THE DRAINAGE OF MASTOIDS AS A MEANS OF PREVENTING "SCARLET FEVER EARS."*

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During the past winter, the writer has been impressed with the necessity of attempting to prevent the drainage of the so-called "scarlet fever ears" through the tympanic cavities. Middle ears infected during an attack of scarlet fever probably have the streptococcus, as a causative agent, in practically all the cases. Certainly the great destruction of the sound-conducting apparatus observed as these infections subside and become quiescent would lead one to this supposition. If we are correct in assuming that the streptococcus never invades the tympanic cavity without extending not only to the mastoid antrum, but to the cells as well, then we must conclude that there is an acute mastoiditis along with the otitis media in most of these cases. Recent reports of streptococcus mastoids fully demonstrate the fact that there may be considerable involvements of mastoid cells without local symptoms. The profuse discharge, therefore, in these cases originates in the mastoid cells and the middle ear should not be burdened with their drainage if it is to extend over a period of weeks and months. In fact, the drainage through the middle ear should never continue to the time when there is definite destruction of the ear drum.

The causative agent of two acute "scarlet fever ears" observed recently was the streptococcus hemolyticus. Cultures made from both mastoids demonstrated it to be the same type as that causing a fairly large epidemic of mastoids among the foreign and Chinese members of the Peking community. These mastoids were both in the same individual, the first following a left acute otitis media some six weeks after the onset of the scarlet fever. The patient, a doctor, was at some distance from Peking, and in order to get our assistance, a daily report was sent. We concluded from the continued elevation of the temperature and the profuse discharge that the left mastoid should be opened, and Dr. J. H. Liu was sent to the patient's station to perform the operation. He found a large perforation which occupied almost the entire drum, but the long handle of the malleus was not yet attacked. On open-

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ing the mastoid, the cells were found to be almost completely destroyed and filled with pus. At the end of another three weeks, the right ear became inflamed, and, after pain for twenty-four hours, the ear drum ruptured. Three days later, the patient arrived in Peking and a mastoid operation was performed on the second ear. This was done regardless of the fact that there was no mastoid tenderness. The discharge was profuse and the temperature was slightly elevated. The mastoid cells were only partially destroyed but were completely filled with pus. This patient made rather a slow recovery and to our amazement, we found that both middle ear drums had become re-established and that hearing had returned practically to normal.

This case is given in contrast to a second: that of a little boy now under treatment, who had scarlet fever five years ago. Aside from syringing the middle ears, no attempt was made to treat the inflammatory process within the mastoid cells. As a result, the entire right ear drum has been destroyed, and only the upper part of the malleus is still intact. On the left, there is a fair amount of the ear drum yet remaining, although the lower end of the malleus is gone. For the past three years, an attempt has been made to irritate the edges of this rather large perforation on the left side and occasionally on the right, in order to get closure of the tympanic cavities, and in so doing to prevent the otorrhea, which appears whenever the child has acute rhinitis. The results have not been altogether satisfactory as the lower margin of the tympanic membrane on either side seems to be free of the original fibres which helped to make up its supporting structure. There has been sufficient closure on the left, however, to bring about a decided improvement in hearing, but the result is far from satisfactory.

Aside from preserving hearing the need for controlling the discharge in scarlet fever patients is important because of its infectious character. According to recent literature on the subject, scarlet fever cases should not be allowed out of quarantine as long as there is a discharging ear or sinus, which has originated as a complication of the disease. While we do not know how long these discharges continue to be a source of contagion, we do know that they are a menace and should be controlled as early as possible. The first case reported above illustrates the danger and the need for radical treatment. The first mastoid was opened during the period of quarantine and the usual precautions were taken so that, if this ear were a source of contagion, it did not have an oppor-

tunity to demonstrate the fact. The second ear infection occurred following the quarantine period, if one may overlook the discharging mastoid on the other side. As a matter of fact, no unusual precautions were taken with the discharge from this second ear, and the nurse who had been with the patient for weeks probably inoculated her own throat from finger which had come in contact with the wicks from the second ear. On the third day after the rupture of the second ear, she became ill and died within five days of a virulent type of scarlet fever.

These two cases illustrate conclusively to the writer's mind that, granted the patient be in condition for an operation at the time the mastoid is invaded following an attack of scarlet fever, no time should be lost in securing the drainage through an external wound, and thus relieve the tympanic cavity from the great strain which is put upon it in taking care of the discharges from the healing, but unperforated mastoid cavity. The writer does not mean to imply that every case of otitis media following scarlet fever goes on to mastoiditis, but he wishes to point out that in the light of our experience with these cases, a mastoiditis should always be suspected. A bacteriological examination of the discharges should prove invaluable. The rapidity with which the streptococcus can destroy the drum membrane and with it the small bones of the middle ear is so marked that nothing but the most careful and repeated examination of these cases should suffice. With nitrous oxide and oxygen anesthesia at our command, the simple drainage of the mastoid cells resolves itself into a perfectly safe procedure. The writer, in conclusion, wishes to recommend to the profession a greater interest in the so-called "scarlet fever ears" during the acute stage, that, from our combined experience, we may determine the best procedure for preventing a continuation of the existing high percentage of destroyed ears following the disease.