

The Modern Mastoid Operation: Its History and Development.

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The mastoid operation, as it now stands, is quite a modern procedure in surgery. Its history is of great interest, not only to the otologist, but to the general practitioner of medicine. It is one of those great advances in the scientific treatment of disease which we owe to the last quarter of the nineteenth century, for, although the simple opening of the mastoid antrum in cases of suppuration in that cavity may be assigned to an earlier date, the complete radical post-aural operation, with all its improvements in technique and after-treatment, is practically confined to the past fifteen or twenty years.

The first mention historically of a proposal to surgically open the mastoid cells is that of Riolanus, in 1649, who suggested it as a remedy for occlusion of the Eustachian tube; but the earliest mention of the operation as a means of evacuating pus is, according to Schwartz, by Petit, who performed it between 1750 and 1774. In the same period Morand is said to have opened an encephalic abscess through the mastoid, and in 1776 a Prussian military surgeon named Jasser attacked a carious mastoid with a probe, with excellent results. Until 1791, when the operation resulted in the death of Berger, the physician to the King of Denmark, opening the mastoid appears to have been in vogue for the relief of deafness, but the fatality alluded to caused it to fall into disrepute.

During the next year (1792) Arneman of Göttingen laid down what he considered to be the indications for opening the mastoid, and these were, briefly, as follows:—

1. In any case of absolute deafness which is progressive and otherwise incurable.
2. In caries or collections of pus in the mastoid.
3. If the normal mucous secretion has become hardened or collected in excessive quantity.
4. In persistent pain and noise.
5. In Eustachian obstruction not remedied by injections.

It is interesting to compare these indications with those shortly to be given.

Berger's death, as has been said, caused mastoid operations to fall into abeyance for many years, and it was not until the early sixties that they were again advocated or received much attention. Writing in 1860, Toynbee stated that, although he had never performed the operation, he would not scruple to do so where life was concerned. On the Continent, however, in the first half of the nineteenth century, Itard, Bonnafont, Dieffenbach, and other eminent surgeons condemned it, but in 1860 Forget and von Troeltsch

spoke in its favour, and between that date and 1870 successful cases were published by Follin, Lucke, and Hinton. Roosa attributes the revival of the mastoid operation to Hinton in England, Crosby in Germany, Follin and Triquet in France, Mayer and Jacoby in Germany; but McBride* rightly gives the palm to Schwartz of Halle, who was really the first to elaborate the technique and indications of the operation. Indeed, it was practically only from the publication of Schwartz's first fifty cases that the value of the operation in its full significance began to be recognised.

The different operators used different methods of attaining their object. Jasser and von Troeltsch simply broke down carious bone with a probe, or, in cases in which this was not possible, used trochars or boring instruments, as did Pagenstecher. Petit, Forget, Billroth, and Rouge, however, employed the mallet and gouge, a method adopted by Schwartz and still favourite of most modern otologists, supplemented in some cases with the burr.

Since Schwartz's first communication of fifty-nine cases, which appeared in the seventh volume of the *Archiv für Ohrenheilkunde*, the real history of the mastoid operation begins, and improvements have been rapid since that time. For a long time, however, his operation, which consisted essentially in simple opening of the mastoid and draining therefrom, was performed in both acute and chronic cases; now it is confined entirely to those in which the process is acute or sub acute. Although Wolf, in 1877, suggested entering the mastoid antrum *via* the auditory meatus, and, in 1890, Hartmann, Stacke, Hessler, and Jansen advocated the treatment of chronic cases by establishing a free communication between the meatus, tympanum, and antrum, it was not until 1897 that Stacke published the monograph which detailed his method and the history of the various modifications of his original procedure. How this has been modified into the modern Schwartz-Stacke or "complete post-aural operation," and how the improvement by skin-grafting the cavity at a later period was introduced by Ballance, are matters of current knowledge and need not detain us here.

Having thus glanced rapidly at the history of the development of mastoid operations in general, we may now turn to the modern procedures in particular. The operations in vogue among modern otologists are, practically speaking, two—the simple opening of the antrum (or Schwartz operation), and the complete post-aural (or Schwartz-Stacke) method, which consists in throwing the meatus, tympanum, attic, and antrum into one large cavity, lined by epithelium obtained by means of flaps cut from the cartilaginous meatus, supplemented in some cases by large skin grafts.

* *Journal of Laryngology, Rhinology, and Otolaryngology*, October, 1903.

[previous page](#)

[next page](#)