

3. Pregnancy activates pigmented lesions, and the prophylactic removal of pigmented moles in dangerous sites (feet, hands, genitalia) in the early months of pregnancy is advisable. Prognosis of malignant melanoma in pregnancy is bad. Termination of pregnancy is not indicated, although remissions and regressions after delivery are recorded.

4. Wide local excision of the primary growth is the only treatment which offers some prospect of permanent control of the disease.

5. Prophylactic block dissection in the absence of enlarged lymph nodes is always indicated when it can be done in continuity with the excision of the primary growth. It is probably indicated in other sites too, although less likely to control the disease, as the intervening untouched area may develop lesions. Removal of a "strip" of skin as a bridge between the site of the primary growth and the main lymph nodes is not considered a reasonable or sound procedure.

6. The presence of enlarged lymph nodes from distant lesions in the limbs raises the problem of amputation. There is to date not sufficient experience to recommend it as a routine measure.

7. Spontaneous regression of widely disseminated lesions has been recorded. Prognosis is therefore unpredictable in any individual patient. In the absence of visceral metastases, repeated surgical attack and major mutilating procedures are justifiable.

8. The commonest error in the management of malignant melanoma in adults is to do too little. Delay before definitive treatment is achieved is common.

9. Radiotherapy is of value as a post-operative measure and as a palliative treatment in cases which are not amenable to surgical excision.

I thank my colleagues for the opportunity of seeing some of their patients and Dr. Peter Hansell for the photographs.

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Vladimir Bechterev, the Russian neurologist, was born on January 20, 1857. He began his studies during a vital period in the development of neurology. In 1885, while a pupil of Flechsig in Leipzig, he described the superior vestibular nucleus which bears his name. He returned to Russia, where he was appointed to a chair at Kazan. Moving to St. Petersburg (1893), he entered the most fruitful period of his career. He made valuable contributions to the knowledge of cerebral localization, experimental psychology, and clinical neurology. A colleague of Pavlov, he studied the relationship between brain and behaviour, but as an anatomist, experimental psychologist, and clinician rather than as a physiologist. After 1905 he concentrated on the problems of abnormal social behaviour. He died in 1927.

ARE ALL "T's and A's" REALLY NECESSARY?

BY

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We pride ourselves that we live in a scientific and a rational age, yet many apparently unscientific and irrational procedures based on faulty premises, uncontrolled impressions, and rash conclusions still obtain.

A good majority of these procedures are carried out on young children (who have little chance to voice their opinions) and include various orthopaedic procedures, circumcisions, treatment of naevi, and removal of tonsils and adenoids. Of these, removal of tonsils and adenoids is by far the most frequently performed operation on the human body, accounting for one-third of all surgical operations carried out in the U.S.A. since 1924 (Boies, 1948).

Are all these procedures really necessary? Do one-third of our children really require to have their tonsils and adenoids removed? Why has this century seen such a savage attack on these normally present and easily accessible structures? There has been much discussion on this topic over the years amongst paediatricians, physicians, surgeons, family doctors, and even the lay public, but in spite of this there is still no uniformity of opinion. The surgeons seem most convinced of the benefits of the operation, whilst others regard the procedure as "a prophylactic ritual carried out for no particular reason with no particular result" (Medical Research Council, 1938).

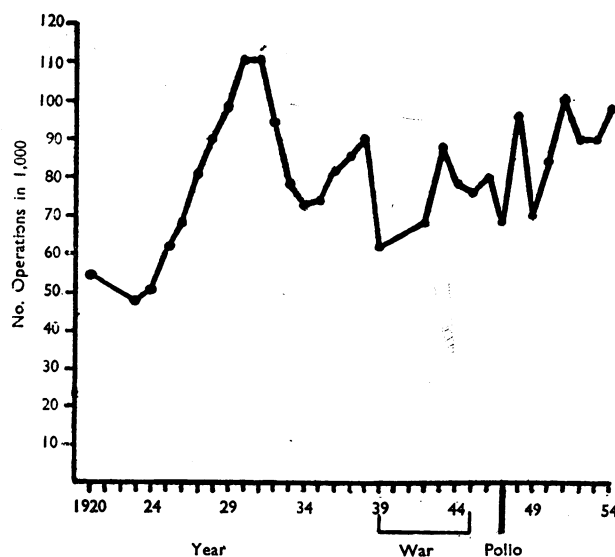


Fig. 1.—Numbers of tonsillectomies carried out in elementary and primary school children annually in England and Wales, 1920-54.

