

OBSTRUCTION OF THE EUSTACHIAN TUBE A FACTOR IN POST-OPERATIVE MASTOID FISTULA AND IN CHRONIC SUPPURATION OF THE MIDDLE EAR.*

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My attention was called to the question of tympanic drainage in the course of observation on patients having permanent perforations of membrana tympani. The intermittent discharge was of catarrhal character and dependent upon one of two causes. There was either irritation or infection from the auditory canal with increase of fluid to be drained off; or acute congestion of the Eustachian tube with consequent obstruction to tympanic drainage. With this conception of the important function of the tube in mind one cannot escape the conclusion that it should be carefully studied as a factor in all catarrhal and purulent conditions of the middle ear, and cells accessory thereto, in which drainage is diverted externally. In the condition above referred to, perforate drum membrane with tubal obstructions, all that was necessary was to relieve Eustachian congestion, cleanse the external canal by the dry method, protect the tympanum from irritation and normal drainage was re-established. In other words, it is the relation of the calibre and functional activity of the tube to the quantity of fluid to be drained away which determines the direction of flow. To illustrate this point a case will be briefly narrated:

A gentleman having a chronic purulent otitis of more than ten years duration sought relief from offensive discharge and constant puritus of the skin of the canal. The routine treatment was used for several weeks; antiseptic cleansing of the canal, removal of small granulations, tympanic irrigation through the large perforation, catheterization and medication of the obstructed Eustachian tube by bougies dipped in nitrate of silver ointment. This was followed by the insertion of an artificial drum membrane—a rubber disc on silver wire—and external discharge promptly ceased, having been diverted through the Eustachian tube. Hearing was decidedly improved. A year after the initial use of the rubber disc as an obturator, he reported that his ear was in satisfactory condition with no perceptible discharge even during an attack of coryza,

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This case is narrated not to enlarge the subject matter under discussion, but to illustrate the principle of treatment of aural discharges in general, as it is analogous to the mucous fistulae persisting after the operation for simple acute mastoiditis in so far as drainage is concerned.

To be sure, the majority of fistulae at the site of mastoid operation are due to incomplete operation; either a pyogenic cell having been overlooked, or antrum not thoroughly cleaned out, or diseased attic being the source of pus. Such as these usually require a second operation. But there are cases in which a perfect operation is followed by a persistent mucous or muco-purulent discharge from a small fistulous tract in the depth of the excavation, and to this condition attention is directed. *The first step is a careful examination of the Eustachian tube.* An acute purulent mastoid inflammation of a few weeks duration with constant flow of pus through the tube causes hypertrophy of normal lymphoid tissue in and around the tube. Simple inflation by the Politzer method or catheter does not definitely determine the functional capacity of the tube. The use of the bougie is indicated for diagnosis and treatment. The normal mucous secretion of tympanum and accessory cells left with intact membrane will seek outlet by the channel of least resistance. The problem is to re-establish the normal function of the tube, to encourage natural drainage.

In one case which I have in mind, in which a slight mucus flow from the mastoid wound persisted several months, a few applications of the bougie dipped in nitrate of silver ointment seemed to remove an obstruction and the fistula promptly healed. In this case there was probably granulation near the Eustachian orifice. Recovery would probably have taken place in time, but even a mucous fistula is more or less of an opprobrium in mastoid surgery and rational treatment is urgent. The habit of diverted drainage should not be allowed if possible to prevent, for it is not improbable that even Eustachian secretion, following the path of least resistance, may be permanently directed toward the fistulous tract, if tubal obstruction near the orifice prevent for any considerable time natural flow into the naso-pharynx.

The second division of my subject refers to tubal obstruction as an indication for radical surgical operation in chronic suppurative conditions. Whatever be the cause of the purulent discharge—more or less extensive areas of pyogenic membrane in poorly drained cells, or necrotic bone, ultimate success in treatment may

depend upon the condition of the natural drainage canal, the Eustachian tube. The proposition is simply stated. If the tube be permanently closed, impervious to forcible inflation and impenetrable by prolonged application of the bougie, then the only way by which the aural discharge can be stopped is by destruction of all secreting membrane, normal or pyogenic, and cicatrization or epidermization of the tympanum, attic and mastoid cells; in other words, one must resort to the radical operation.

I can state my position more clearly by an illustrative case. A lad of seventeen gave the history of having had a foul smelling ear discharge for twelve years. The symptoms for which he applied for relief were; constant discharge with odor, headache, occasional vertigo, lack of power of mental concentration interfering with his education, and impaired general health. Routine treatment, attic and tympanic irrigation, gave decided relief for a time. Persistent attempts to open the Eustachian tube failed. There was a recent obliteration of the osseous portion, as he told me that for about four months he had not been able to blow air through by the Valsalva method, a practice which had formerly given him relief. Treatment was stopped for a month to see if improvement was permanent, and at the end of that period he requested the radical operation as he had relapsed into the former condition. The Schwartze-Stacke operation was done and the result was perfect. All annoying symptoms disappeared and his general and mental condition are decidedly improved. In this case permanent occlusion of the tube was a factor in deciding against prolonged treatment and fortified the decision in favor of the radical operation. It was also a factor in the excellent result.

Conclusions: Obstruction of the Eustachian tube is a common sequence of acute purulent otitis media and purulent mastoiditis.

It is a factor in causing chronic otorrhoea, and post-operative mastoid fistulae.

Permanent occlusion gives one indication for the radical operation in chronic purulent otitis.