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LETTER TO THE EDITOR

Eco-clinical Analysis and Prevention of Recurrent Secretory otitis Media caused by Adenoid Hypertrophy after Surgical Excision

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The purpose of this study is to observe and analyze the recur reason of adenoidal hypertrophy-induced secretory otitis media after surgical resection and explore targeted prevention and control measures, so as to provide more effective treatment, improve patient's life quality. We analyzed the treatment data of 1000 cases of recurrent patients with secretory otitis media caused by adenoid hypertrophy in our hospital from December 2012 to December 2014, and the specific research process was summarized as follows.

I Introduction

Yapeng Wang, Jinguo Zhang, Xin Zhao, Yundou Wang, Xiaowen Xiong. Publish "Selection of Emergency Medical Protective Equipment for Harsh Environment: A Study of Effectiveness Evaluation Method on the Basis of Connection Numbers" on Issue 106, Pages: 1227-1234, Article No: e106108, Year: 2018. For users, how to choose appropriate or differentiate the quality differences of emergency medical protective equipment with various types and models in the market? For the production enterprises, how to improve and perfect the emergency medical protective equipment in the future? Both need to use scientific methods to conduct a comprehensive evaluation of its effectiveness.

Secretory otitis media is middle ear non-suppurative inflammation ear effusion characterized by tympanic cavity effusion and hearing loss on clinic. The disease is more common in otolaryngology, and there is a high incidence of disease in the range of children, which has brought serious adverse effects on children's growth and development and become the factors of intelligence and hearing onset. The removal of hypertrophic adenoids under nasal endoscope is effective method for treating and controlling secretory otitis media (Gao et al. 2017). Therefore, widely promote this surgery can effectively treat the secretory otitis media. The purpose of this study is to observe and analyze the recur reason of adenoidal hypertrophy-induced secretory otitis media after surgical resection and explore targeted prevention and control measures, so as to provide more effective treatment, improve patient's life quality. We analyzed the treatment data of 1000 cases of recurrent patients with secretory otitis media caused by adenoid hypertrophy in our hospital from December 2012 to December 2014, and the specific research process was summarized as follows (Wang and Song 2005).

II Data and Methods

General information. Use random manner to extract 2000 cases of recurrent patients with secretory otitis media caused by adenoid hypertrophy in our hospital from December 2012 to December 2014, which include 1200 cases of male patients and 800 cases of female patients. The age of the patients is between 2.5 and 12 years old, and the mean age is (6.85 ± 2.12) years old. The recurrence time is 6 to 36 months, the average time is (29.32 ± 4.32) months (Tian and Meichao 2007).

Specific manifestations of the clinical symptoms of patients are as follows: the recurrent patients suffer from ear fullness, hearing loss, slow response to sound again after surgery, and which are the main symptoms to diagnosis. Physical examination indicated that otopiesis and turbidity, light vertebral deformation, the typanic acoustic impedance of tympanogram curve with “B” type are 31 ears, and “C” type are 4 ears, pure tone audiometry is conductive deafness. The inclusion criteria are: patients with adenoidal hypertrophy-induced secretory otitis media, with clinical symptoms including recurrent ear fullness, hearing loss, slow response to sound again after surgery. Physical examination showed autopoiesis and light vertebral deformation. The scoustic impedance showed that there were 31 ears with “B” type tympanic curves, and 4 ears with “C” type tympanic curves. Pure tone audiometry indicated conductive deafness. The exclusion criteria are patients with secretory otitis media caused by other factors, patient; the mentally disordered; patients with severe cardiac renal dysfunctions (Huang et al. 2019).

The result of pharyngorhinoscopy shows that there are 100 cases of patients with different degrees of adenoid hyperplasia, which result in pharyngeal opening blocked (refer to Figure 1). 600 cases are with tubal tonsil hyperplasia and lateral pharyngeal hypertrophy, among these patients, 400 cases are combined pharyngeal scar (refer to Figure 2), 200 cases are induce scar on pharyngeal opening, which result in pharyngeal opening blocked (refer to Figure 3) (Wang 2010).