What are the Facts?

In spite of their antiquity—removal of the tonsils was described by Celsus in A.D. 50—these operations were only rarely performed until the turn of the present century. Since then there has occurred a fantastic rise in their popularity, reaching a peak in the early 'thirties, when some 50–75% of all children in this country were having their tonsils and/or adenoids removed. The highest figures were those quoted by Glover (1938), who gave a figure of 83% for an English boys' public school, and by Denzer and Felshin (1943), who in a study of 1,000 11-year-old New York children found that 94% eventually had their tonsils out.

A record of the incidence of these operations over the years is seen graphically in Fig. 1, which has been compiled from figures given by Glover (1938, 1950) for the numbers of elementary-school children having their tonsils removed every year from 1919 to 1948 and from Ministry of Education figures till 1954.

Fig. 1 shows four main points—the steep rise in the popularity of the operation from 1920 to 1930; the peak at 1930 and 1931; the drop at 1933–6, as a result of propaganda; and the fairly constant level during and since the war (the low figure in 1947 was on account of the poliomyelitis epidemic).

These figures were for elementary- and primary-school children of lower social groups. Those for the country as a whole would have been much larger, and the estimate of 200,000 operations a year by Glover (1938) must have been a fairly accurate estimate for 1936. That the operation has not lost its popularity is shown by the fact that during 1954, 226,211 such operations were carried out in this country in N.H.S. hospitals (Ministry of Health, 1955), and this does not include those done in private hospitals and nursing-homes.

It is rather difficult to account for this high incidence of an operation which has been a major medical phenomenon of this century, but two explanations are possible on medical and social grounds. Medically we can only presume that the operations must have been necessary in our children for the treatment of some very common endemic disease which has been most frequent in the upper social groups, since the incidence of the operation is greatest in public schools as opposed to elementary schools. But in actual fact, apart from this evidence of the incidence of the operation, there is little to suggest that there has been this serious endemic disease most prevalent in the "upper classes."

Situation at Present

It is a little difficult to assess the present position accurately, as there are few available figures. It is probable, however, that the situation has not altered appreciably over the past two decades, for in 1954 nearly a quarter of a million persons (226,211) (over 90% of whom were children between 5 and 10) were treated in N.H.S. hospitals in this country for removal of their tonsils or adenoids (Ministry of Health, 1954).

The frequency of the procedure is further evident from the fact that in two of the leading paediatric units in this country between one-sixth and one-quarter of all admissions are for "T's and A's" (Spence and Taylor, 1954; Burke, 1956).

A conservative estimate suggests that between 20 and 40% of our children to-day are having their tonsils and/or adenoids removed, and this is confirmed by Carne (1956), who found that 31.9% of R.A.F. entrants had had their tonsils removed.

A procedure so common must of necessity have certain economic, social, and medical drawbacks and complications. The hospital beds occupied by this large number of patients every year must cost the country almost £3 million—a fantastic and a ridiculous sum spent on a mass ritual which has never yet been scientifically proved to be necessary and which has certain possible dangers. Over the past five years

the Registrar-General's figures show that at least 190 children have died from this operation—a yearly rate of almost 40. In how many of these was the operation really necessary? Whilst it is admittedly a simple and relatively safe operation which is easily performed by all and sundry with various grades of completeness, it has its difficulties and complications. The rate of post-operative ear infections is far from negligible. Cross-infection of children in hospitals is a definite risk; the mental stress and trauma to which these young children are subjected is being more appreciated, and the anxieties of the parents should also be remembered; finally, there appears to be a definite increased risk to bulbar polio-encephalitis in the immediate post-operative period and possibly at later times as well.

