

Evaluate percutaneous endoscopic transcanal cartilage myringoplasty as a postauricular incision-free treatment for STMP

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Abstract

Our aim is to judge transcanal scrutiny approach in repair of subtotal eardrum perforation in a very trial to stop typical postaural approach. Our study was exhausted eighty patients with unilateral dry subtotal membrane perforations. They were forty four males and thirty six females. Their ages ranged from 18-50 years with mean of thirty three years. transplant skinny (0.2 mm) auricular animal tissue protect was wont to repair eardrum perforation. Patients were divided into 2 teams per the approach. cluster "A" was approached by scrutiny transcanal surgery whereas in cluster "B" by microscopic postauricular surgery. the smallest amount follow up amount was half-dozen months with vary from half-dozen to twenty four months. The take rate was considerably high in type A (100% in a very and ninetieth in B). operative air bone gap was considerably improved in each teams particularly in cluster "A". There was vital distinction (P price $< \text{zero.0001}$) between the operative air bone gap averages of each teams (8.50 ± 1.25 in a very and 9.25 ± 0.75 in B). we tend to over that subtotal perforation of the eardrum higher is best is healthier to be repaired by transcanal scrutiny surgery to avoid the postaural technique and to achieve additional précised result with better hearing.

Keywords

Subtotal perforation, Endoscopic myringoplasty, Cartilage graft, Postauricular approach

Introduction

Tympanoplasty is one in every of the most common operations performed on the center ear. historically over a few years, surgical process has been done victimisation the binocular microscope with its optical limitations that have remained identical over the last 3 decades despite the continual technical advancements [1]. until the last decade endoscopes had been chiefly used for designation and photography. Recently some authors inspired to use the medical instrument in numerous cavum surgeries either alone or in help of the magnifier [2]. Few papers are revealed describing the employment of the medical instrument in

repair of tiny membrane perforation by totally different graft materials however we tend to failed to realize papers describing the employment of the medical instrument in repair of total and subtotal perforations. historically microscopic repair of such varieties of perforation has been done through a postauricular incision so as to get wide exposure [3]. animal tissue graft is wide used and powerfully established to be helpful in getting sensible take rate in surgical process. animal tissue graft is rigid with additional sturdiness and resistance therefore it's most well-liked in repair of enormous membrane perforations

Materials and strategies

After obtaining approval of the institutional moral committee and written consent from all registered patients, this study was conducted on eighty patients with unilateral dry subtotal membrane perforation repaired by associate ultrathin auricular animal tissue defend graft coated by skeletal muscle connective tissue wherever it's the well-liked graft of the senior 1st author [4]. They enclosed thirty six females and forty four males. Their ages vary from 18-50 years with mean of thirty three years. Patients in our study were chosen from the Otologic patient Department of Mansoura University Hospital from Gregorian calendar month 2011-Feb 2014. surgical audiological investigations were completed for all patients within the type of tone audiometry (air conductivity and bone conductivity thresholds at frequencies from 500-4000 cps and air bone gap (ABG). Patients were divided blindly into two teams. The patient and therefore the medico were unaware of that cluster, examination or microscopic, the patient was in. The patients were numbered from one to eighty. Patient no. one was appointed for blood type and patient no. two appointed for blood group so on.

All patients were consummated all the inclusion criteria that included; dry perforation for three months or additional, no proof of os malady with air bone gap (ABG) of $\leq$ thirty five dB, no previous ear surgery, no sinonasal issues and medical fitness with no DM. blood type enclosed forty patients operated by the examination transcanal approach and blood group enclosed another forty patients repaired by microscopic postauricular approach. In each teams we tend to used the beneathlay/postlay technique putting the graft under the annulus and remnants of membrane however over the hammer handle. Follow up was ranged from six to twenty four months. information were evaluated victimisation on-line GraphPad software package wherever mean and variance were calculated and odd t take a look at was wont to compare between 2 mean to calculate P worth All cases were operated beneath anaesthesia with lidocaine two in 1/50000 endocrine. Injections were wiped out four points at the external canal passageway and four points within the canal at the cartilage- bony junction. a large angle Storz Otoendoscope "0" degree (2.7 millimetre diameter) connected to storz camera and a semiconductor diode source of illumination of one hundred fifty W were used. The camera was connected to a TV screen with a recording system. The patient was draped with towels with a bowl containing associate antifogging resolution to wash the tip of the medical instrument. The external canal was cleansed with saline when anaesthesia injection.

