

Tonsillectomy in the Allergic Child

BEN F. FEINGOLD, M.D., *Los Angeles*

SUMMARY

Edema is the chief factor in enlargement of tonsils of children with allergic disease.

In the absence of infection tonsillectomy and adenoidectomy are contraindicated in the allergic child except when obstruction is present.

Infection produces one of two distinct patterns when it influences allergic states, the pattern depending upon the nature of the infectious disease.

Chronic infection of the upper respiratory tract in the allergic child produces a pattern simulating that of acute respiratory infection.

If, in the presence of infected tonsils and adenoids, management of the allergic state does not produce results, tonsillectomy and adenoidectomy are indicated. Management of the allergic disease must be continued post-operatively.

Whether infection is present or absent, allergic disease can be controlled only through competent management of it.

THERE is a considerable difference in opinion among clinicians as to the value of tonsillectomy and adenoidectomy in the allergic child. The confusion and the various attitudes that exist reflect the inconsistencies encountered in the literature as to the influence of removal of the tonsils and adenoids upon a child's allergic condition. There are many observations which indicate that allergic conditions may become aggravated following tonsillectomy.

The onset of asthma either immediately or shortly following surgical removal of the tonsils and adenoids is not uncommon. For this reason, many clinicians are reluctant to recommend such a procedure for fear of aggravating co-existing allergic disease. On the other hand, the proponents of tonsillectomy in the allergic child can find support in the literature for their attitude and not infrequently the sustaining evidence occurs in the same communication reporting on the deleterious effects of tonsillectomy. Peshkin,¹² Bullen,² Rackemann,¹⁵ Stout,¹⁸ Piness,¹³ Waldbott,¹⁹ Hansel,⁸ and Smyth¹⁷ have stressed that allergic disease is either unimproved or aggravated following tonsillectomy. But each of

these observers mentions in the same report that he has also observed cases in which the response was good.

The statistical evidence for failure following such procedures in the allergic child far outweighs that reported for successes, which no doubt explains the strong attitude that exists against tonsillectomy and adenoidectomy. But the fact that good responses have been observed would imply that there are allergic children for whom such operations are indicated. That the group benefiting from removal of tonsils and adenoids is in the minority is no justification for subjecting these children to clinical judgment dictated by the majority. In view of such extreme variations in the response to tonsillectomy and adenoidectomy, a consideration of the problem to determine the criteria for the indications and contraindications for these operations in the allergic child is advisable.

The problem resolves itself into a consideration of the allergic child who presents no evidence of infection and the allergic child whose allergic disease is complicated by infection. The dominant feature of pathologic change in allergic reactions affecting lymphoid structures is edema, although coincidental with edema a degree of hyperplasia develops. It is edema that explains the pallor, succulence, boggy-ness, and increased size which characterize these structures in the allergic child.

The liberal distribution of lymphoid tissue in the nasopharynx of the prepubescent child is a recognized observation.¹⁴ The participation of the tonsils and adenoids in this normal distribution of childhood may mislead the clinician into considering as a large tonsil and adenoid what is actually normal for a child in the first decade of life. If one adds to this normal size the increment of edema induced by allergic reaction, the result is a large, pale, boggy and succulent tonsil which is a common observation in the allergic child. Coupled with the symptoms of allergic disease—nasal itching, sneezing, rhinorrhea, nasal stuffiness, postnasal drip and cough—a clinical picture is presented which is frequently mistaken for recurrent infection of the upper respiratory tract. Since this syndrome is an expression of the influence of allergy upon respiratory lymphoid structures and not the cause of the disease, the surgical removal of either the tonsils or the adenoids, even when enlarged, in the absence of infection will not effect an alleviation of the symptoms. To the contrary, tonsillectomy and adenoidectomy may aggravate the existing allergic condition. Only competent and thorough management of the allergic disease can offer control of symptoms. With control of the allergic disease, it is not unusual to observe a decrease in the size of the tonsils and other lymphoid structures of the nasopharynx.