These, briefly, are the risks and dangers which must be balanced against the advantages of the operation. It is on this assessment of the pros and cons that the crux of the matter rests, and in this assessment it is necessary to examine the common indications critically in order to find a proper perspective.

Assessment of the Indications for Tonsillectomy and Adenoidectomy

It is in children under 10 years of age, and largely in those between 4 and 8, that the majority of operations are performed for various reasons, and the variety of the indications for which they are carried out is almost unbelievable. The following represent the most usual reasons for operation.

1. Size and Appearance

Although not such a frequent reason as in the past, "enlargement" of the tonsils and "evidence of chronic infection" are still quoted as indications for their removal. It is doubtful, however, whether the enlargement is anything more than a physiological and natural hypertrophy which is common to all lymphatic structures in children between 3 and 8, and which undergo a spontaneous decrease in size after this period. Although I have seen children with apparently massive tonsils that meet in the midline, I have never been convinced that they cause any mechanical ill-effects. With the adenoids the matter is somewhat different, as there may be some consequent post-nasal obstruction, but even this is probably less frequent and less harmful than is generally supposed.

Clinical evidence of "chronic infection" is very indefinite and uncertain. Many of the features that are described are present in many symptomless and normal children. Epstein (1937), in an attempt to correlate clinical signs with histological appearances, found that no such correlation was possible, and he concluded that "the physician did not know an infected tonsil when he saw one."

2. A History of Recurrent Sore Throats

Recurrent sore throats are another frequent reason for tonsillectomy in children. But before we accept them as a definite indication for operation we should look more closely into their natural history.

Tonsillitis and other varieties of sore throat are extremely frequent conditions in general practice—the average family doctor in this country must see between 100 and 200 new cases each year. Most of these have to be labelled as "non-specific," for in only a little over one-third can a recognizable cause, such as the haemolytic streptococcus, Vincent's organisms, or glandular fever, be discovered. It is assumed that the remainder are due to an unidentifiable virus, but, as yet, there is no absolutely conclusive proof of the presence of such an agent.

In order to shed some light on the natural history I would like to quote from a series of 300 consecutive cases of tonsillitis (with fever and red tonsils with exudate) observed in my own practice.

Tonsillitis is rare in children under 4 years of age. It is common in those aged 4–9 years: one-third of all such cases

occur at this period. It is not infrequent between 10 and 30, but its incidence falls with age, being distinctly rare in the elderly.

Fig. 2 illustrates the incidence of acute tonsillitis in children under 10 years who have not had their tonsils removed. The low rate in infancy is apparent, a peak at 5-6 is followed by a steady decline. It is not possible to draw any definite conclusions from this small series, but it is suggestive that there is a tendency to a spontaneous diminution in incidence after the age of 6. If we accept this trend as a natural one, then it is reasonable to expect these children "to grow out of" their attacks.

3. The Catarrhal Child

Under this rather vague term I would include that very large group of children that the British family doctor sees every year for recurring symptoms of infections of the respiratory tract. It is difficult to separate off any specific syndromes, but we are all familiar with the persistent nasal catarrh, the chronic cough, the acute wheezy chest, the earache and transient deafness, which are all accompanied by variable degrees of debility.

Although these conditions are generally accepted as "infections," it is possible that other factors such as allergy, atmospheric pollution, climatic changes, psychosomatic reactions, dietetic errors, and others, may play an aetiological part. In view of this uncertainty about aetiology it is difficult to dogmatize on therapy, and the use of tonsillectomy must be critically assessed.

Of all indications for tonsillectomy it is this group of "catarrhal" conditions that figures most prominently. But are we certain that this procedure really influences their course? This can be answered only by carrying out a planned clinical trial, but some insight into the natural history may be obtained by a follow-up of a group of children.

Over the past 10 years I have followed a group of 55 unselected children (born in 1946), and have recorded the frequency of these common respiratory conditions in each year. Fig. 3 shows the proportions of children who required medical attention each year.