The edge of the perforation was everted and pictured by the medical instrument for any animal tissue remnants to confirm complete removal

of epithelial tissue. The disc knife was wont to build a circumferential incision simply medial to the cartilage/bony junction. The incision was taken from 1-6 o'clock (right ear) and from 11-6 o'clock (left ear), to get a large skin flap. By employing a dissector the flap was elevated until reaching the annulus. The handle of hammer ought to be cleansed of any connected tissues, give details that additionally the mucous membrane by crocodilian extractor and a needle. The animal tissue graft was taken by a separate incision within the medial side of the auricular scapha when its infiltration with the anaesthesia. associate oval piece of animal tissue while not perichondrium on either facet was excised. The animal tissue was dilute to zero.2mm [4] by a special instrument referred to as Conchotome (Kurz Co. Germany). A wedge was excised from the animal tissue to adapt the handle of hammer. Gel foam items were placed within the cavum and therefore the graft was placed. a chunk of dried skeletal muscle connective tissue was ready from the ipsilateral striated muscle by a separate incision. The connective tissue was placed on the animal tissue defend and ordered on the posterior comely wall of the external canal. The medical instrument was wont to exactly and thoroughly place the graft beneath the sting of the perforation circumferentially. The posterior skin flap, annulus and remnants of the membrane were came back on the posterior wall, Gel foam items were place within the external canal and gauze pack with antibiotic ointment. The temporal incision was enclosed two layers with interrupted sutures by Vicryl 4/0 for the inner layer and Silk 4/0 for skin. The auricular incision was enclosed one layer of interrupted sutures by Vicryl 4/0.

Steps in Microscopic blood group

All cases were operated with identical anaesthesia as A. The magnifier was used as a sole optical tool for all cases. The tube strip was created through postauricular approach following the fundamental steps of surgical operation making a laterally based mostly flap. The perforation was repaired by a skinny animal tissue graft (0.2 mm) harvested as antecedently delineate in A. a bit of temporalis muscle connective tissue was harvested from ipsilateral musculus temporalis through identical postauricular incision. Canaloplasty was accomplished for cases with bony humps that are found to obscure the microscopic read. The postauricular incision was closed by interrupted sutures mistreatment Vicryl 4/0 for connective tissue layer and Silk 2/0 for the skin.

Follow Up in each teams

A general antibiotic was used for one week once surgery. The pack was removed once one week and also the gel foam once ten days. AN antibiotic/steroid drops was prescribed for two weeks. All patients were followed once/2 weeks within the initial three months then once/monthly within the initial and second years. the primary tone audiometry was done once three months for all cases. All cases were examined in every follow up session by the medical instrument for graft take.

Results

Our study enclosed eighty patients (36 females and forty four males) with mean of thirty three years (Table 1). All cases had unilateral dry subtotal tympanum perforation. Patients in A were repaired by transcanal examination animal tissue surgical process and in blood group by microscopic postauricular surgical process. each teams were repaired with autologous skinny (0.2 mm) animal tissue protect lined with temporalis muscle connective tissue. The minimum follow up amount was six months.

In group A, external canal bony humps we have a tendency tore found

in seven cases (Table 2) for whom we failed to perform canaloplasty as a result of the medical instrument might be passed on the far side these humps while not obscuring the read. the typical time of surgery was forty $\pm$ five.50 minutes (Table 3). The graft was taken utterly all told cases with none residual perforations (Table 3). The hearing was improved all told cases of this cluster. The mean of operative ABG average was thirty two.50 $\pm$ 1.50 and have become eight.50 $\pm$ 1.25 postoperatively. Most cases during this cluster showed important improvement of ABG as eighty fifth had ABG $\leq$ ten dB (Table 4).

In group B, there have been six cases with bony humps obscuring the microscopic read that necessitating drilling to open the sector (Table 2). the typical time of surgery during this cluster was fifty five $\pm$ ten.50 minutes. The graft was taken in ninetieth of cases wherever 100 percent (4 cases) failing (Table 3).

