



Childhood ENT disorders

When to refer to specialists

BACKGROUND Ear, nose and throat (ENT) are among the commonest reasons for attendance in general practice. Acute problems are managed by the general practitioner, but chronic and recurrent conditions are often referred for surgical intervention. Tonsillectomy and insertion of tympanostomy tubes are two of the most frequently performed paediatric surgical procedures in Australia yet rates of admission vary across geographic areas and socioeconomic strata. Referral patterns and criteria for surgery vary widely.

OBJECTIVE This article reviews the natural history of some common childhood ENT conditions and the evidence of effectiveness of traditional surgical interventions in order to address the question: 'When should GPs refer to an ENT surgeon (or conversely, when should they not refer)?'

DISCUSSION Recurrent and chronic ear and throat conditions in children will usually resolve spontaneously. There is no good evidence of long term benefit from surgical interventions for several common ENT conditions. General practitioners need to weigh up the disadvantages and risks of the surgery with the likely benefit to the individual patient.

Ear, nose and throat problems are very common in general practice, and the acute management of most of these conditions lies appropriately within the domain of the community practitioner. However, when these conditions become complicated, recurrent or chronic, referral to ENT specialists for surgical intervention has been common practice. By considering the natural history of some common childhood ENT problems and the current evidence related to surgical management we can address the question: 'To ENT or not to ENT?' - when should GPs refer to specialists?

The acute management of sore throats and sore ears is written about extensively elsewhere. These conditions are the subjects of several Cochrane reviews,^{1,4} and numerous comprehensive best practice guidelines have been published. Australian guidelines are available in the National Prescribing Service publication Antibiotics for sore throat, sinusitis, otitis media and acute bronchitis.⁵

The purpose of this article is to provide signposts for referral - to highlight the circumstances that are best managed in general practice and outline the indications for surgical intervention. Of course it is always appropriate for a general practitioner to refer

a patient for specialist opinion when the diagnosis is not clear, or when atypical or worrying features generate some cause for concern. Individual cases must always be determined on their merit.

Sore throat

Throat complaints are one of the commonest presenting symptoms in general practice, second only to cough.⁶ Acute sore throats are most frequently viral or idiopathic, and in the majority of cases it is not possible to distinguish viral from bacterial sore throats on clinical grounds alone.⁵ In children under three years only 5-10% of sore throats are bacterial, and in the 4-13 year age group approximately one-third are bacterial.⁵ Most guidelines recommend analgesia and attention to fluid intake as first line therapy for acute sore throats, with antibiotics used only in high risk patients or severe cases.

Acute sore throat and airway obstruction

In a small number of cases acute sore throat can be a medical emergency. Infectious mononucleosis, peritonsillar cellulitis, quinsy or severe tonsillitis can result in airway obstruction requiring urgent hospital referral. Epiglottitis should also be

Claire Harris

Claire Harris, MBBS, MSc(Public Health), GDipCD, is Director, GP Liaison, Research and Education Unit, Royal Children's Hospital Melbourne, Victoria.

Table 1. When a sore throat is a medical emergency

Stridor
Respiratory distress
Drooling
Inability to swallow
Trismus (inability to open mouth fully)

Table 2. When to consider referral for tonsillectomy

Recurrent sore throats (all criteria)
<ul style="list-style-type: none"> • Sore throats are due to tonsillitis • Symptoms for at least a year • At least five episodes in one year • Episodes are disabling and prevent normal functioning • Sustained or increasing morbidity
Chronic tonsillitis
Possibility of malignancy eg. lymphoma
<ul style="list-style-type: none"> • Persistent/progressive asymmetrical enlargement • Quinsy

considered as a differential diagnosis. If breathing difficulty is present, attempts to examine the throat should be avoided. Symptoms that indicate urgent referral are outlined in Table 1.

Recurrent sore throat

It is not unusual for children to present with several episodes of ‘sore throat’ each year. This could be due to a number of conditions (tonsillitis, pharyngitis, laryngitis, sinusitis, etc.) from a variety of causes (viral or bacterial infection, allergy, exposure to irritants such as cigarette smoke, idiopathic).

In addition, children in the preschool age group will routinely have large (or even very large) tonsils, adenoids and cervical glands. This is not related to infection or other pathology, but part of the normal growth pattern of lymphoid tissue.

