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# Use of Phenol in Anaesthetizing the Eardrum

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## Abstract

Local anesthesia is preferred in minor eardrum procedures in the outpatient or office setting. Phenol is an alternative to many local anesthetics. The method of using Phenol as topical anesthesia is described.

The use of this method was done on 11500 minor eardrum procedures over 11 years from 1900 to 2000, including 3205 myringotomies, 3892 myringotomies and middle ear fluid suction and 4403 ventilation/drain tube insertion. The age of the patients ranged from 5 to 85 years old.

90% of the patients reported no pain or discomfort and 20% a brief sting at the time of phenol application. Complications of eardrum perforation were minimal, about 0.017% short term and 0.0026% long term. There were no postoperative infection or bleeding. 0.043% of the patients failed to complete the procedures and 0.006% required repeat application.

The results show that Phenol as local anesthesia on eardrum is safe, efficient, and simple with low cost.

## INTRODUCTION

There are many minor eardrum procedures requiring general or local anesthesia. Local anesthesia is preferred in the outpatient or office setting. Many local anesthetics are used, the main one being lignocaine. Phenol as an anesthetic is an alternative. The author's experience in using the phenol in anaesthetizing the eardrum is described.

## METHOD

The anesthetic agent used in this method is phenol. The phenol is in aqueous form of 20-25% solution. And the equipments or instruments consist of ear speculums of various sizes, ring or loop type wax curettes of various sizes, myringotomy knife, suction tube or suckers, forceps and otomicroscope or otoscope with sliding magnifying window.

Special care is taken to give clear explanation of the procedures when talking to the patients, meantime observing their reaction as to their willingness and cooperativeness. Explaining to them that the procedure is not much more than wax cleaning has been very helpful in enhancing their confidence and cooperativeness.

After explaining the procedure clearly to the patient and obtaining the consent for it. The patient is positioned sitting up or lying down with the treated ear towards the operator

and the appropriate size ear speculum to examine the eardrum is carefully inserted. The speculum is selected to the size maximally but comfortable for the patient. The ear canal is cleaned of any wax or debris to get full view of the eardrum. A small ring wax curette of diameter 3mm is dipped in to the phenol solution to pick up a ring-full of phenol solution and then lowered very carefully down the speculum and inner part of external ear canal without touching the speculum or canal, onto the site of the eardrum operation, such as myringotomy. As soon as the curette ring containing the phenol solution touches the drum, the solution is displaced onto the drum and the underlying drum blanched almost immediately, showing that this area of the drum is anaesthetised ready for surgery.

The procedure is done as briefly as possible especially in young children. The effect of the phenol anesthesia lasts about 15-20 minutes and therefore it is important to have ready all the equipments, instruments and prosthesis if required so as to avoid any technical delay. The brief duration of operation is facilitated with the use of an otomicroscope.

Non-touch technique without antiseptic preparation was used in all the procedures.

The author uses this method on 11500 minor eardrum procedures over the 11 years from 1990 to 2000. These procedures included myringotomy, middle ear fluid suction, and ventilation/drain tube insertion. All the procedures were done in author's private surgical clinic on outpatient basis.

All patients were allowed to go home or to work immediately after operation.

### **RESULTS**

There were 11500 minor eardrum procedures done, 3205 myringotomies, 3892 myringotomies and middle ear fluid suction and 4403 ventilation/drain tube insertion. The age of the patients ranged from 5 to 85 years old.

90% of the patients reported no pain or discomfort and 20% a brief sting at the time as soon as the phenol applied to the eardrum but no pain or discomfort after that. Almost all the remaining 10% experience very mild ache but bearable and had no objection to repeat phenol anesthesia in another occasion. 51 patients (0.043%) due to anxiety and being unable to cooperate were unable to complete the procedures and were done under general anesthesia.

Very rarely due to delay in starting the procedure would a second application of phenol be required, as it occurred in 65 procedures (0.006%).

There were no complications of ear infection or bleeding in all the procedures.

There were 200 short-term eardrum perforations, which healed within 6 weeks of the operations, this being about 0.017% of the total procedures. There were 30 long-term eardrum perforations, which failed to heal 6 weeks after operations, this being about 0.0026% of the total procedures. Of these long-term perforations, two thirds were having the phenol method of anesthesia 2<sup>nd</sup> or more times. None of the patients having myringotomies had eardrum perforation; 6 of the myringotomies and middle ear fluid suction and 22 of the ventilation/drain tube insertion had. These long-term perforations were all successfully treated under local anesthetics.

### **DISCUSSION**

The use of phenol as eardrum anesthesia was first advocated by Storrs<sub>1</sub> in 1956.

Phenol is also known as phenyl alcohol having the chemical formula as C<sub>6</sub>H<sub>5</sub>OH. It has acid properties and is therefore called carbolic acid, which was first used by Lister in

medicine as antiseptic in 1867. Its other properties of interest are bacteriostatic in 0.2%, bacteriocidal in 1.0% and fungicidal in 1.3%

The above phenol properties could have accounted for the no infection complications in all the procedures. The blanching effect note on phenol application as soon as it touched the eardrum could help making the procedure relatively bloodless and therefore no complication of bleeding.

The method used in the procedures described above is well accepted by the great majority of patients. The brief sting at the time as soon as the phenol applied to the eardrum was also reported by Weisskopf<sub>2</sub> in 1993, saying sometimes there was a sting. He further reported that he used phenol anesthesia in his office procedures over 20 years with no problems and found that the patients felt it less painful than infiltration anesthesia.

The most recent report came from a Spanish article by Plaza<sub>3</sub> in Madrid in the year 2000. He used phenol 88% solution on 55 patients involving 81 eardrum procedures. There was no report of any eardrum perforation. His rate of failure requiring general anesthesia was 2.47%, compared with the author's failure rate of 0.043%.

It is noted that Storrs, Weisskope and Plaza et al used the phenol anesthesia in myringotomy only whereas the author also used it in ventilation/drain tube insertion.

Schmidt<sub>4</sub> mentioned in 1995 his view that the anesthetic used in eardrum should be efficient with minimal adverse effects, easy to handle and be rapid acting, simple and low cost. The author's experience in the over 10000 procedures seem to well support this view.

On literature search over the last 25 years, the author found no other publications on use of phenol in eardrum anesthesia

### **SUMMARY**

The use of phenol in anaesthetizing the eardrum is described and the author's personal series of 11500 minor eardrum procedures are presented. On this experience it is reasonable to say that Phenol solution, as local anesthesia on eardrum is safe, efficient, and simple with low cost. It can be safely used in the very young and the elderly as an out patient basis. Complication of eardrum perforation does occur but the rate is very low. Rate of anesthesia failure is very low also and this is mainly due to careful patient selection.

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