



A study of acetic acid instillation after canal wall down mastoidectomy

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ABSTRACT

Introduction:

Indications for canal wall down mastoidectomy in most cases is chronic suppurative otitis media (atticoantral) / cholesteatoma of varying extent. During the post operative period persistent otorrhea and granulation tissue can be bothersome complaints in order to avoid the same and to achieve a dry cavity instillation of acetic acid into the mastoid cavity during the post operative period is common practice.

In this study we assessed the results in 40 patients who presented with atticoantral type of chronic suppurative otitis media and subsequently underwent modified radical mastoidectomy with adequate meatoplasty. Post operatively the 40 patients were divided into 2 groups-Groups A-consisting of 30 patients, group B consisting of 10 patients. All the patients were asked to instill acetic acid (8% acetic acid diluted with equal amount of normal saline in the ratio of 1:1 which resulted in acetic acid concentration of 4%) in varying quantity and frequency. Patients of both groups were followed up for the next 12 weeks to assess the results in terms of achieving a dry cavity.

Materials and Methods

40 Patients who presented with chronic suppurative otitis media (atticoantral) / cholesteatoma (of varying extent) to the ENT outpatient department during one and a half year period were included in the study all the patients subsequently underwent modified radical mastoidectomy (40 patients were dividing into two group. group A – 30 patients, group B – 10 patients) during the post operative period (after 1 week) all the patients belonging to the both the group were asked to instill acetic acid in to the mastoid cavity –Group A patients were asked to instill 8% acetic acid diluted in equal amount of normal saline in the ratio of 1:1 (resulting in 4% acetic acid) approximately 10 to 12 drops (generously) into the mastoid cavity thrice a day (for three to five minutes) for the subsequent 8 weeks and followed up weekly once along with systemic antibiotic cover. Group B – 10 patients were asked to instill the same preparation only weekly once and followed upto the next 12 weeks.

Results:

In the first study group (Group A) dry mastoid cavity was achieved remarkably faster within six to eight weeks and in all the 30 patients the above results could be achieved. Whereas the other group (Group – B) out of the 10 patients only 9 patients showed positive result whereas 1 patient had persistent otorrhea even at the end of 3 months follow-ups. The nine patients in whom the dry cavity was achieved the results were delayed by upto 4 to 6 weeks in compare to the group A patients.

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Conclusion:

Though acetic acid instillation is known help in achieving a dry cavity but a slightly higher concentration (4% acetic acid) used more frequently is highly effective in rendering dry cavity much earlier as well as with no granulation tissue even upto three months of follow up.

Keywords: Chronic Suppurative Otitis Media (CSOM), Anticoantral, Acetic Acid, Mastoid Cavity

INTRODUCTION

Indications for canal wall down mastoidectomy in most cases is chronic suppurative otitis media (atticoantral) / cholesteatoma of varying extent. However, absolute indications for modified radical mastoidectomy or canal wall down mastoidectomy are tumors and cholesteatoma.¹ During the post operative period persistant otorrhea and granulation tissue can be bothersome complaints. In most patients creating a dry cavity takes a long time. Wet cavity is common in open approach then closed and persistent or temporary otorrhea is about 12 to 60%.² In order to avoid the same and to achieve a dry cavity instillation of acetic acid into the mastoid cavity during the post operative period is common practice.

In this study we assessed the result in 40 patients who presented with atticoantral type of chronic suppurative otitis media and subsequently underwent modified radical mastoidectomy with adequate meatoplasty. Post operatively the 40 patients were divided into 2 groups-Group A- consisting of 30 patients and group B consisting of 10 patients. All the patients were asked to instill acetic acid (8% acetic acid diluted with equal amount of normal saline in the ratio of 1:1 which resulted in acetic acid concentration of 4%) in varying quantity and frequency. Patients of both groups were followed up for the next 12 weeks to assess the results in terms of achieving a dry cavity.

