Annotations

Tonsillectomy today

Incidence

Although data for the incidence, morbidity, and mortality of adenoidectomy and tonsillectomy have in the past been linked, the long established relation should be stopped. Both operations have quite distinct and separate indications. Nevertheless, the procedures still account for 25% of all surgical admissions in children under 5 years of age. Annual figures for the mid-1970s confirm 786 000 procedures in the United States of America and 84 000 in the United Kingdom. The rates differ not only internationally but also within regions and districts of the National Health Service.^{1,2} The possible reasons for variability include supply factors such as man power, operating time, and bed space. Demand and patient expectation are often linked to media and professional publicity.

There is still, however, uncertainty both at general practitioner and specialist level concerning the indications for operation and the expectations for outcome. Within eight regional health authorities from 1975 to 1980 Black reported tonsillectomy rates of 45-60 per 10 000 population of under 9 year olds, with a mean of 53.7 per 10 000.³ The variation was greater at an interdistrict than at an inter-regional level. This was not found to be related to medical man power or availability of beds. It is probably due to individual surgical selection criteria. From 1975 to 1979 there has been a fall of 7-20 cases per 10 000 in the tonsillectomy and adenoidectomy rate. This fall may be real or apparent due to a reduction of numbers in this age group. The reduction has been faster in Scotland than in England and Wales. A slight rise recently may be related to the increased recommendation of adenoidectomy for aural problems. The effects of social class and private practice on these trends have yet to be confirmed.

Indications

Paradise *et al* have shown the limitation of history taking in cases referred for consideration of tonsillectomy.⁴ Interval examination is usually unhelpful, and a second assessment during an acute exacerbation may resolve the differential diagnosis

between tonsillitis and pharyngitis. Unilateral tonsillar enlargement and suspicion of a neoplasm represents one of the few absolute indications for tonsillectomy. This is, however, very uncommon in childhood.

Since reports by Noonan and Menashe *et al*^{5,6} attention has been drawn to the more general effects of severe upper airway obstruction due to enlargement of the tonsils. Swallowing and speech can be affected, the latter giving rise to a 'hot potato voice'. It is obstruction of the airway, however, that results in the sleep apnoea syndrome, which is usually associated with snoring. There is hypercapnoea, hypoxia, and increased pulmonary resistance. The raised pulmonary artery pressure may in some cases progress to right heart hypertrophy and cor pulmonale. Fatalities have been reported. The profound respiratory effort in the supine position at night utilises the often reduced day time energy intake. Growth is retarded, and there may be permanent chest wall changes. These problems occur most often in young, otherwise normal children less than 3 years of age. They are more likely when there are associated anatomical abnormalities such as achondroplasia and Down's syndrome or when neuromuscular problems exist.⁷ The clinical dilemma is the point at which milder forms of this symptom complex constitute an indication for operation. Transcutaneous blood gas analysis with sleep observation studies may help resolve the problem. The possible long term effects of such obstruction on cranio- and dentofacial growth is ill understood.

A peritonsillar abscess or quinsy is uncommon under the age of 5. It has usually constituted an indication for tonsillectomy, though recently this has been questioned. Invariably, it is a history of recurrent acute suppurative tonsillitis that leads general practitioners and parents to request consideration for surgery. Six or more such attacks occurring annually over more than two years would be acceptable grounds for recommending operation. Age must be considered. At one extreme blood volume is especially relevant, at the other the effect on schooling of recurrent attacks and the possibility of spontaneous remission should be taken into account. Throat swabs are not usually helpful. β Haemolytic streptococci are cultured in as many as

40% of cases. There may be *Staphylococcus aureus* or *Haemophilus influenzae*. When there is no pathogen, viral infection has usually been inferred. There may be, however, a pathogenic role of anaerobes such as *Bacteroides melaninogenicus*.⁸ Chronic tonsillitis is unusual in children. It is more common in young adults when there is again polymicrobial flora with frequent β -lactamase producing organisms.⁹ The sequential development of recurrent tonsillitis after glandular fever in the latter age group is well recognised.

Morbidity and mortality

After a steady fall the mortality is now reported to be reasonably constant. There were 10 deaths in 1979, constituting 0.012% of the 84 000 operations. These generally resulted from general anaesthetic, cardiopulmonary, or other coincidental medical problems and not, as might have been expected, directly from blood loss. Reactionary haemorrhage is reported to occur in 0.3–2% of operations. Capper and Randall found that 80% occurred within 24 hours and only 10% after 48 hours.¹⁰ They showed the incidence of haemorrhage after combined adenotonsillectomy to be twice the rate for either procedure alone. Five to 10% of the child's blood volume may be lost at the primary operation, and this effect is exacerbated by preoperative dehydration. Thus the timing of surgery is important. There have continued to be reports of differences in technique in relation to postoperative pain and haemorrhage, though they are not of great importance. Certain authors recommend outpatient surgery for tonsillectomy,¹¹ but this has not found favour in the United Kingdom. Velopharyngeal incompetence results from palatal scarring, especially if tonsillectomy is combined with adenoidectomy. It is more likely when there is a submucous or complete cleft of the palate. There does seem to be hypertrophy of the pharyngeal lymphoid tissue after tonsillectomy.¹² Damage may occur both to the temporomandibular joint and cervical spine during surgery. There does not seem to be clear cut evidence that there is a greater risk of bulbar polio or Hodgkin's disease nor evidence of alteration of the immune state after operation. Certain children suffer psychologically as a result of admission to hospital, though this can be vitiated by appropriate medical and nursing care.

Results

The few prospective randomised studies reported to date have contained errors of design.^{13–15} The problems of randomisation in recently reported

American studies¹⁶ might deter other investigators. Ninety one randomly assigned cases for control and surgical groups were culled from an initial cohort of 2043 referrals. Nevertheless, these studies do confirm that at least in the first two years after operation the incidence of throat infection is reduced in the surgical group. Moreover, the trend continues into the third year after tonsillectomy. The most recent report confirms improvement of recurrent otitis media and middle ear effusion after adenoidectomy in another arm of the same study. It is still a clinical impression that surgery to the tonsils and adenoids is less effective in children with proved atopy. The operation is unrewarding when there is any other complicating generalised condition such as hypogammaglobulinaemia.

Practising otolaryngologists and some paediatricians are unanimous in recognising the beneficial effects of surgery in carefully selected cases. There is still the need, however, for corroborative studies such as have recently been applied to adenoidectomy for glue ear.¹⁷ These should be designed to show prospectively, randomly, and with adequate controls the effect of tonsillectomy both for cases with recurrent tonsillitis and for those with considerable airway obstruction.

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