Three phases are apparent. From birth up to 4 years there is a fairly constant level of incidence, around 40-50% of those at risk being seen. At 5-6 there is a marked peak, presumably associated with starting school. An equally remarkable fall occurs at 7-8, and it is this natural decline which should be appreciated, for it suggests that by this time the child has acquired an immunity to the infections or other agents that are responsible for the condition. Although these are the figures from a very small series

of cases from a single practice they are very suggestive of certain natural trends in these common conditions which account for 10% of the family doctor's work and for 25% of all attendances in a paediatric clinic (Kempton, 1954).

These patterns should be remembered whenever the question of treatment arises. When faced with parental pressure "to do something" we should seriously consider whether to advise conservatism and expectancy or to submit the child to a procedure which may not really influence the natural course. We should be grateful for the long waiting-lists and use them to reassess each child before operation to see if they have not "outgrown" their symptoms.

4. Recurrent Earache and Otitis Media

The third most frequent reason for tonsillectomy or adenoidectomy is a history of recurring bouts of earache with a red drum and with or without discharge. This condition of otitis media is a particularly common one in our children, and between the ages of 3 and 8 approximately one in four of all these children suffers from earache. Since it is one of the components of the syndrome of the catarrhal child it is not surprising that its epidemiological pattern is very similar, as can be seen from Fig. 4. Here again we see the moderate incidence under 5, a peak at 5-6, and then a progressive decline.

In addition to this natural tendency towards a spontaneous decline in incidence it is a definite fact that otitis media has itself changed in its severity over the past two decades. This change has probably come about as a result of the introduction of the antibiotics and sulphonamides, but there has also been a natural change, for in the majority of children the condition will now settle without any specific therapy and without any complications. For both of these reasons the decision to carry out removal of the tonsils and adenoids should be tempered with a considerable amount of thought. Even children with recurrent attacks accompanied by temporary deafness will eventually "grow out of" this, with no residual damage.

5. Enlarged Cervical Glands

Enlargement of the cervical lymphatic glands is quoted as an indication for tonsillectomy in most of the standard textbooks, but the fact that three out of four apparently normal children between 4 and 9 have palpable cervical glands should make us reconsider this. This latter figure was obtained by an examination of 100 consecutive children in my own practice who were not suffering from any respiratory tract infections and who were apparently quite fit and healthy. In 76 of these there were definite and palpable glands in their necks.

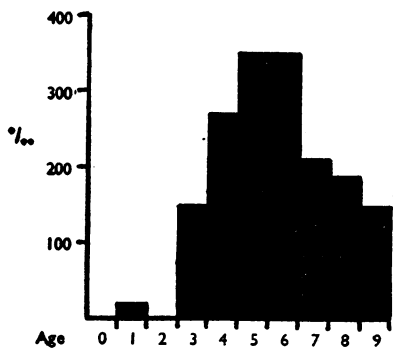


FIG. 2.—Age incidence (under 10 years) in a group of cases of acute tonsillitis.

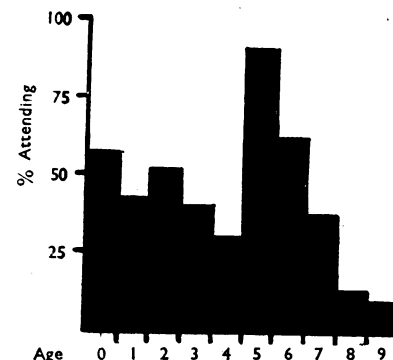


FIG. 3.—Age incidence of children under 10 years attending for upper respiratory tract infections, 1947-55.

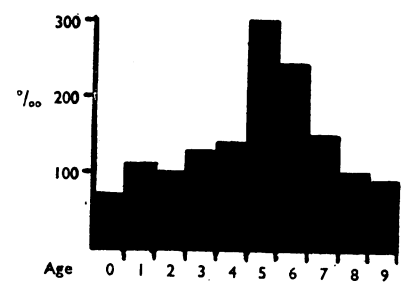


FIG. 4.—Age incidence of acute otitis media in children (under 10) in a consecutive series of 114 cases.

In my opinion such a normal finding should not serve as an indication for tonsillectomy, and it is probable that this enlargement is merely part of the physiological hypertrophy of lymphatic structures in the neck at this period.