Both of these common findings can lead parents to ask: ‘Should he have his tonsils out doctor?’ It is not unreasonable to expect that removing the tonsils will reduce the number of episodes of tonsillitis - but if the recurrent sore throats are not due to tonsillitis there will be no benefit.

The natural history of recurrent tonsillitis is for the episodes to become less frequent with time, but there is little epidemiological data to assist our decision making for individual patients.⁷ Clinical indications for tonsillectomy have been developed based on the illness having a significant impact on the

child’s life.⁷⁻⁹ These recommendations are outlined in Table 2. Most authors agree that the symptoms should have been present for at least a year, the episodes are disabling and disrupt schooling, and there is no sign of remission. Five episodes per year have been included in this general guide, however, authors vary from three episodes per year for a minimum of two years to seven episodes per year.⁷⁻⁹

Children who have infrequent episodes with minimal morbidity, even if they recur over several years, should not be referred for tonsillectomy. Bilateral large tonsils are also not an indication for referral, although asymmetric enlargement may be of diagnostic concern. Although rare, the possibility of malignancy should be considered in those with persistent, progressive asymmetrical enlargement.^{10,11}

Chronic tonsillitis

Chronic tonsillitis is persistence of symptoms over a prolonged period, some authors define this as one month, others as three months. Referral may also be warranted here for diagnostic purposes.

Tonsillectomy

In the past, tonsillectomy was used as a panacea for repeated sore throats, respiratory infections, poor appetite, behaviour problems and other assorted ills. Although the approach has become much more conservative in recent times, huge variation in practice patterns are seen within Western countries suggesting inconsistent use of criteria for surgery.^{7,12-14} These differences are thought to be due to practitioner, rather than patient, characteristics. In Australia for example, Adelaide has more than twice the rate of admission for tonsillectomy as Canberra and there is widespread variation across geographic areas and socioeconomic strata.¹⁵

There is insufficient evidence from controlled trials to comment on whether tonsillectomy is an effective intervention for chronic or recurrent tonsillitis.¹⁶ The procedure itself is not without risk - primary or secondary haemorrhage and respiratory distress and obstruction are recognised complications. The patient undergoes general anaesthetic and is likely to have pain, vomiting and fever postoperatively. The family has financial costs and lost work and school time.

Sore ears

Acute otitis media (AOM) is one of the most common infectious diseases in childhood. Almost one-third (62%) of children have had at least one

episode by their first birthday and 83% by age three.¹⁷ For children older than two years, evidence based guidelines suggest analgesia and fluids for management of the acute episode, with introduction of antibiotics if the child deteriorates or is not improving within 48-72 hours. Younger children should be reassessed within 24 hours.

Acute otitis media with perforation

Acute perforations of the tympanic membrane usually heal spontaneously without hearing loss and do not require referral for surgical management. However, if the perforation is still discharging after six weeks, aural toilet should be performed, a swab taken and the appropriate topical antibiotics commenced.¹⁸ If the perforation persists then referral to an ENT specialist for an opinion regarding surgical closure should be arranged.

Recurrent acute otitis media

Recurrent AOM is defined as more than three episodes in a six month period or four episodes in a year. It is important to differentiate AOM, inflammation of the middle ear, from myringitis, inflammation of the eardrum. In AOM the eardrum is bulging, inflamed, has a red or yellow appearance and decreased mobility on pneumatic otoscopy. Myringitis can be due to crying, viral infection or any cause of fever and the eardrum is red but not bulging and has normal mobility.

The natural history of AOM is for the number of infections to decrease with time, but very young children with a propensity for recurrent AOM may have a significant number of infections ahead of them. Parents can be counselled about preventive measures such as avoidance of cigarette smoke, limiting use of dummies and pneumococcal vaccine. When these measures fail and the infections continue, insertion of tympanostomy tubes (grommets) may be of benefit in some children.¹⁹ Prophylactic antibiotics, decongestants and antihistamines have not been demonstrated to reduce the frequency of infection.²⁴

Chronic otitis media with effusion

Chronic or persistent otitis media with effusion (OME), often known as 'glue ear', is defined as fluid in the middle ear for longer than three months after the last infection. Visual inspection of the drum is inadequate to make this diagnosis and the effusion should be confirmed by pneumatic

otoscopy or tympanometry.