From the George Piness Allergy Group and the Allergy Clinic of the Children's Hospital of Los Angeles.

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The indiscriminate removal of tonsils and adenoids for the relief of symptoms in the allergic child no doubt accounts in some measure for many of the 1,235,000 (Collins³) tonsillectomies performed in this country each year and, further, perhaps explains many of the failures to produce relief from symptoms. Such failures have been reported by numerous investigators who have analyzed the findings in large groups of tonsillectomized children.^{1, 10, 11, 16}

The general rule should be that in the absence of infection tonsillectomy and adenoidectomy are contraindicated in the allergic child. There is one exception. When either tonsils or adenoids are so large that they produce symptoms of obstruction, removal of these structures is justified. Even in these circumstances, however it is justified only when adequate management of the allergic condition is effected both before and after operation.

It is a common impression that either bacteria or bacterial products may produce such common syndromes of the allergic state as allergic rhinitis, asthma, and eczema. Current observations in immunology indicate that either bacteria or bacterial products may produce tissue hypersensitivity, but the tissue changes in allergic conditions of this type are irreversible and permanent. When bacteria or their products produce allergic disease, death of tissues is the dominant feature of the pathologic changes. Such fixed tissue alterations cannot explain the symptomatology of the common allergic diseases— allergic rhinitis, asthma, and eczema—which are characterized by reversible tissue changes due to non-bacterial antigens—pollens, environmental factors, and foods.

The author recently reported that infection plays a dual role in allergy.^{5, 6} First, it may produce tissue hypersensitivity characterized pathologically by fixed changes in tissue and clinically by the collagenous diseases including rheumatic fever and glomerulonephritis. Second, infection may influence the course of existing allergic disease without participating in the underlying tissue changes. This ability on the part of infection to influence the course of existing allergic disease is frequently misinterpreted as bacterial sensitivity. When infection does influence the course of existing allergic reaction, it produces a distinct pattern for it. The pattern is one of two types, depending upon the nature of the infection (Figure 1).

The first pattern is observed in association with pertussis, the infectious diseases—measles, mumps, chickenpox, roseola infantum, Kaposi's disease, and the epidemic viral diseases. During the period of invasion and the prodromal stage of these diseases the allergic disease may be aggravated. As the peak of the infection is approached, the allergic condition improves, so that at the fastigium, the symptoms of allergic reaction are suppressed to recur with convalescence or shortly following (Figure 2).

The second pattern is observed with the upper respiratory infections of the bacterial type. During the period of invasion of these infections there is no

apparent change in the allergic condition, but it is aggravated at the peak of the infection. As the infection subsides, the allergic disease improves. It is noteworthy that the acute symptoms of allergy associated with these infections do not respond to the usual medical management for them. The best response is observed with the antibiotics, either sulfonamides or penicillin. The concomitant improvement of both the infection and the allergic reaction with the use of antibiotics leads many clinicians to believe that the syndrome is caused by bacterial sensitivity when actually it is a manifestation of the influence of infection upon the existing allergic disease (Figure 3).

Chronic bacterial infection of the upper respiratory tract in the allergic child presents a course which is merely a repetition of the pattern of acute infection of the upper respiratory tract concomitant with allergic disease. A cyclic pattern may be noted in the histories of allergic patients with chronic infection. There are recurrent acute attacks of infection at variable intervals of from several days or weeks to several months. With each exacerbation of