6. Miscellaneous

"Tonsillectomy has at some time been recommended for almost every disease of children and for many conditions, such as mental retardation or enuresis, which can hardly be called diseases" (Gale, 1954).

The majority of these "diseases" are not now accepted as valid reasons for advising the operation, but there are two—focal sepsis and debility—which even now lead to the performance of a procedure for which there is little proof that it has any beneficial effects.

Comment

These, then, are the reasons for removing the tonsils and/or adenoids in some quarter of a million children in hospitals and private nursing-homes in Great Britain every year. From these figures it is estimated that one-third of children leave school minus these organs. Again we may ask whether all these operations are really necessary. In my opinion this figure is grossly excessive.

It is very difficult to lay down any definite criteria for their removal, because each medical practitioner has his own opinions to guide him, but I would like to quote my own experiences.

Over the past 10 years only 40 children in my own practice have had their tonsils or adenoids removed. This represents a rate of 5% of those at risk. Reviewing these cases, I find that there were three main reasons for the operation being carried out: recurrent otitis media in 24; recurrent attacks of tonsillitis in 10; and parental pressure that could not be resisted in 6.

What of the children who did not have the operation? A very large proportion of these passed through this catarrhal phase with its already well-known features and then emerged from it to develop along normal lines to enter healthy adolescence. None of these adolescent patients have residual deafness or aural discharge, none have recurring sore throats, none have chronic nasal catarrh, none have chest deformities or adenoid facies, none have defective speech. There have been no cases of rheumatic fever in my practice over the past 10 years and only one case of acute nephritis. In fact, I consider that I have a really healthy collection of children and young adults to care for in spite of their low rate of tonsillectomy. This is confirmed by the fact that the morbidity rates of my practice are no higher than those quoted in the reports of the General Register Office (1953, 1956).

If not by tonsillectomy, then how are these children to be managed? For there is no doubt that they need careful management. They should be treated expectantly in the knowledge that within a couple of winters or so they will be much improved whatever their treatment. If the child is in otherwise reasonable health then symptomatic treatment, with reassurance, explanation, and encouragement of the parents, is all that is necessary. Acute episodes of otitis media, tonsillitis, and chest infections should be treated as they occur, on their merits, with suitable specific antibacterial drugs when indicated, but many of these episodes will settle without these specific measures. In my experience these simple measures suffice to tide the children and their parents over this rather difficult phase, and there are no apparent risks of serious complications or permanent disabling after-effects.

Discussion

There is no doubt that tonsillectomy and adenoidectomy are useful and valuable procedures in properly selected cases, and the problem which concerns them is not whether they are of any use, but rather whether they are at present being abused.

It has already been stated that nearly a quarter of a million such operations are being performed every year in

our N.H.S. hospitals and that the tonsillectomy rate in our children is around one-third of those at risk. My own views are that these rates are excessive and could with proper selection be reduced by at least two-thirds with no serious consequences to the children in question. This would effect a national saving of £2,000,000 a year to the Health Service. If we are to carry out any reduction in this high rate we should first know the causes for it.

What are the underlying reasons for this high rate, or, in other words, what are the factors leading to the operation?

An important influencing factor is the *geographical* distribution. Alison Glover (1938, 1950) has shown that in England and Wales marked differences are apparent in the various areas. He compared the rates of tonsillectomy in elementary-school children in counties and boroughs in England and Wales in 1936 and 1948. It is astonishing how variable are these rates, varying by as much as twenty-fold. Thus, in 1936 a child living in Rutlandshire was nineteen times more likely to undergo tonsillectomy than one living in neighbouring Cambridgeshire. A child living in the Enfield area of London was twenty times more likely to have the operation than one in near-by Hornsey. A child living in Bexhill and enjoying the full benefits of its climatic advantages was seen to be twenty-seven times more likely to be submitted to an operation than one living in northerly Birkenhead. Similarly, in 1948 a child from Eastbourne or East Ham was more than ten times as likely to be operated on than one from Manchester or Reading.

