

THE SUB-MUCOUS CAUTERY—ITS USE IN THE TREATMENT OF HYPERTROPHY OF THE INFERIOR TURBINATES.

BY S. J. KOPETZKY, M.D., NEW YORK, N. Y.

The various methods suggested from time to time for the treatment of the redundant tissue in hypertrophy of the inferior turbinate body needs no repetition at my hands. Of all the advocated methods, the employment of the electric cautery has been received with by far the greatest favor. Laterly, however, its use has been more or less restricted, and Rhinologists have not been entirely satisfied with the results obtained from its use.

The ordinary cautery, as usually used, aims to introduce a ledge of connective tissue (scar tissue) from the outer surface of the hypertrophied mucous membrane, to the bone, this ledge acting mechanically to hold the redundancy of the mucous membrane in check, and to keep sufficient space free to permit the physiological play of the air-streams through the nose.

This method, while giving free passage to the air-streams, interferes with the physiological function of the turbinate in so far as it acts as an effectual check to mechanically hinder the normal swelling and contraction of the turbinate body, constituting as this does the physiological function of regulating the volume of air passing through the nose. Furthermore, not only this method of treatment, but also the application of various acids all tend to destroy the epithelial layer of the mucous membrane of the turbinate, wholly or partially.

It is this epithelial layer and the histological structures lying immediately under it, that play an important part in the functional activity of the turbinate. The attention of the profession has been called to these structures,—the intra-epithelial glands (Hajek), the elastic fibres of the tunica propria (Kopetzky), the nerves, etc. (Rugini)—so recently, that the time is ripe to devise a method of treating hypertrophied turbinates without destroying these functioning structures.

The destruction of the epithelial layer and the underlying tunica propria, and its replacement by connective tissue in the form of scar tissue, destroys a functioning membrane and replaces it with a non-functionating tissue. The results of this replacement are crustation, dryness, and partial loss of function in the cavern-

ous bodies, and they bring about a train of symptoms which has caused many Rhinologists to replace the cautery by massage of the turbinate and other therapeutic measures in treating hypertrophied turbinates.

The problem is not only to lessen the turbinate body as a whole and remove nasal obstruction, but to procure free physiological play for the air-streams, and at the same time retain all the functionally active parts of the turbinate bodies.

With this object in view, I have devised a sub-mucous cautery which seems to me to answer all the requirements of the problem. It lessens the totality of the mass of the redundant tissue, but does not destroy the epithelium, and the resulting band of connective tissue is placed so deep in the turbinate body that no interference with the functioning power of the turbinate is brought about.

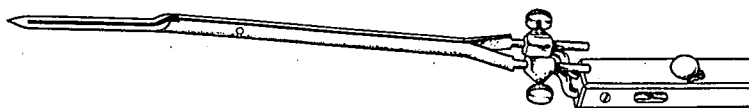


Fig. 1. Sub-Mucous Cautery.

THE INSTRUMENT.

The blade of the instrument (Fig. 1) is made of an alloy consisting of about 30% platinum irridium, a mixture of metals which easily and quickly becomes white-hot when the electric current is passed through them, yet having sufficient stability to retain its shape and permit its introduction into the tissues while cold. The cautery-end is one and one quarter inches long, one quarter inch broad, and as thin as it is possible to make it without sacrificing rigidity. The handle is made of metal and fits into any standard cautery handle.

TECHNIQUE.

The field of operation is cleaned of all secretions, and a 4% solution of cocain, or a 10% solution of B. eucain is applied over the hypertrophied tissue, followed by an application of an 1/1000 adrenalin solution. It is not necessary to cause a complete depletion of the blood vessels, nor is it required to completely anaesthetize the mucous membrane. If the mucous membrane is tightly contracted down to the bone, the introduction of the cautery knife into the

tissues presents difficulties. The tip of the instrument being sharp, its introduction into the tissues causes very little sensation, if any at all.

The nostril prepared, the instrument is then introduced (cold) into the redundant tissue, along the septal side of the turbinate bone, backward, under the mucosa, as close to, and following the septal side of the bone as it is possible to go.

