80 % increased chance of recovery without recurrence after surgical compared with conservative ear drop therapy.

Discussion

- Junget al. demonstrated a 96 % absolute reduction in recurrence
- High pH in the EAC as a possible etiology
- Stimulate epithelialization
- Acidic Burrow's solution (aluminium acetate) in two patients with granular myringitis

Burrow's solution as an ear drop on intractable chronic suppurative diseases of the external ear canal and middle ear [in Japanese]. Nippon Jibiinkoka Gakkai Kaiho 2003;106:28–33

Discussion

- El-Seifi and Fouad demonstrated reduced recurrence by 80 % by surgical excision of granulation tissue
- Complications of surgery may be worse than the disease. → Surgical debridement would be of optimal use in intractable patient
- Endoscopy-aided laser therapy to debride granulations may be a useful

Jang CH, Kim YH, Cho YB, Wang PC. Endoscopy-aided laser therapy for intractable granular myringitis. J Laryngol Otol 2006;10:1 – 3

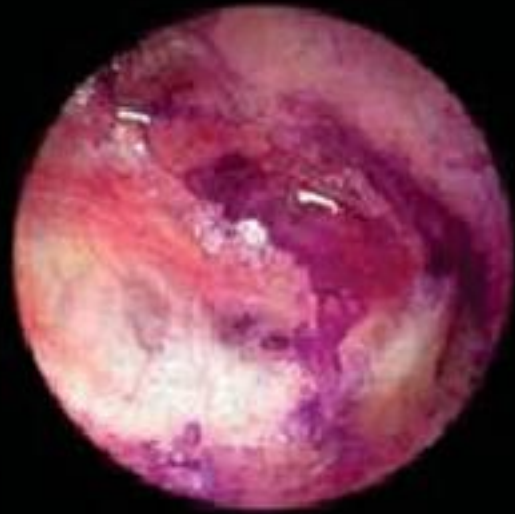
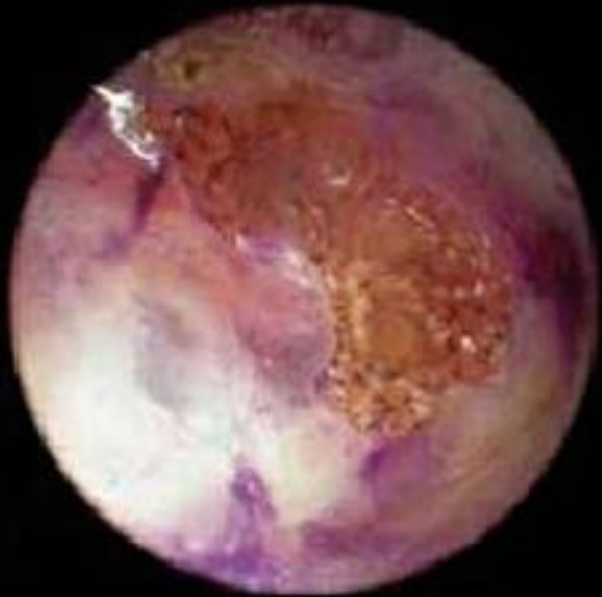
Conclusions

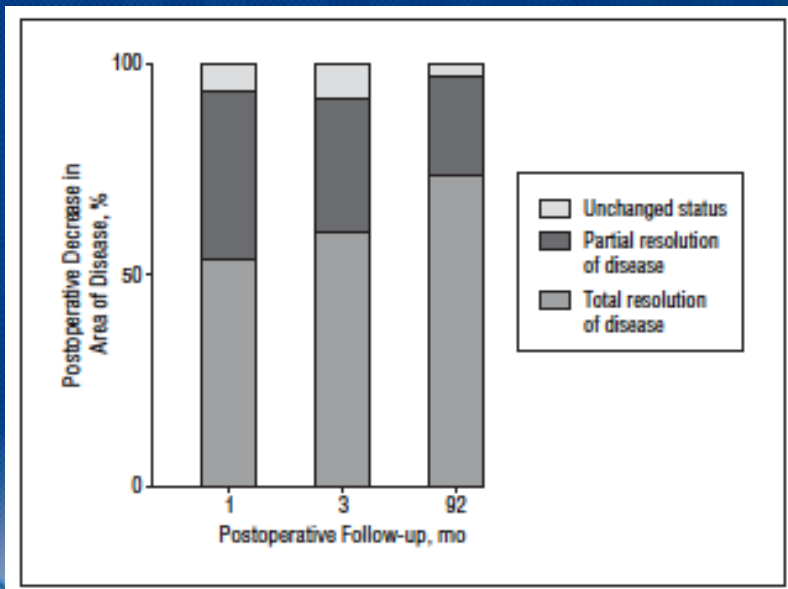
1. Conventional topical antibiotic and steroid drops → less efficient and lead to recurrence
2. Insufficient high quality evidence to support any management protocol.
3. Dilute vinegar solution presents a logical unharmed alternative.
4. Further research
(e.g. surgical debridement, endoscopy-aided laser therapy, cautery and topical application of low pH solutions).