These differences were in no way related to climatic conditions—areas with the highest and the lowest rates were often neighbours. Nor were they related to the efficiency of the school dental services, nutrition, overcrowding, unemployment, or poverty. Urbanization, which might have been considered a factor, was rather ruled out by the fact that some of the highest rates occurred in certain agricultural counties and in boroughs which are health resorts famed for their beauty, climate, and spaciousness.

There seems to be one paramount factor in all these—the local medical opinion. It seems that where and when the local medical opinions were that tonsils and adenoids were harmful in schoolchildren, and a hindrance and a nuisance, then we had approximately 65% of elementary-school children in Eastbourne and East Ham having these structures removed during their school life (from 5 to 15), according to the figures of 1948; where the reverse opinions held sway, only 5% were so treated in Manchester and Reading (Glover, 1950).

Although the *social incidence* of tonsillitis and "catarrhal children" seems common to all classes of society, the incidence of tonsillectomy is at least three times greater in the children of the well-to-do (Glover, 1938). Thus Glover estimated that, whereas in 1936 some 20% of elementary-school children had been tonsillectomized by the age of 14, at one of our "famous boys' public schools" between 75 and 83% had already had their tonsils removed before entry at the age of 13-14. Other figures for public schools of 50-70% (boys) and 42-63% (girls) were quoted in a report of the Medical Research Council (1938).

If we assume that the incidence of the conditions for which tonsillectomy is carried out is similar in the various social classes, then the only explanation for these differences is that, by reason of parental pressure and anxieties, and because of different medical opinions and advice, the children of the upper classes are the more unfortunate.

Of course the major factor responsible for the high rate of tonsillectomy is the very nature of the conditions for which it is undertaken. These have already been discussed in the section dealing with the indications. They are not conditions which are dangerous to life, but are irritating, trying, and demoralizing for the child, the family, the school, and the family doctor. They are both persistent and recurrent. They produce worrying signs and symptoms, and there is little apparent response to simple therapeutic measures. The parents become more anxious; grandparents, uncles, aunts, and neighbours remark that "surely

something can be done for poor little Willy"; the school-mistress adds to parental worries by remarking on the lack of scholastic progress; and the family doctor despairs because of the lack of the response to his treatments and refers the unhappy child to an E.N.T. surgeon, possibly with a suggestion that tonsillectomy is necessary.

The surgeon-specialist is in a quandary. What has he to offer? The family doctor has already tried the usual remedies without any success and the parents are becoming desperate. He has two possible lines of action. He can decide that there are no real indications for removing the tonsils and attempt to explain and reassure the parents that all will eventually be well; or he may take the line of least resistance and agree to place the child on the waiting-list for the operation. The demand for something to be done is acceded to and the train is set in motion. Next comes the long wait. The length of the waiting-lists for tonsillectomy varies all over the country from six months to over two years. The child who is usually 5 or 6 when referred to hospital will be that much older when admitted, and quite likely free of symptoms. Should he still be routinely operated upon? I think not. All patients should be individually reassessed before being operated upon, and if found to be improving or symptom-free operation should not be proceeded with. Even if symptoms are still present subsequent improvement cannot be directly attributed to the operation, for, as Illingworth (1950) stated, "a child is older after the operation than before, and the fact that he improves is no proof that the improvement is due to the operation."

A further suggestive feature that patience might be rewarded by a spontaneous resolution is a comparison of the data given by Glover (1938) for the age incidence of the operations and the age incidence of tonsillitis in my own practice (Fig. 5). These show an amazing correspondence, and it is very suggestive to conclude that after the age of 7-8 few children will need tonsillectomy and that if we wait long enough they will get well and "grow out of it."

What of the reported results of the operation? Are they really so worth while in the treatment of the conditions for which they are advised? Obviously the fact that nearly a quarter of a million children are operated on each year suggests that the outcome is satisfactory, but is there any real scientific proof or are we jumping to conclusions without any proper controlled surveys?

There is little evidence of any properly controlled clinical trial in all the voluminous literature on this subject. There are many reports producing evidence for the pros and the cons.