MATERIALS AND METHODS

40 Patients who presented with chronic suppurative otitis media (atticoantral) / cholesteatoma (of varying extent) to the ENT outpatient department during one and a half year period were included in the study all the patients subsequently underwent modified radical mastoidectomy (40 patients were dividing into two group. group A – 30 patients, group B – 10 patients) during the post operative period (after 1 week) all the patients belonging to the both the group were asked to instill acetic acid in to the mastoid cavity –Group A patients were asked to instill 8% acetic acid diluted in equal amount of normal saline in the ratio of 1:1 (resulting in 4% acetic acid) approximately 10 to 12 drops (generously) into the mastoid cavity thrice a day (for three to five minutes) for the subsequent 8 weeks and followed up weekly once along with systemic antibiotic cover. Group B – 10 patients were asked to instill the same preparation only weekly once and followed upto the next 12 weeks.

The age group of the patients is shown in Table 1. The sex distribution of the patients showed 21 male and 9 female patients in the ration of male: female as 2.33:1. The different types of CSOM are shown in Table 2. The laterality showed 18 was right and 12 were left.

Table 1 Age Incidence of Patients

Age Group	No. of Patients
11-20	4
21-30	9
31-40	11
51-50	6
Total	30



Table 2 Different Types of CSOM

Types	No. of Patients
Cholesteatoma	11
Retractionpocket in the Attic	9
Postero Superior Granulation with Marginal Perforation	7
Postero Superior Retraction Pocket	3

RESULTS

In the first study group (Group A) dry mastoid cavity was achieved remarkably faster within six to eight weeks and in all the 30 patients the above results could be achieved. Whereas the other group (Group – B) out of the 10 patients only 9 patients showed positive result whereas 1 patient had persistent otorrhea even at the end of 3 months follow-ups. The nine patients in whom the dry cavity was achieved the results were delayed by upto 4 to 6 weeks in compare to the group A patients. None of the patients complained of any effects like pain or burning sensation, neither did any patients discontinue instilling the drops.

DISCUSSION

Atticoantral type of chronic suppurative otitis media with cholesteatoma possess significant challenge for the treating surgeon as good surgical outcome depends largely on the extent of disease clearance and post operative care. Canal wall down mastoidectomy or modified radical mastoidectomy is the known surgical procedure to be very effective in treating cholesteatoma that allows the surgeon to access and remove completely the diseased tissue while preserving significant anatomy.³ After the surgery the cavity created can easily be examine and monitored for any cholesteatoma recurrence and also cleaning of the cavity is simple. In many patients achieving a dry cavity is difficult.⁴ Granulation tissue is a highly vascularized reactive tissue that is able to absorb the bone by inflammation and direct contact. it is a main component of wound that is healing but if

it grows abundantly it will cause scarring and fibrosis.⁵ Based on Meyerhoff et. al., granulation tissue is the predominant tissue in 49%, 20%, 5.5% of chronic otitis media, cholesteatoma and cholesterol granuloma respectively.⁶ To achieve a dry cavity after modified radical mastoidectomy, acetic acid in different concentration is routinely used. Acetic acid helps in restoring the normal pH of the cavity.⁷ In the presence of granulation tissue it is used as a chemical cauterization agent. In our study all the 40 patients who underwent modified radical mastoidectomy, were advice to instill acetic acid diluted with equal amount of normal saline (1:1) resulting in 4% acetic acid solution. Earlier studies have described the use of 2% acetic acid as well as 2% acetic acid + antibiotic solution instillation into the mastoid cavity to achieve a dry cavity.^{7,8} But none have described the use of 4% acetic acid solution as in our study.

Out of the two study group, Group –A (30 patients) with generous daily instillation (10-12 drops thrice a day for upto 8 weeks) of 4% acetic acid showed a faster achievement of dry cavity within 6 - 8 weeks. Also, all the 30 patient showed dry cavity with no side effects, whereas group B patients (10 patients) who were asked for weekly once instillation of 4% acetic acid for up to 8-12 weeks showed the desired results (dry cavity) much later than the former group. i.e. at the end of 10-12 weeks moreover out of 10 patients one patients had persistent otorrhea even at the end of three months (Figure 1).