Fig. 2. illustrates the sub-mucous cautery in position.

In those cases where the redundancy of the hypertrophied tissue is irregular, or where the condition exists, which in a recent study

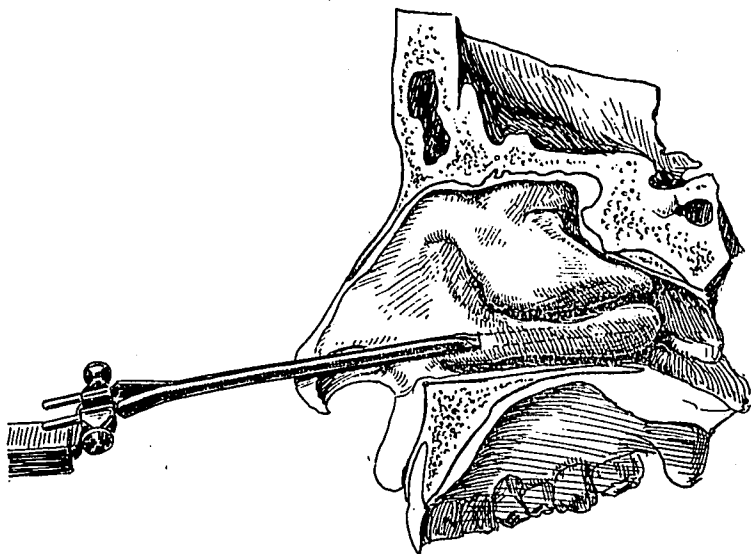


Fig. 2. Sub-Mucous Cautery in Position. (Outline showing same under Mucous Membrane.)

of pathological conditions of the mucous membrane of the turbinate, I designate as "*etat mamelonne*," the submucous cautery should only be introduced into the circumscribed hypertrophied portion; the septum and the remainder of the turbinate being protected from the action of the protruding blade-end by thin pieces of card board or Bernay sponge.

The instrument in position, the electric current is allowed to pass for a few seconds only, and the instrument is at once entirely withdrawn from the nose before it cools. A slight bleeding may occur from the point of entrance. Looking into the nostril immediately

after the cauterization, one should observe a whitening streak, slightly broader than the blade of the instrument, shining through the overlying stratae of the mucosa. This disappears in the course of a few hours. A light dressing of cotton wet with a 1% solution of Protargol is then applied to the entire turbinate. The reaction following this procedure is very slight. The results obtained have answered all the indications calling for the use of the cautery.

To date, I have employed this method in one case of localized hypertrophy of the inferior turbinate and in ten cases of diffuse hypertrophy of the inferior turbinate. Among the latter, one case gave post-operative evidence of hemorrhage which was, however, easily held in check by adrenalin. In none of the cases was the reactionary coryza as marked as when the ordinary cautery is employed and in no case was there any evidence of scarring or scabbing except at the small point of introduction of the instrument. This method of cauterization absolutely does away with any chance wounding of the septal mucous membrane and consequent synechia formations.

The advantages of the sub-mucous cautery may be summarized as follows:

1. A lesser amount of cocain required for anaesthetic.
2. The time required in the performance of the procedure is very short.
3. The after effects and reaction are practically absent.
4. Danger of synechia formation is absent.
5. There is no resultant scabbing or crustation.
6. No destruction of superficial epithelium or functioning structures in the tunica propria is brought about.
7. The method effects relief to nasal obstruction from hypertrophy without interfering with the contractile action of the turbinate, in that it introduces a re-enforcement of the connective tissue strata with scar tissue, without extending this connective tissue to the surface of the turbinate body.
8. Results have proven uniformly good, and from present indications (three months after the first use of the instrument) the results obtained seem to be permanent.

In conclusion I wish to express my indebtedness to Dr. Thomas J. Harris for the generous kindness which placed some of the material at the New York Post-Graduate Hospital at my disposal, and I wish here to thank him for his kind courtesy.

The Sydenham, 616 Madison Ave.