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Iatrogenic cholesteatoma in children with OME in a training program

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Iatrogenic;
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Summary

Purpose: To report the occurrence of cholesteatoma following myringotomy and insertion of ventilating tube (VT) in a residency training program.
Materials and methods: Nine hundred and eighty-four children who were operated for grommet insertion with or without adenotonsillectomy during the year 1999–2003 were included in the study. Children were divided into two groups: group 1 (648 children) operated by residents and group 2 (305 children) operated by consultant. All procedures were carried out under general anesthesia using Ziess operating microscope. Shah ventilating tubes were used in most cases and Goody T tube in some others.
Results: Nine ears developed cholesteatoma, six with perforation and three with pearl cholesteatoma cyst and intact tympanic membrane. The rate of iatrogenic cholesteatoma occurrence was 0.62% when done by residents (group 1) and 0.33% when operated by consultants (group 2). The overall prevalence was 0.48%.
Conclusion: Iatrogenic cholesteatoma occuring as a complication following VT insertion is not uncommon. It occurs more often following surgery done by inexperienced surgeons. Excessive manipulation may cause meatal wall and drum surface epithelium injury. This epithelium might be pushed with the VT into the middle ear.

1. Introduction

Grommet tube insertion with or without adenotonsillectomy is very common operation in our institution.

Teaching program for oto-rhino-laryngology (ORL) is a recent one at King Abdulaziz University Hospital Riyad, with 50 ENT beds. Postgraduate students rotate among the ENT departments of several hospitals. During this period, the junior trainees perform minor surgery as adenotonsillectomy and myringotomy with insertion of ventilating tubes. This is usually done under supervision of senior residents, registrars or consultants. Otitis media with effusion is a common childhood disease and surgery (myringotomy with VTs insertion) is the common operation performed to alleviate the child's symptoms. The

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prevalence of OME in Saudi Arabia is 10.4% [1] below the age of 12 years. The indications for surgery vary between different hospital and consultants. The indications for grommet tube insertion in children with OME include the association with speech and language development delay, educational problems at school or behavioral problems in addition to recurrent ear infection [2]. Golz et al. (1999) revealed that the incidence of cholesteatoma formation associated with VT placement is as high as 1.1%.

We report nine ears with cholesteatoma following myringotomy and placement of VT in training program.

2. Materials and methods

Nine hundred and fifty-three children (1906 ears) with persistent OME that did not respond to medical treatment were included in the study. They underwent myringotomy with VT insertion mostly with adenoidectomy or adenotonsillectomy during the period April 1999 to February 2003. Those with atelectasis or retraction of tympanic membrane or suspection of cholesteatoma were excluded. They were divided into two groups: group 1 (648 cases) operated by trainees and group 2 (305 cases) were operated upon by consultants. Shah ventilating tubes were used in most cases.

All the children had pre-operative tympanometry and the routine blood work up. Post-operative information on each child was recorded. Ziess operative microscope was used to assess the tympanic membrane. Patients were followed up and assessed after 1, 3, 6, 12 months and then yearly up to 3 years.

3. Results

This is a retrospective study where the medical files of 953 children aged 2—11 years were reviewed, they are divided into two groups — group 1 comprised of 648 children (1296 ears) operated upon by residents, group 2 comprised of 305 children operated by consultants. The majority of the children attended almost regularly as their parents were informed of the tubes in the ear and advised of ear caring especially if their children demand of swimming. Follow-up was arranged to be after 1, 3, 6, 12, 24 and 36 months. Patients' compliance was very good at the beginning as all of them came in the first month. The number of children in each group and the findings are presented in Table 1. Follow-up in 3 months was 92% in group 1 and 99% in group 2 while after 6 months it drops to 62 and 82%, respectively. The number of children attended in 1—2 years was 159 (32%) in group 1 and 152 (44.8%) in group 2. Those who did not show up after 6 months to 1 year was 159 (24.5%) in group 1 and 56 (18.4%) in group 2. The diagnosis of cholesteatoma was confirmed in nine cases. The rate of iatrogenic cholesteatoma in group 1 was 0.62% (eight ears); and in group 2 it was 0.33% (one case followed insertion of T-Goody tube).

Table 1 Characteristic of the two groups

Group 1 operated by trainees; group 2 operated by consultant	Total 953	Group 1	Group 2
		648	305
Follow-up — 3 months		596 (92%)	301 (99%)
Follow-up — 6 months		403 (62%)	209 (68.5%)
Follow-up — 1—2 years		208 (32%)	152 (44.8%)
Follow-up — 3 years		126 (19.4%)	73 (24%)
Did not attend after 6 months to 1 year		159 (24.5%)	56 (18.4%)
Number of children developed suppurative otitis media		44 (6.8%)	11 (3.6%)
Number of children developed recurrence (OME) and retubed		33 (5.1%)	10 (3.3%)
VT removed from infected ears		23	9
Cholesteatoma with perforation		5	1
Pearl cholesteatoma (intact tympanic membrane)		3	
Prevalence of cholesteatoma		0.62%	0.33%
Overall prevalence		(0.48%)	