Figure 1. Example of a figure caption. (figure caption)

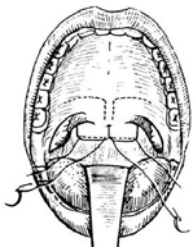

Figure 2. Retropharyngeal scar(Image source)

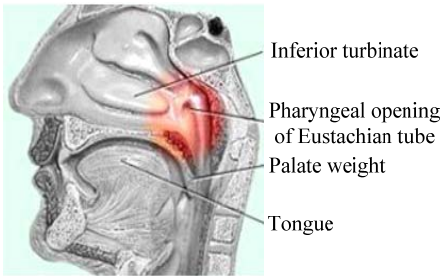

Figure 3. Pharyngeal opening obstruction

The 100 cases of patients with adenoid hyperplasia were treated by endoscopic sinus surgery under general anesthesia, and we scrape off the hyperplastic adenoid tissue completely with 0 degree nasal endoscope and provide adequate hemostasis. 600 cases of patients with tubal tonsil hyperplasia are treated with 2 ml 0.5% procaine to anesthetize the hyperplasia tissue under nasal endoscope, and then use microdebrider to cut the hyperplastic lymphoid tissue and the surrounding mucosa on the same level, do not cut too deep, so as not to hurt the pharyngeal ostium of eustachian tube and form scar. Applicated antibiotics and glucocorticoid drugs after surgery on the whole body, and combined with eustachian tube insufflation and massage therapy. After nasal mucosal surface is anesthetized by tetracaine adnephrin cotton, at the guide of nasal endoscopy with 30 degree, leading the segmental eqidural cathete into pharyngeal ostium of the eustachian tube and inject 1 to 2 ml air, then withdraw tympanic cavity effusion. Injecting 0.5 to 1 ml mixed liquor of 2 ml prednisolone and 1ml alpha chymotrypsin after withdrawing. Indwelling catheter, every other day for a time, 7 to10d for one course, and combine with the systemic administration (Yang et al. 2014).

Standards for the therapy. The clinical treatment effect of the patients with secretory otitis media of this clinical study is divided into three levels, respectively, cured, improved and ineffective. Cured: tinnitus, hearing loss, unresponsive to sound and other symptoms disappear, and hearing recover, tympanic acoustic impedance curve becomes type A, pure tone audiometry hearing is normal, symptoms will not recur within six months. Improved: tinnitus, hearing loss, unresponsive to sound and other symptoms improved, hearing become better, tympanic acoustic impedance curve becomes type As, pure tone audiometry hearing improve 20 dB. Ineffective: clinical symptoms don't improved, pure tone audiometry and acoustic impedance have no obvious improvement compared with before treatment.

Statistics processing method. In the analysis of the controlled trial, we used the statistical analysis software called SPSS19. 0, all data in this controlled trial were analyzed and processed by this software. Wherein the measurement data used the express way of the mean ± average (± s), between-group comparisons used the chi-square; Count data used the express way of natural number (n) and percentage (%), between-group comparisons use t to contrast. In statistical analysis, using 0.05 as the test standard, the confidence interval is 95%. If $P < 0.05$, between-group comparisons have significant differences, and which have statistical value (Xu and Ju 2008).

III Results

The result of pharyngorhinoscopy shows that there are 100 cases of patients with different degrees of adenoid hyperplasia, 600 cases with tubal tonsil hyperplasia, 200 cases with pharyngeal opening scarring among the 2000 cases of recurrent patients. After a series of clinical treatment, of those 2000 patients, there are 1900 patients get better, and the effective rate of clinical treatment is 95%.

