A NOTE ON SCARLET FEVER FOLLOWING OPERATIONS IN THE NASOPHARYNX

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Interest in this subject was aroused some years ago by the fact that a certain definite though small proportion of cases of scarlet fever seemed to be closely associated in their onset with the performance of tonsillectomy, and these are now the commonest form of surgical scarlatina encountered. In the years 1930 and 1931, during which it has been our practice to note especially all cases of scarlet fever occurring shortly after surgical operations, we have found that out of thirty-two such post-operative cases thirteen could be associated fairly definitely with tonsillectomy. In 1902 Washbourn¹ previously noted the occurrence of scarlet fever after operations in the nasopharynx and reported seven cases, three following removal of tonsils and adenoids, and one each following removal of adenoids, operation for cleft palate, removal of portion of turbinate bone, and resection of nasal septum.

ANALYSIS OF POST-OPERATIVE CASES

Before proceeding to a special consideration of cases occurring after nasopharyngeal operations it may be worth while to survey briefly all the post-operative cases. Of the total a certain number must be regarded as accidental (that is, as contracting scarlet fever in the normal course of events)—in which operation was simply a chance factor. By excluding from that series six cases which did not occur within the maximum limit of the incubation period of ten days, a group is retained in which a *prima facie* case may be made out for believing that the attack may have been associated with the operation.

In attempting to decide what significance these operations bear to the onset of scarlet fever it is necessary to classify the remainder (26) on a regional basis, and they may be divided roughly into: (a) operations in the nasopharynx and associated cavities, (b) abdominal operations, and (c) others. In group (a) we have 19 cases, 13 following tonsillectomy, 2 mastoidectomy, and 1 each following resection of nasal septum, antrostomy, plastic operation on nose, and extensive tooth extraction. Mastoid operations are included in this group, although their connexion with scarlet fever is possibly not so direct, from an anatomical standpoint, as the others. In group (b) we have 6 cases, 4 following appendicectomy, and 1 each following operation for undescended testis and intussusception. The sole case in group (c) followed an empyema operation.

In group (a) there can be little hesitation in assuming a direct causal relation between operation and scarlet fever. Apart from the relative frequency with which these operations appear as antecedent circumstances, the fact that the operation is carried out in the normal habitat of the haemolytic streptococcus is in itself almost presumptive evidence of the relation. Excluding the two mastoids we find that the interval between operation and the onset of scarlet fever was, in 4 cases, two days; 5 cases, three days; 5 cases, four days; 2 cases, five days; and in 1 case, ten days. This seems almost conclusive as to the part played by operation in determining the onset, and scarlet fever must therefore be regarded as a definite risk after operation in the nasopharynx.

PROPHYLAXIS

In order that a rational basis for prophylaxis may be provided it is necessary to discuss the mechanism of infection. The raw surface left after nasopharyngeal operations provides an ideal nidus for the haemolytic strepto-

coccus, and the first possibility that suggests itself is that implantation of the causal organism may be the result of contact infection soon after operation. It is also possible, though less likely, that where perfect asepsis has not been secured the organism may be introduced at operation. Washbourn drew attention to still another possibility—namely, that the virus was present in the throat at the time of operation, and that it gained entrance through the cut surface. The present writer agrees with this and suggests that in the majority of these cases the infection is endogenous. The explanation of the mechanism of this type of infection was advanced by Zingher,² who, in considering diphtheria and scarlet fever following tonsillectomy, gives instances of individuals susceptible to these diseases harbouring the specific organism without contracting the disease. To account for this he postulates the existence of a local immunity inherent in the mucous membrane. If this is broken down by trauma, or the incidence of some other infection, then the disease occurs. The incidence of scarlet fever after such operations as tonsillectomy, resection of nasal septum, antrostomy, plastic operation on the nose, and even tooth extraction, can thus be readily understood.

From the point of view of prophylaxis this form of scarlet fever is important since no purely administrative measure is likely to be effective in prevention, and it would appear that wider application of methods of individual immunization against scarlet fever is called for in patients about to undergo operations in the nasopharynx. Such patients should be Dick-tested beforehand and positive reactors passively immunized before operation. This procedure is not elaborate, and seems specially desirable before tonsillectomy, which is being so extensively practised throughout the country at the present time.

Fortunately it cannot be said that scarlet fever following tonsillectomy is likely to be of a severe type, and although the preliminary phase of toxæmia is well marked, on the whole these cases do well, running the normal course of scarlatina simplex with no special tendency to complications. But their prevention would remove a bugbear from ear, nose, and throat departments. On the other hand cases of scarlet fever after other forms of surgical interference in the nasopharynx—for example, resection of the nasal septum and antrostomy—are apt to be troublesome, and convalescence is sometimes prolonged.

Although this particular series contains no case in which scarlet fever followed operation for cleft palate, in the writer's experience the disease has occasionally taken on the characters of the septic type with a fatal termination after this operation.

REFERENCES

- ¹ Washbourn: *Clinical Journal*, London, 1902, xx, 405.
- ² Zingher: *Amer. Journ. Dis. Child.*, 1926, xxxi, 72.

Memoranda MEDICAL, SURGICAL, OBSTETRICAL

DEATH FROM RUPTURE OF AN INFARCTED SPLEEN IN A CASE OF MALIGNANT ENDOCARDITIS

Rupture of the infarcted spleen in malignant endocarditis (or in subacute bacterial endocarditis, if the later term be preferred) is sufficiently rare to warrant the record of this case.

The patient, a young girl 15 years of age, was admitted to the Lambeth Hospital, under the care of Dr. Watkin, to whom I am greatly indebted for the clinical notes of the case.

Her history was that at the age of 6 she had an attack of measles followed next year by an attack of acute rheumatic fever. Two further attacks of rheumatic fever had occurred