Intractable Chronic Myringitis Treated With Carbon Dioxide Laser Microsurgery

Yen-Fu Cheng, MD; An-Suey Shiao, MD

- 30 treated ears in 29 consecutive patients
- Between 1995- 2004
- Carbon dioxide laser microsurgery for resurfacing the nonepithelialized tympanic membrane
- Results: 22 total resolution of CM, 7 demonstrated partial resolution

A**B****C****D**



- 3-month
- 25 ears available
- 60% total resolution, 32% partial resolution

- CM refractory to therapy, CO2 laser microsurgery is an effective alternative
- Microscopy
- 18 of 21 patients (86%) were cured with endoscopy-aided CO2 laser surgery, without adverse effect

Jang CH, Kim YH, Cho YB, Wang PC. Endoscopy-aided laser therapy for intractable granular myringitis. J Laryngol Otol. 2006;120(7):553-555.

Discussion

- Although vinegar solution is quite effective, daily self-cleaning is necessary for a period of 2-3 weeks
- Induce canal irritation, otalgia and ear canal erosion

CO2 laser

- Vaporizes the granulation tissue, stimulates growth of surrounding diseased epithelium
- Reliable, minimally invasive method with low recurrence rate, no complications

Granular myringitis: report of three prospective studies evaluating treatment options

11 February 2010

the University of Stellenbosch and Tygerberg Hospital.

Table 2. Outcomes

Study	Number of cases treated	GM resolution at 3 weeks	GM resolution at 8 weeks	Perforations
Study 1	25	13	24	5
Study 2	6	0	4	0
Study 3	10	9	10	1

Study 1: 1.5% H₂O₂ solution → Quadriderm (3 week) → cauterized with Silver Nitrate

Study 2: 4% Acetic acid solution q8h

Study 3: 4% H₂O₂ 15 drops q8h

Conclusions

- 1 Hydrogen peroxide appears to be effective.
- 2 The efficacy of acetic acid solution has been shown.
- 3 Quadri-derm followed by silver nitrate cautery of residual granulations is an alternative treatment.

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Topical 5-fluorouracil for granular myringitis: a double-blinded study

- DNA synthesis inhibiting agent
- In otology, topical 5-FU has been trialled in the treatment of external auditory canal cholesteatoma, attic cholesteatoma

Clinical efficacy of 5-fluorouracil (5-FU) topical cream for treatment of cholesteatoma. *Auris Nasus Larynx* 2005;32:353–7

- Group A 5% 5-FU topical cream / 2 weeks x 3 times
- Group B Petroleum jelly cream
-
- Statistically significant differences (3 months /24 months) in outcomes ($p < 0.001$).

Eur Arch Otorhinolaryngol (2011) 268:1139–1146

Clinical characteristics of granular myringitis treated with castellani solution

Young Ho Kim

- Antifungal (carbol-fuchsin), antibacterial (ethanol and resorcinol), and acidic (acetone) solution
- Retrospective study
- 24 patient
- Mean 14.4 months follow up
- 23/24 patient complete resolution of GM, no recurrence

Conclusion

- Conventional topical antibiotic and steroid drops
→ less efficient and lead to recurrence
- Vinegar solution
- CO2 laser therapy and surgical debridement
- Caustic material silver nitrate, TCAA
- 5-FU, castellani solution, H2O2

A blue-tinted photograph of a surgical team in an operating room. The image shows several surgeons in white scrubs and blue surgical caps, focused on a procedure. The lighting is bright and clinical. The text "Thank you for your attention" is overlaid in the center in a white, sans-serif font.

Thank you for your attention

















