Current status of clinical otology in China

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Key words: Otology, Treatment, Chronic otitis media, Hearing, China

Abstract:

There are professional otologists in 126 college affiliated hospitals and large hospitals. These hospitals are distributed in the large cities all over China. The treatment of otological diseases was relatively confined to these cities. There are obvious differences in terms of level of clinical services provided and the equipment available in these hospitals. Every year patients with otological diseases account for 20.2% (275/1360) of all inpatients in the First Affiliated Hospital of China Medical University. Chronic simple suppurative otitis media and cholesteatoma represented 66.6% of all otological diseases. It implied that chronic suppurative otitis media was still the main disease of surgical treatment in otology. Attic cholesteatoma accounted for 66.5%; adhesion cholesteatoma accounted for 33.5%, the latter being associated with high morbidity of secretory otitis media and inadequate treatment. Morbidity of intracranial complications was 2%. Patients without intracranial complications were given Stage 1 or 2 tympanoplasty. There are 17,700,000 people with hearing disabilities in China. Hearing aids are widely used. Patients who had multi channel artificial cochlea implantation were very few. Aminoglycoside induced deafness decreased greatly in recent years as

In China there are 1,980,000 professional doctors. The number of otolaryngologists was about 25,000 (not believed to be accurately represented). There are 126 medical universities and colleges in China. The Ministry of Public Health manages the Provincial Hygiene Bureau, the City Hygiene Bureau and the Country Hygiene Bureau. There are corresponding Provincial Hospitals, City Hospitals and Country Hospitals. Most colleges and provincial Hospitals have professional otologists. Nearly all provincial and metropolitan or city hospitals have otolaryngologists. Most Country Hospitals that locate in the urban areas do not have separate departments for otolaryngology. The otolaryngologists work together with ophthalmologic and dental doctors. There are great differences in the quantity of patients, the variety of diseases, the techniques of management and equipment. Otological diseases, which need surgery are somewhat bottlenecked in big hospitals, especially in college hospitals with professional otologists. Therefore, outpatients, inpatients and emergency patients in college hospitals fundamentally reflected some characteristics and treatment status of otological diseases in the areas. We selected the First Affiliated Hospital of the China Medical University as an example to introduce the otological treatment status in China.

1. outpatients: The number of patients ranges from 200 to 400 every day. Otolological, Rhinological and Pharyngolaryngological diseases occupied 1/3 respectively of all these cases. The main otological diseases are chronic suppurative otitis media, sensorineural deafness, tinnitus, secretory otitis media, vertigo, sudden deafness, deformity and tumor. Aminoglycoside induced deafness decreased greatly in recent years as
people's awareness of the disease deepened with the growing popularity of medical science. It is now very rare to find patients suffering from Aminoglycoside induced deafness. People will gradually pay much more attention to sensorineural deafness induced by anti-cancer drugs as they are being used more widely. The morbidity of secretory otitis media was discovered to increase gradually with the years. Conservative treatment is the goal standard. When conservative treatment fails, tube implantation should be considered. Because in most small hospitals politzerization was not accurately mastered and tube implantation was rarely undertaken. Some of the cases could not be effectively cured and so complicated adhesive otitis media and cholesteatoma in the middle ear.

The emergency unit is open on a 24-hour basis and the main diseases were acute suppurative otitis media, ear injury and foreign bodies in the external acoustic meatus.

2. Inpatients: Almost all the inpatients needed surgical treatment in the department of otolaryngology. Among them, inpatients who suffered from otological disorders occupied 20.2% (275/1360). The main disorders were chronic simple suppurative otitis media (34.6%), cholesteatomatous otitis media (32.0%), benign and malignant tumor (7.3%), traumatic facial paralysis (2.4%), otosclerosis (2.2%), deformity (2.2%) and others 18.9% (Fig 1). It showed that chronic simple suppurative otitis media and cholesteatoma accounted for 66.6% of all otological diseases and chronic suppurative otitis media was still the main disorder, which needed surgery. In chronic simple suppurative otitis media, 66.7% underwent type 1 tympanoplasty and 33.3% type 3 tympanoplasty. All cholesteatomatous otitis media accounted for 66.6% of all otological diseases and chronic suppurative otitis media was still the main disorder, which needed surgery. In chronic simple suppurative otitis media, 66.7% underwent type 1 tympanoplasty and 33.3% type 3 tympanoplasty. All cholesteatomatous otitis media without intracranial complications underwent tympanoplasty. Cholesteatomatous otitis media with intracranial complications were very rare. Morbidity was 2%. The main complications of tympanoplasty are the recurrence of cholesteatomas 5% (6/142), sensorineural deafness 2.1% (5/240), facial paralysis 3.8% (4/142). All complications occurred after operation and were transient. Reperforation of the tympanic membrane occurred in 2.1% (5/240).

![Fig 1](image)

<table>
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<th>Table 1 Operations of cholesteatoma</th>
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<tr>
<td>operation</td>
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Type 0 indicated patients with sensorineural deafness who did not need reconstruction of ossicular chain and patients who needed stage operations.