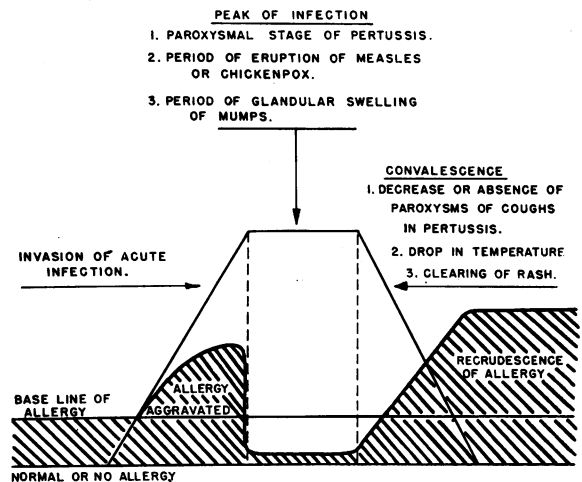


FIG. 1

ACUTE UPPER RESPIRATORY INFECTION

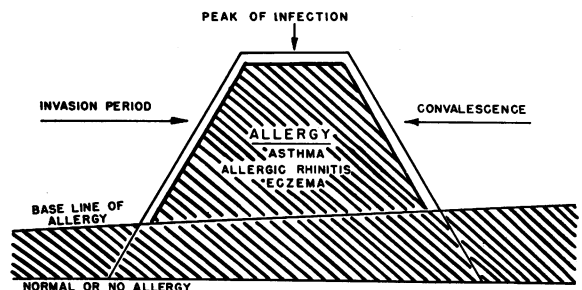


FIG. 2

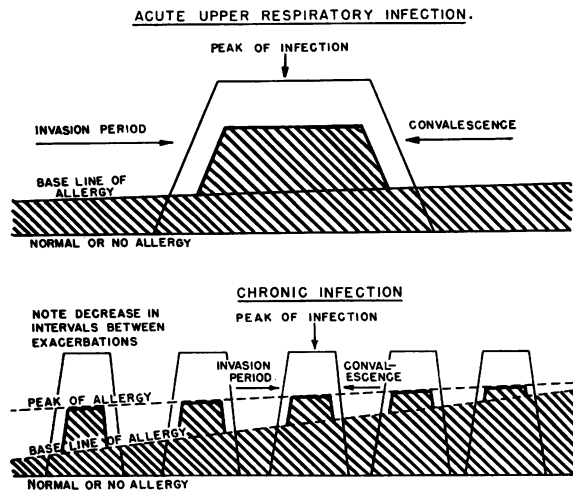


FIG 3

the infection the allergic disease is aggravated. As the infection subsides, the allergic disease improves but remains at a somewhat higher level than existed prior to the onset of the acute attack. Over a period of several months or several years there is a gradual increase in the severity of each acute attack with a gradual decrease in the interval between attacks and a gradual increase in the level of the residual allergic disease. Eventually, the base line for the allergic disease is so high that even specific therapy directed against the infection influences the allergic condition very little if at all. Even definitive treatment for the allergic disease may not produce the desired control. Children who have reached this stage have almost constant symptoms of the allergic disease, which can be controlled only by both clearing the foci of infection and thorough, competent management of the allergic condition. The presence of either chronic infected tonsils or adenoids or both is one of the most important factors contributing to the pattern of recurrent infection in allergic patients. It is important, therefore, in cases in which this syndrome is present, that tonsils and adenoids implicated by infection be removed surgically.

Such a recommendation raises two salient points for consideration: First, the importance of foci of infection and, second, the criteria upon which the diagnosis of infection of the tonsils and adenoids can be made.

The antigen-antibody mechanism responsible for the tissue changes in hypersensitivity operates independently of infection in every instance. In the collagenous diseases, rheumatic fever, and glomerulonephritis, once the mechanism is initiated it functions without the infection which generates the system. For this reason removal of the tonsils and adenoids in such diseases as rheumatic fever and glomerulonephritis does not effect an arrest of the disease. If there were some method for controlling the hypersensitive state activated by bacteria or bacterial products it would be possible not only to halt the progress of such diseases as glomerulonephritis

and rheumatic fever but perhaps even to prevent them. The removal of tonsils and adenoids from patients having these diseases may minimize the likelihood of acute exacerbations.