Persistence of middle ear effusion after AOM is very common. Seventy percent of children still have an effusion at two weeks, 40% at one month, 20% at two months and 10% at three months. Since the natural history is for this to resolve spontaneously in 90% of cases within three months, no intervention is needed up to this time.⁵

Prevalence of OME is high, with effusions present in 10-20% of children at any one time, the highest recordings being in late winter and early spring.²⁰ Cure is achieved by growth of the child and there is a sharp drop in prevalence after age six.

Deafness is usually the only symptom of this condition. Otitis media with effusion is the commonest cause of conductive hearing loss in children and mild conductive deafness is present in about 50% of ears with effusion. Hearing loss should be confirmed by audiology.

It has been commonplace for children with persistent middle ear fluid to undergo myringotomy and insertion of tympanostomy tubes (grommets) to drain the effusion. For those with a significant hearing impairment this resulted in a marked improvement. However, this has been demonstrated to be of short term benefit only²¹ and needs to be weighed up against the disadvantages of ventilation tubes in situ.

There is no evidence that OME has long term adverse effects on language or intellectual development. Consistent with this are reports from good randomised controlled trials that were unable to demonstrate significant improvements in language development in children who received grommets over those who were managed conservatively.²²⁻²⁴ Evidence suggests that autoinflation with nasal balloons may be of clinical benefit and could be tried before referral.²⁵

Children do not need to be referred for surgical intervention in the first three months following an acute infection, as spontaneous resolution will occur in 90%. Children with effusions persisting for more than three months who have hearing loss or associated symptoms (eg. developmental or behavioural problems) should have formal audiological assessment before referral. If this is in springtime it may be worth waiting longer for natural resolution. Given that the benefits are only short term, parents should also understand the implications of surgery and the ongoing care of tympanostomy tubes. Asymptomatic children with persistent effusions do not need to be referred.

Table 3. When to consider referral for tympanostomy tubes

<p>Recurrent acute otitis media</p> <ul style="list-style-type: none"> • More than three in six months <p>Persistent otitis media with effusion (all criteria)</p> <ul style="list-style-type: none"> • Effusion persisting for longer than three months • Effusion confirmed by pneumatic otoscopy or tympanometry • Hearing loss confirmed by audiology

Tympanostomy tubes

The epidemiology of tympanostomy or ventilation tubes is very similar to tonsillectomy. Although extremely popular in the past, they are inserted much less frequently today and there is the same significant disparity in the rates of operation across geographic areas and socioeconomic strata.^{15,21} Reasons for referral are listed in Table 3.

The procedure is associated with the risks of a general anaesthetic and the sequelae of indwelling tubes: otorrhoea (transient 16%, recurrent 7%, chronic 4%), obstruction (7%), granulation tissue (5%), premature extrusion (4%) and medial displacement (0.5%).²⁶

There are also long term sequelae after tube extrusion including tympanosclerosis (32%), focal atrophy (25%), chronic perforation (short term tubes 2%, long term tubes 17%), retraction pocket (3%) and cholesteatoma (0.7%).²⁶ Care of indwelling tubes is also a burden to the child and family.

SUMMARY OF IMPORTANT POINTS

- Acute sore throat associated with stridor or respiratory difficulty is an absolute indication for admission to hospital.
- Referral for tonsillectomy for recurrent tonsillitis should be based on a significant negative impact on the child's life: symptoms for at least 12 months with approximately five episodes per year, episodes are disabling and disrupt schooling, and no sign of remission.
- Acute perforations of the tympanic membrane usually heal spontaneously.
- Ninety percent of middle ear effusions will resolve spontaneously within three months.
- Tympanostomy tubes have short term benefits in hearing improvement, but there is no evidence of long term benefits to hearing, language or development.

