



## USE OF CASTELLANI PAINT IN CANAL WALL DOWN MASTOIDECTOMY CAVITY HEALING: OUR EXPERIENCE

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### ABSTRACT

Canal wall down mastoidectomy represents the main line of treatment of active squamous chronic otitis media. Management of mastoid cavity problems has been a challenge in otology practice since decades. Despite advances in surgical techniques, equipment and knowledge of the disease there is continued morbidity in patients due to chronically discharging ear. Post-operative follow-up forms an important part of patient care which includes assessing the cavity for healing. In this study author reports the effectiveness of Castellani ear paint to combat cavity problems.

**Key words:-** Mastoidectomy, Castellani ear drops, otitis media.

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### INTRODUCTION

Chronic squamous otitis media- inactive or active is treated surgically with two approaches namely canal wall up (CWU) and canal wall down (CWD) procedures. Modified radical mastoidectomy is one form of CWD Mastoidectomy. A significant amount of literature is available comparing advantages and disadvantages of both these techniques. Castellani ear drops were traditionally used as an astringent and anti-fungal agent in patients with itchy ear conditions [1]. In this study we assess efficacy of this solution in cavity healing in post CWD Mastoidectomy patients.

### AIMS AND OBJECTIVES:

1. To study the use & effectiveness of Castellani ear solution in CWD cases in Post mastoidectomy cavity healing.
2. To study the cavity problems.

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### MATERIALS AND METHODS

A prospective study was conducted to evaluate effectiveness of Castellani ear drops in post-mastoidectomy patients. The study was conducted in K J Somaiya medical college and hospital, Mumbai from Dec 2017 to Dec 2018 on 40 patients. Only cases with Chronic squamous otitis media inactive or active which required CWD Mastoidectomy were included in the study. Tympanoplasty and CWU Mastoidectomy cases were excluded from the study. Children less than 12 years were excluded from the study so as to avoid inherent anatomic influence on cavity healing. In this study we assessed the results of 1.5% Castellani ear drops application in the ears after modified radical mastoidectomy.

All patients were asked to instill Castellani ear drops twice a week or Castellani paint was applied after one week of surgery and followed up weekly for the next 12 weeks. Systemic antibiotic cover was given up to 10th post-operative day. Each operated cavity was assessed

for healing, granulations, discharge, otomycosis by otoscopic and otoendoscopic evaluation once a week.

#### DISCUSSIONS:

Numerous modifications have been introduced to CWD mastoidectomy to avoid some of its drawbacks whilst maintaining the good exposure it provides and the use of endoscopes have improved visualization in CWD cavities in post-operative follow up. [2,3]

Various arguments between the opposing schools of CWD and CWU mastoidectomy have been rehearsed so many times in print that it is unnecessary to repeat them. CWD mastoidectomy is a safe procedure when performed by experienced otologists or properly supervised trainees. The majority of CWD procedures were performed for chronic squamous otitis media. In our series, there were no major complications. In most cases, the decision to create a cavity is made pre-operatively, the decision being based both on clinical features of the ear disease and imaging findings.

The technique is via a postauricular incision, the canal wall being progressively enlarged until the cavity is created (a technique variously described as epitympanomastoidectomy, trans-canal mastoidectomy or an "inside-out" mastoidectomy). The philosophy behind the technique as routinely practiced is to obtain, by a thorough and meticulous surgical technique, a smooth cavity of the appropriate size relative to the degree of mastoid pneumatization, no significant facial ridge and an adequate meatoplasty both to ensure good aeration of the cavity and ease of post-operative toilet. The wide meatoplasty is formed from an inferiorly based flap. At the end of the procedure a pack of ribbon gauze impregnated with povidone iodine ointment are inserted which is removed subsequently during first post-operative visit.