Unpaired t take a look at was wont to calculate P price. applied mathematics important distinction ($P < \text{zero.0001}$) was detected between the operative and operative average means that ABG of the 2 teams. The mean of operative ABG average was thirty.75 $\pm$ 1.25 and have become nine.25 $\pm$ 0.75 postoperatively. Most of cases of A showed closure of ABG within the within the ten dB with high important distinction as compared to it of the blood group. There was none important distinction within the term of take rate there was considerably higher in A, wherever it had been 100 percent during a and ninetieth in B.

Discussion

By victimization the operative magnifier, the postauricular approach is that the unremarkably used methodology to repair the subtotal tympanum perforation [5]. Postauricular incision ends up in additional blood loss, long time, disturbance of the anatomy of the postauricular region with scar or maybe scar formation [6]. The magnifier is comparatively significant thus it's dangerous to maneuver and take longer time to be adjusted. The optics of the magnifier is predicated thereon it's in one line thus it oftentimes wants amendment of the position of either the top of the patient or the magnifier to get a decent read [2,6]. Another drawback within the optics of the magnifier is that it can't visualize several areas of the center ear in one read. On the opposite hand the medical instrument has the flexibility to see several structures of the center ear in one frame [7,8]. what is more the physician will move the medical instrument up, down, front and back additional simply to see completely different points and regions within the center ear cavity. The work by trying to the monitor is another issue of examination advantage, wherever it offers additional magnification and preciseness of the work. The run through the monitor offers a really necessary advantage of following the steps of surgery by young surgeons and students thus increasing the teaching and learning processes. In blood type of our study we tend to used the otoendoscope altogether steps of surgery while not the requirement of binocular microscope. The physician (1st author) control the endoscope/ camera by his manus and therefore the instrument by his manus. The physician didn't mentioned manus fatigue or any discomfort. a really necessary trick is that the instrument ought to very little precede the medical instrument to permit mental image of its operating tip. Frequent cleanup of the lens of the medical instrument generally appears to be dissatisfactory however it may be solved by avoiding bit the tip of the medical instrument to the tissue or instruments. we tend to found that the run through the television monitor was additional convenient than the run through the attention piece of the medical instrument. {moreover|furthermore|what is additional} it offers additional magnification and more precised surgery. The magnification may be modified by adjusting the space between the tip of the medical instrument and therefore the operating field; it will increase once the space attenuate. several papers limit the utilization of

the medical instrument to repair cases of little tympanum perforations however during this study we tend to used the medical instrument in repair of enormous perforations as subtotal with excellent anatomical and practical results. Variations of the external ear canal like distorted shape, stricture and bony humps build the read of the tympanum tough once pictured through the magnifier [8-10]. Transcanal operative examination bypasses the slim section of the acoustic meatus and provides a good read even once a zero medical instrument is employed [3,8]. By the utilization of the medical instrument we tend to failed to have to be compelled to do canaloplasty in cases with humps as a result of the medical instrument {could be|might be|can be|may be|may we tend toll be} passed on the far side the humps however we tend to found difficulties en passant the instruments through slim elements however we may complete the procedure with no would like for canaloplasty. In our opinion falcate instruments ar necessary in such cases with humps. review of the medial facet of the perforation edge and containerful removal of the animal tissue dust is a vital step in technique of surgery [9-11]. we tend to determined that by the utilization of the medical instrument it absolutely was straightforward to examine and evert the sting of the tympanum with careful removal of animal tissue remnants. we tend to didn't notice difficulties in victimization one hand to finish the procedure. Recently Mobarak and Sapna [12] reportable the conception and development of innovative examination holder system for examination otolaryngologic surgeries. On the opposite hand in blood type wherever we tend to used the postauricular incision we tend to noticed that it absolutely was longer overwhelming in skin incision, tissue elevation and hemostasia. during this cluster we tend to found half dozen cases with bony humps that require drilling to widen the sphere of vision. The take rate in microscopic cluster was ninetieth whereas in examination cluster was 100 percent. operative infection was another issue of disadvantage of postauricular approach that has occurred in 3 cases. Finally we tend to advocate avoiding postauricular incision in repair of tympanum perforations even though large; instead we tend to powerfully advise to use the examination approach to avoid the disadvantages of the postauricular approach additionally to extend the take rate as a result of it's additional precised technique.

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