On the other hand, allergic rhinitis, asthma, and eczema are caused by nonbacterial antigens such as pollens, environmental factors, and foods; while intercurrent infection merely serves as a contributory factor aggravating the allergic state in proportion to the degree of the activity of the infection. In such conditions, when foci of infection are cleared the contributory factor is removed, leaving behind the allergic state which can be controlled by current methods for treatment of such conditions. It must be emphasized that when infection is cleared the allergic state still remains, and only definitive treatment directed against it can offer control of the symptoms.

Infection and allergy operate in both directions; that is, infection may serve to aggravate the allergic state and allergic reaction may activate the infection (Piness^{1,3}). It is not uncommon to observe an allergic child with evidence of infection who under management of the allergic state will show control both of the allergic symptoms and of the respiratory infections. For this reason, it is important to institute complete and thorough treatment for the allergic condition before recommending operation. If, in spite of management of the allergic reaction, the patient still experiences frequent recurrent infections which aggravate the allergic condition, then procedures for clearing the foci of infection should be considered. In addition to the tonsils and adenoids, the sinuses (and in children, less frequently, the teeth) may be foci.

Since tonsils and adenoids may be foci of infection which influences the course of existing allergic disease, it is important to consider the criteria upon which such a diagnosis can be made. Size of the tonsil and adenoid is not a reliable guide for diagnosis of infection. It has already been pointed out that in early childhood the tonsils and adenoids normally may be large and that the edema of allergic disease may add considerably to their size. On the other hand a small tonsil and adenoid may be the site of a very annoying focus. Some clinicians consider a dark red discoloration (Glover⁷) with thickening of the margins of the anterior pillars and the expression of cheesy exudate (Epstein⁴) from the tonsillar crypts as reliable findings for a diagnosis of infection. But on both points there is much contradiction.⁷ Although the presence of cervical adenopathy is looked upon by many as pathognomonic, this is open to question.⁷ Actually, in spite of the widespread practice of tonsillectomy and adenoidectomy there are no absolute objective criteria for removal.

In the absence of reliable objective criteria, subjective findings must be relied upon to guide the physician in determining when the tonsils and adenoids should be removed from the allergic child. History is the most reliable index. An allergic child who, after competent management of allergic disease

for a reasonable period of time, is still subject to recurrent upper respiratory infections with involvement of the tonsils and adenoids and with accompanying aggravation of the allergic disease, is a bona-fide candidate for tonsillectomy or adenoidectomy or both. Or the allergic child who, in spite of competent management for the allergic disease, is subject to recurrent attacks of otitis media which may be due to laterally placed adenoid masses is a reasonable subject for adenoidectomy. The judicious trial of management for the allergic condition before resorting to operation is stressed because frequently such treatment may control the symptoms.

After foci of infection are cleared by removal of the tonsils and adenoids of the allergic child, it is not uncommon to observe the complete relief of symptoms of both the allergy and the infection. Such complete relief from symptoms may give the clinician a false sense of security and lead him to neglect the treatment for the allergic disease which is still present. Clearing the foci of infection is but one measure in the management of the allergic child with infection. Only thorough management of the allergic state can insure against the return of the symptoms of allergic reaction. The early institution of such therapy is imperative to prevent the likelihood of the recurrence of lymphoid tissue in the upper respiratory tract which is a common observation in the untreated allergic child (Piness¹³). When infection occurs in lymphoid tissues which have regrown, the pattern of allergic disease and infection is repeated. It is also important that control for the allergic state be instituted soon after tonsillectomy and adenoidectomy to prevent aggravation of the allergic disease, a phenomenon frequently noted following operation. This practice is in agreement with Hansel's⁹ observation that in many cases of children with allergic disease, tonsillectomy was definitely indicated and that with careful attention to the control of the allergic state the occurrence of untoward complications could be avoided with reasonable safety.

672 South Westlake Avenue.

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