IV Discussion

Secretory otitis media is a kind of inflammation in pathology, its main characteristic is hydrotympanum, at the same time hearing also decreases, however, otitis media don't suppurate. The incidence rate is high in the range of children, which can reach 14% ~ 63%. If this secretory otitis media is not treated for a long time, which can cause hearing impairment, and thus impair language development of children, especially the developmental stage of young children, which can cause learning, activities barriers, and other barriers. Seizure of secretory otitis media is closely related to infection, immune factors and Eustachian tube dysfunction. Adenoid hypertrophy has always been regarded as a common cause of secretory otitis media. However, there are a lot of different points: (1) mechanical obstruction of the Eustachian tube, or Eustachian tube dysfunction; (2) the Eustachian tube appears reflux; (3) adenoids are breeding ground of bacteria; (4) the Eustachian tube dysfunction caused by immune anomalies of adenoid. At present the main treatment methods are: (1) a simple drug treatment; (2) adenoidectomy combined with drug therapy; (3) adenoid hypertrophy plasma ablation combined with drug therapy; (4) endoscopic micro electric suction cuts adenoidectomy combined with drug therapy.

Secretory otitis media is one of the common causes of children's deafness, the basic cause of which is dysfunction of Eustachian tube. Inflammatory exudate and Eustachian tube dysfunction are necessary conditions of middle ear effusion. Surgical resection of adenoid tissue hyperplasia is the main measures for the treatment of this disease, but the traditional adenoidectomy is not under direct vision, so the depth and extent of resection can't be guaranteed, if the resection range is too large, and which will hurt pharyngeal ostium of Eustachian tube, and scar will adhere after surgery, which will cause Eustachian tube dysfunction; if less, it will leave residues, that can result in new hyperplasia, and which will oppress pharyngeal ostium of Eustachian tube again, it will also cause dysfunction, which is the main reason lead to recurrence. In addition, because of adenoidectomy, peripheral lymph will proliferate, especially further hyperplasia of the tubal tonsil, the pharyngeal ostium of Eustachian tube narrow, which will affect the function of Eustachian tube, which is also one of the important factors causing postoperative recurrence. When cutting adenoid tissue, if scrap the pharyngeal tissue too deep, it will cause postoperative scar contracture, affecting the blood and lymph pharyngeal reflux, thereby cause local tissue swelling, hyperemia, even hypertrophy, which is also one reason of recurrence of the disease after surgery. With the application of various endoscopic techniques, it is possible to apply nasal endoscopic technique in the treatment of secretory otitis media. The patients who suffer from adenoid hyperplasia and Eustachian tonsil hyperplasia again are treated by nasal endoscope cut hyperplastic tissue under direct vision, which will increase the reliability and accuracy of surgery and avoid the adverse consequences caused by removing too much or too little. Inserting catheter under direct vision will avoid hurting the pharyngeal ostium of Eustachian tube. Indwelling catheter also plays a role in expanding the pharyngeal ostium to the patients with pharyngeal ostium stenosis caused by Eustachian tube scar.

According to pharyngorhinoscopy results, there are 100 out of totally 2000 recurrent patients showing hyperplasia in different degrees, 600 patients showing pharyngeal tonsil hyperplasia, 200 showing scar at ostium pharyngeum tubae auditivae. Through a series of clinical treatments, there are 1900 out of 2000 patients showing recovery, with total effective rate of 95.00%. This fully verifies the therapeutic reliability of adenoidectomy under conchscope.

The main purpose of carrying out endoscopic adenoidectomy under nasal endoscope in treating secretory otitis media is to remove the focus of infection. The surgery will also be the theoretical basis of treatment, so as to improve the therapeutic effect of secretory otitis media. The characteristic of secretory otitis media do not fester, it is because adenoid hypertrophy blocks Eustachian tube of children. Research shows that cutting adenoid by

surgery is not only an effective and safe way to treat children's secretory otitis media, but also can effectively reduce the incidence of this disease. Many children who have secretory otitis media also have inflammation of the adjacent organs, such as inflammation of the tonsils, sinusitis and so on, which may make the Eustachian tube produce reflux, which has become the source of middle ear infection. After endoscopic surgery, there is no residue, retrograde infection can be effectively controlled, the hearing can be improved more than 15~30 after the operation. There are many other advantages of this surgery, for example, it can observe the relationship of peripheral organs and no adenoid tissue residue after operation, small trauma, and postoperative recovery is also very fast. In conclusion, endoscopic adenoidectomy has a good curative effect on children's secretory otitis media, it is not only safe and efficient, but also the clinical cure rate is very high, so this treatment is worth to promote.

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