Hadfield (1950) and Walker (1953) report benefits from the operation, but as their assessments are based on parents' opinions it is difficult to accept them. Kaiser (1930, 1940) in a 10-year follow-up of 4,000 children, half of whom had had their tonsils removed, and the other half had not, found that whilst early results seemed to indicate some benefits these were not apparent at the end of 10 years.

An appreciable number of reports find no obvious benefits from the procedure (Glover, 1938; Medical Research Council, 1938; Paton, 1943; Mertz, 1954).

Dingle and his associates, in their Cleveland families study (McCorkle *et al.*, 1955), report that in a long and continuous study of 230 children there were no differences in the attack rates and loss of school time for the common respiratory disorders in those children with their tonsils intact and those who had had their tonsils removed.

Conclusions

The aims of this intentionally provocative paper are to set the spotlight once again on this "tonsil and adenoid problem," and to try to stimulate some further thoughts on the matter in all those who are concerned with the medical care of our children—particularly family doctors, school medical officers, paediatricians, and ear, nose, and throat surgeons.

The operation is unquestionably of real value in a small proportion of children, but that it is really so necessary that almost a quarter of a million patients should have to have their tonsils removed every year—a rate of one in three of our population—seems unbelievable. Or is it merely a fashionable and misguided procedure carried out in a desperate attempt to treat a normal phase of child development which, it is suggested, will naturally and spontaneously subside and disappear in the course of two to three years? The problem might be solved by carrying out a planned clinical trial, but this presents great practical and ethical difficulties. Nevertheless it is necessary to obtain an answer. In the meantime we should give this matter serious thought, assess each child carefully, and have greater moral and clinical courage in the knowledge that the great majority of children will "grow out of" their common respiratory infections around the ages of 7-8 without any harmful effects.

Summary

An attempt is made to focus attention once again on "the problem of tonsils and adenoids," and to examine critically the reasons and indications for the high rates of the operation over the past three decades.

The popularity of the operation has been a major medical phenomenon of this century, reaching a peak in the early 'thirties, when some 50-75% of all children were being operated on, and showing no real fall at the present time, when some 33½% of children are having their tonsils and adenoids removed. In 1954, 226,211 persons were admitted to N.H.S. hospitals in England and Wales for this operation. This costs the nation approximately £3 million each year. In paediatric units between one in four and one in six of all admissions are for this purpose. The operation has its risks, and some 40 deaths occur each year from its performance.

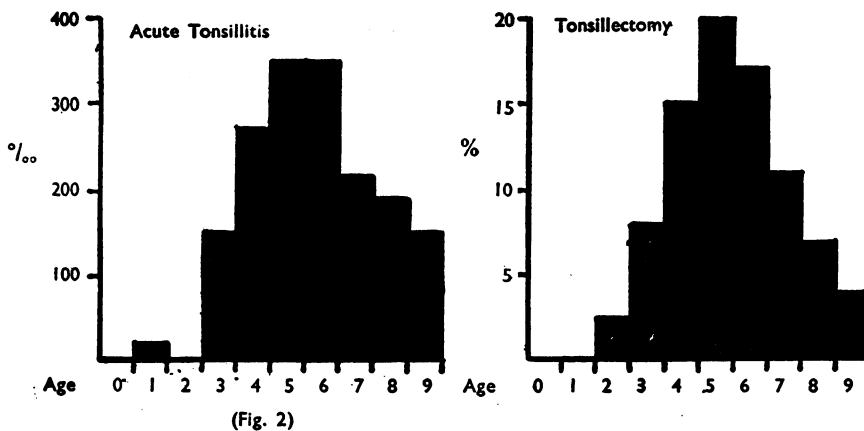


FIG. 5.—Comparison of age incidence of acute tonsillitis (Fig. 2) with age incidence of tonsillectomy (Glover, 1938).

The accepted indications for the operation are critically assessed in the light of the natural course of many of the conditions for which it is carried out. My records from a South-east London suburban practice suggest that there is a tendency towards a natural and spontaneous "cure" of the common respiratory infections of children at the age of 7-8, including tonsillitis, otitis media, and bronchitis, which are the major indications for the operation. The size and appearance of the tonsils, enlargement of the cervical glands, focal sepsis, and debility should not in themselves be factors indicating removal.