References

1. Del Mar C B, Glasziou P P, Spinks A B. Antibiotics for sore throat. (Cochrane Review). The Cochrane Library 2002; (1).
2. Glasziou P P, Del Mar C B, Sanders S L, Hayem M. Antibiotics for acute otitis media in children. (Cochrane Review). The Cochrane Library 2002; (1).
3. Kozyrskyj A L, Hildes-Ripstein G E, Longstaffe S, et al. Short course antibiotics for acute otitis media. (Cochrane Review). The Cochrane Library 2002; 1.
4. Flynn C A, Griffin G, Tudiver F. Decongestants and antihistamines for acute otitis media in children. (Cochrane Review). The Cochrane Library 2002; (1).
5. Charlesworth K, Warrick T, Braddon J. National Prescribing Service Antibiotics Program. Antibiotics for sore throat, sinusitis, otitis media and acute bronchitis. Daw Park, South Australia: Drug and Therapeutics Information Service, 1999.
6. Department of Health and Aged Care. General practice in Australia: 2000. Canberra: GP Branch, Department of Health and Aged Care, 2000.
7. SIGN. Management of sore throat and indications for tonsillectomy. Scottish Intercollegiate Guidelines Network. SIGN Publication No. 34, 1999.
8. Bisno A L, Gerber M A, Gwaltney J M Jr, Kaplan E L, Schwartz R H. Infectious Diseases Society of America. Diagnosis and management of group A streptococcal pharyngitis: a practice guideline. Clin Infect Dis 1997; 25(3):574-583.
9. Anonymous. Sore throat and tonsillitis. EBM guidelines. Duodecim Medical Publications Ltd, 2001; 1-4. www.ebm-guidelines.com
10. Berkowitz R G, Mahadevan M. Unilateral tonsillar enlargement and tonsillar lymphoma in children. Ann Otol Rhinol Laryngol 1999; 108(9):876-879.
11. Ridgway D, Wolff L J, Neerhout R C, Tilford D L. Unsuspected non-Hodgkin's lymphoma of the tonsils and adenoids in children. Pediatrics 1987; 79(3):399-402.
12. Capper R, Canter R J. Is the incidence of tonsillectomy influenced by the family medical or social history? Clin Otolaryngol 2001; 26(6):484-487.
13. Blais R. Variations in surgical rates in Quebec: does access to teaching hospitals make a difference? CMAJ 1993; 148(10):1729-1736.
14. Newton J N, Seagroatt V, Goldacre M. Geographical variation in hospital admission rates: an analysis of workload in the Oxford region, England. J Epidemiol Community Health 1994; 48(6):590-595.
15. Department of Health and Aged Care. Public Health Information Development Unit Fact Sheet Number 1: Australia. Canberra: Department of Health and Aged Care, 2000.
16. Burton M J, Towler B, Glasziou P. Tonsillectomy versus nonsurgical treatment for chronic/recurrent acute tonsillitis (Cochrane Review). The Cochrane Library 2002; (2).
17. Teele D W, Klein J O, Rosner B. Epidemiology of otitis media during the first seven years of life in children in greater Boston: a prospective, cohort study. J Infect Dis 1989; 160(1):83-94.
18. Acuin J, Smith A, Mackenzie I. Interventions for chronic suppurative otitis media. Cochrane Database System Review 2000; (2):CD000473.
19. Gonzalez C, Arnold J E, Woody E A, et al. Prevention

- of recurrent acute otitis media: chemoprophylaxis versus tympanostomy tubes. *Laryngoscope* 1986; 96(12):1330-1334.
20. Heathershaw K, Wake M. Effectiveness of a parent questionnaire in the detection of mild to moderate hearing loss in school entry children. *Pediatric Res* 2000; 47(Part 2):1157A (196).
 21. Anonymous. The treatment of persistent glue ear in children. Are surgical interventions effective in combating disability from glue ear? *Eff Health Care* 1992; 4:1-16.
 22. Paradise J L, Feldman H M, Campbell T F, et al. Effect of early or delayed insertion of tympanostomy tubes for persistent otitis media on developmental outcomes at the age of three years. *N Engl J Med* 2001; 344(16):1179-1187.
 23. Maw R, Wilks J, Harvey I, Goldring J. Early surgery compared with watchful waiting for glue ear and effect on language development in preschool children: a randomised trial. *Lancet* 1999; 353:960-963.
 24. Rovers M M, Straatman H, Ingels K, van der Wilt G J, van den B P, Zielhuis G A. The effect of ventilation tubes on language development in infants with otitis media with effusion: A randomised trial. *Pediatrics* 2000; 106(3):E42.
 25. Reidpath D D, Glasziou P P, Del Mar C. Systematic review of autoinflation for treatment of glue ear in children. *Br Med J* 1999; 318(7192):1177.
 26. Kay D J, Nelson M, Rosenfeld R M. Meta-analysis of tympanostomy tube sequelae. *Otolaryngol Head Neck Surg* 2001; 124(4):374-380.

AFP

REPRINT REQUESTS

Claire Harris - Director
 GP Liaison, Research and Education Unit
 Royal Children's Hospital
 Flemington Road, Parkville, Vic 3052
 Email: harrisc@cryptic.rch.unimelb.edu.au