3. Cholesteatoma: Our data showed that cholesteatoma occupied nearly 50% of all chronic suppurative otitis media. The main reasons: (1) some patients with chronic simple suppurative otitis media could be cured in small hospitals. Radical mastoidectomy was not suggested in cholesteatomatous otitis media. Treatment of cholesteatomatous otitis media needs high technique and advanced equipments. Therefore, most patients with cholesteatomatous otitis media aggravated in college hospitals because they were not willing to accept radical mastoidectomy.

(2) Morbidity was really very high.

Recent analysis of 129 cases of cholesteatomatous otitis media has shown that it could be divided into two types according to the etiology, clinical manifestation, tympanic morphology and growth pattern.
1. Attic type: It occupied 66.5%. Characteristics of the tympanic membrane were internal intrusion of pars flaccida. Originally the matrix retracted into the epitympanum from the pars flaccida (lateral to head of the malleus). Then it extended into the antrum, mastoid process, posterior tympanum and mesotympanum. The morphology of pars tensa was intact. Only at the middle and late stages, it could invade the upper part of the stapes. Therefore, the chance of type 3 tympanoplasty was relatively high. During operation, the structure of pharyngotympanic tube was good in most patients. Postoperative results for this type was good.

2. Adhesive type: It occupied 33.5%. Originally the posterosuperior part of the tympanic membrane is retracted into the posterior tympanum and then into epitympanum from the shaft of the malleus. Finally it intruded into the antrum and the mastoid process. Because the posterior tympanum was invaded first, the upper part of stapes disappeared much earlier. The chance of a type 3 tympanoplasty was relatively low. Chance for dysfunction of the eustachian tube was more. Atrophy and adhesion of the tympanic membrane made it difficult to separate. Even if the tympanic membrane was separated, it was difficult to protect normal structure. Postoperative results for this type was poor.

High proportion of adhesive type made us infer that there were many errors in the treatment of secretory otitis media from its etiological viewpoint.

In chronic simple suppurative otitis media, patients less than 15 years old occupied 4.3%. In cholesteatomatous otitis media, patients under 15 years old occupied 12.4%. As medical science grows more and more popular and the effect of antibiotics improves, the chance for acute suppurative otitis media not cured until it deteriorates into chronic suppurative otitis media will decrease greatly in the future. If secretory otitis media is not treated effectively, it will cause adhesion of tympanic membrane. The epithelium invades the posterior tympanum and epitympanum and becomes the direct reason of adhesion cholesteatoma. Even where adhesion of tympanic membrane does not occur, recurrent infection will cause fibrosis, mucosal hyperplasia and atresia in the narrow part between the mesotympanum and the epitympanum. This will block normal airflow in the epitympanum, the mastoid cavity and the eustachian tube. It will put the epitympanum in a state of negative pressure. It becomes the indirect reason of epitympanum cholesteatoma. High morbidity of cholesteatomatous otitis media is consistent with high morbidity of secretory otitis media in children. Morbidity of secretory otitis media has the tendency to increase each year. If it can not be controlled effectively and promptly, we can presume that morbidity of cholesteatomatous otitis media will not decrease. To prevent this trend from occurring, optimal treatments on secretory otitis media is of great importance.

4. Dysaudia

In china, the number of people with dysaudia is about 17,700,000. Every year, new patients under 7 years old as a result of drugs and genetic factors are about 30,000. On March 3, 2000, Chinese Disability Association and other organizations selected this day as “day of love for the ear”. This is the first year. The theme was “to decrease the number of deaf people as a result of drugs to the lowest point”. Today we have no effective methods to cure sensorineural deafness. To make all the people pay attention to this issue has great importance to preventing dysaudia better and effectively.

For pre-school children, the main task is to enhance speech training. For children of school age, they should be compelled to enroll into the school for the deaf and dumb. For children with residual hearing, hearing aid should be worn and encouraged. Many kinds of hearing aids have already been in popular use, but some people have the wrong ideas towards hearing aids. Hearing aids will increase the impression of disability, so people psychologically do not welcome them. Some people worry about whether early usage of hearing aids is good and will make deafness severe and cause dependence. Otologists should make people know how to recognize and use hearing aids. For children without residual hearing, multi-channel cochlea implantation was undertaken in many hospitals, but the total number is very small.
High cost is the main obstacle to this technique.

5. others

As a representative of the neuro-otology and cranial base surgery, operations of acoustic nerve tumor could be independently accomplished by otologists only in very specialized hospitals. Most operations were accomplished by neurosurgeons and otologists. More and more otologists will master this technique because they are familiar with the anatomic structures and microsurgery.

Otosclerosis could be treated surgically in many hospitals. Although there were different kinds of methods, artificial columella was the most popular. The surgical technique is sound and effective. If low cost for multichannel artificial cochlea implantation could be achieved and medical insurance developed on a more wide scale, this technique can be greatly developed and will bring happiness to 10,000,000 deaf-muted people.

References