During the past 10 years I have referred only 40 children for removal of tonsils and/or adenoids—a rate of 5% for the child population at risk. This figure is much lower than the national average of 33½%, but in spite of this it has not resulted in any apparent harmful effects to the children in question. These "catarrhal children" and their parents require careful management during a phase of child development which is so common in this country as to be a normal feature in children between 3 and 7 years of age.

An examination of the reasons for the high rates of tonsillectomy shows marked geographical and social differences. Neighbouring areas show rates which differ twentyfold. Children attending public schools (upper social groups) show a much higher rate than those attending the old elementary schools (lower social groups). Reported results of the operation are by no means in agreement concerning its benefits.

A plea is made for a more rational approach to the problem, an approach which should take into account the fact that the "catarrhal stage" in young children is a relatively normal one which the vast majority of our children will "grow out of" at 7-8. Each child should be carefully and conservatively assessed when referred for this operation, and this reassessment should be repeated at the end of the long waiting period before admission to hospital, and if the child is improving or is free of symptoms the operation should not be proceeded with.

I wish to thank Dr. G. E. Godber, of the Ministry of Health, and Dr. P. Henderson, of the Ministry of Education, for supplying some of the data, and Mrs. K. Sabel.

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ANTIBIOTICS AND HOST RESISTANCE*

BY

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During the past twenty years our approach to the treatment of infections has been radically altered by the pre-eminence of powerful antibacterial drugs, which alone enable us to control infections with but few exceptions and regardless of the part played by the patient's own defences. Although modern antibiotics might be expected to control all infections by micro-organisms shown to be susceptible in the laboratory, in practice they do not consistently do so. There are many cases, particularly in infancy and old age, where the expected response does not occur. The causes for these therapeutic failures are various, and not least amongst them is inadequacy of host defence due either to immaturity or to impairment and disturbance of the host-parasite relationship. While the inhibitory action of the antibiotic on invading bacteria can be readily measured and used as a guide to treatment, there is no such direct method of estimating the lethal action of the host defence, which can only be estimated roughly on clinical impressions.

Even with optimal antibiotic therapy the ultimate eradication of the invading micro-organism and the resolution of pathological changes depend upon effective host reaction.

The efficiency of antibiotic therapy has now reached a pitch where further improvement in results must be sought by reconsidering this important and decisive aspect of infection. Its importance is reflected in the mortality figures for pneumonia and meningococcal meningitis, to take two examples. Since 1934 a remarkable fall in the mortality from pneumonia (Fig. 1) has taken place in children and young adults

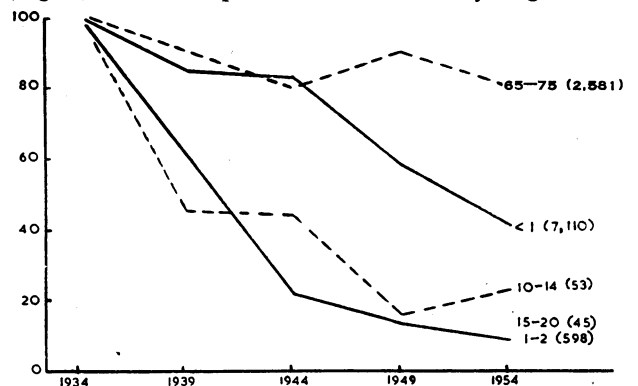


Fig. 1.—Number of deaths from pneumonia per 100 deaths in 1934 for those aged <1, 1-2, 10-14, 15-20, and 65-75 years. Number of deaths per million living is shown in parentheses.

which contrasts sharply with that in the aged and very young. The relative and absolute numbers dying at the extremes of life remain disproportionately high, although presumably treatment is similar.

Of infants under the age of 1 year the number dying in 1954 was 7,110 per million living, and thus exceeded the total deaths for all years up to the age of 75 and was about a hundred times as great as for those aged 4-5

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