Youngs studied epithelial migration in 20 mastoid cavities. His findings cast doubt on the assumption that clean trouble-free cavities are maintained by a satisfactorily functioning epithelial migration. [4] Gentian Violet and ferric ammonium citrate is shown to inhibit *P. Aeruginosa* biofilms in vitro. Further study needed to evaluate effect of Castellani paint in biofilm inhibition in CWD mastoidectomy cavities. [5]

The most frequent findings in our outpatient reviews were discharging cavities, crusts, wax, and granulations. We believe that these problems are inherent to mastoid cavities, and seem to occur at one time or another in most patients with mastoid cavities irrespective of how well a cavity is fashioned. The aim of post-operative care is both to assess the cavity for the remote chance of a complication developing and to maintain the lining of the cavity in as a healthy condition as possible. The conservative treatment offered to our patients included suction of wax/debris under microscopic control, sometimes cautery of granulations with silver nitrate and topical Castellani ear preparations

instead of routinely used antibiotic/steroid preparations in all cases.

Castellani's paint, formulated in 1905 by Aldo Castellani (Italian physician, 1877–1971), has long been used in dermatological practice. Castellani's paint is an effective treatment for itchy ears and does not affect the normal microbial flora of the external auditory canal, unlike topical steroids. [6]

Castellani solution is Carbol-Fuchsin Topical Solution which contains 3 grams Basic Fuchsin, 45 grams Phenol, 100 grams Resorcinol, 50 mL Acetone, 100 mL Alcohol and Purified Water, a sufficient quantity, to make 1000 mL. Usually used as topical antifungal agent in acute and chronic cases of dermatophytes, drying agent and phenol nail preparations post operatively. Carbol-fuchsin topical solution should never be applied to large areas of the body [7], because the high concentration of the constituents (basic fuchsin, phenol, resorcinol, acetone) in the hydroalcoholic solution may cause irritation. [7] It is a Poison if swallowed; importance of using only on affected areas; not swallowing this medication; [7] not using near eyes; not using over large areas of the body; not using on deep wounds, puncture wounds, animal bites, or serious burns [8]

#### SUMMARY AND CONCLUSIONS:

Out of 40 patients, 6 cases found to have fungal infections, 7 cases had granulations on otoscopy and 18 cases had discharging ear during first month post-surgery, on subsequent follow up all these cases showed improvement with complete healing and epithelialization by the 12<sup>th</sup> week. whereas 9 cases showed uneventful healing from 2 weeks after surgery and epithelialization by 12<sup>th</sup> week. We observe that patient factors and inadequate cavity saucerization were likely causes in cases with delayed or non-healing responses. Castellani ear paint being drying and antifungal agent is very effective in reducing usual cavity problems like infections, granulation formation and persistent discharging ear. Stained ear cavities and pinna and sometimes stained clothes were only inconvenience reported. Based on our experience we advocate routine weekly application of Castellani paint as post-operative care of CWD cases and its use is as effective as antibiotic steroid ear drops.

#### COMPETING INTERESTS:

The authors declare that they have no competing interests.

#### AUTHORS' CONTRIBUTIONS:

DV drafted the manuscript, AT performed the literature review & SR assisted with writing the paper.

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#### REFERENCES:

1. Babakurban ST, Topal O, Avdin E, Hizal E, Copur S, Ekici MD. Therapeutic effect of Castellani's paint in patients with an itchy ear canal. *J Laryngol Otol.* 2016 Oct;130(10):934-938.
2. Rosenberg SI, Silverstein H, Hoffer M, Nichols M. Use of endoscopes for chronic ear surgery in children. *Arch Otolaryngol Head Neck Surg.* 1995;121:870-872.
3. Youssef TF, Poe DS. Endoscope-assisted second stage tympanomastoidectomy. *Laryngoscope.* 1997;107:1341-1344.
4. Youngs R. Epithelial migration in open mastoidectomy cavities. *J Laryngol Otol.* 1995;109:286-290.
5. Musk DJ, Banko DA, Hergenrother PJ. Iron salts perturb biofilm formation and disrupt biofilms of *Pseudomonas aeruginosa*. *Chem Biol* 2005; 12: 789-796
6. Cevik C, Kaya OA, Akbay E, Yula E, Yengil E, Gulmez MI et al. Investigation of demodex species frequency in patients with a persistent itchy ear canal treated with a local steroid. *J Laryngol Otol* 2014;128:698-701 AHFS 1988: 1990.
7. Castellani Paint Modified (Color and Colorless) package insert (Pedinol, US), Rev 1/94, Rec 6/98.

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