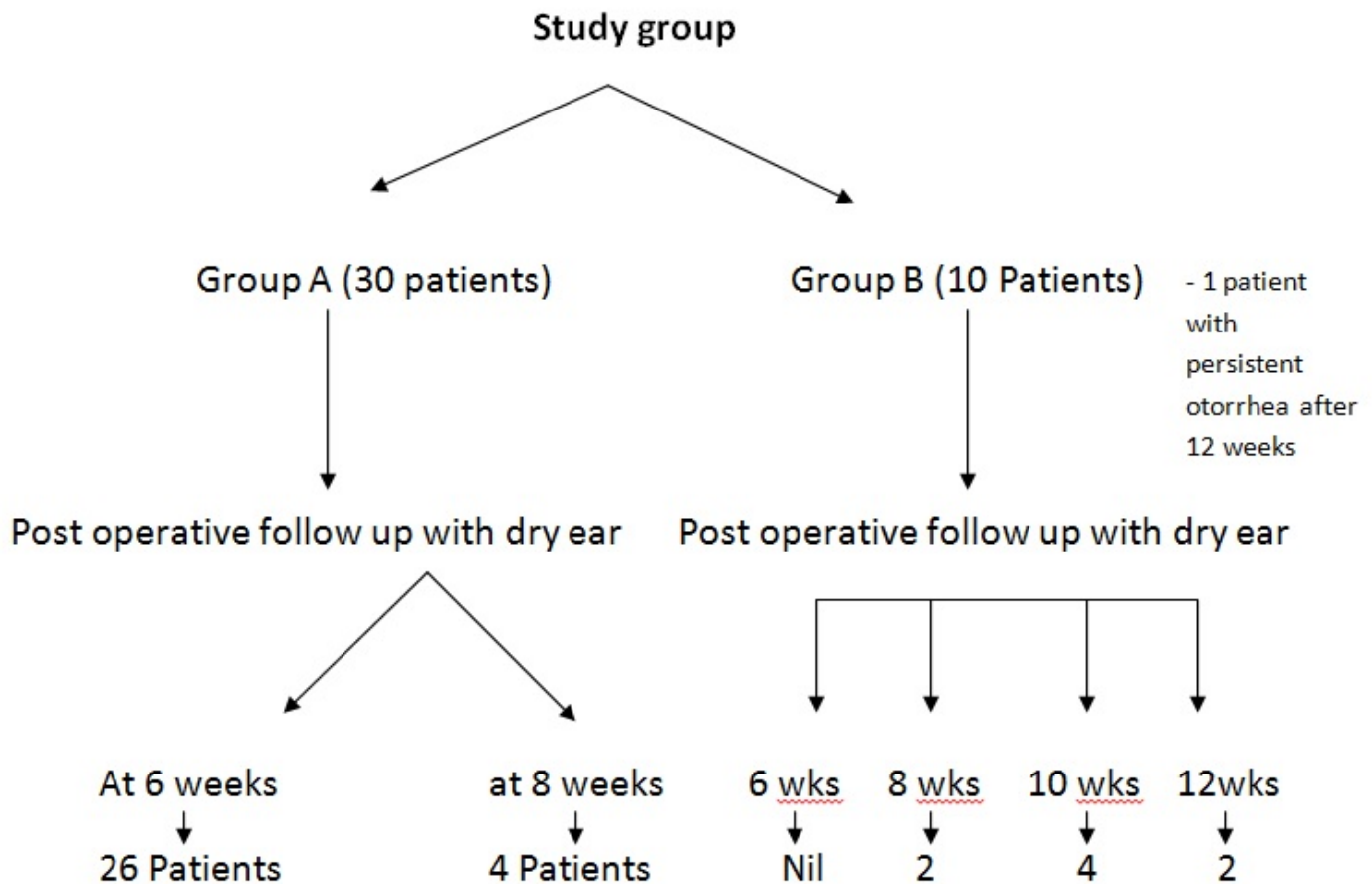


Fig 1: Comparison of outcome between two groups

CONCLUSION

Though acetic acid instillation is known help in achieving a dry cavity but a slightly higher concentration (4% acetic acid) used more frequently is highly effective in rendering dry cavity much earlier as well as with no granulation tissue even upto three months of follow up.

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