FRENCH (T.R.)

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RESULTS OF CUTTING OPERATIONS ON THE NASAL SÆPTUM

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OBSERVATIONS ON SOME OF THE RESULTS OF CUTTING OPERATIONS ON THE NASAL SÆPTUM.*

The few remarks which I have to make, which are presented with the hope of eliciting fruitful discussion more than for the purpose of contributing any special innovations, deal with facts which, for the most part at least, are recognized by the members of this association, but which, so far as I am aware, have not been presented for discussion. These remarks will be directed to a brief consideration of two conditions which may present as the result of cutting operations for the removal of spurs and thickened deflected sæpta—viz., perforations and membranous adhesions.

Perforations.—To rectify deviations of the cartilaginous sæptum without thickening, the advice usually given is to destroy the resiliency of the cartilage by cutting through it in various ways, fracturing the fragments, forcing them up to the median line, and holding them in position until healing has occurred. Although by the admirable operative methods suggested by Asch, Roberts, and Steele the best results are often obtained, it is nevertheless a fact that

* Read before the American Laryngological Association at its sixteenth annual congress.

in some cases it is impossible to obtain sufficient relief by such means. By those methods the sæptum can not always be brought to a perfectly perpendicular plane, and unless it is, the greater air pressure on the concave side, together with the natural resiliency of the cartilage, not infrequently forces the sæptum further toward the narrow naris. This is particularly apt to be the case during the period of the greatest constructive activity, a period in which operations on the sæptum are most commonly demanded.

If, as is maintained by some writers, ulceration or erosion of the edges never occurs when a perforation is made through the sæptum with a cutting instrument if the wound is protected from irritation, or, when ulceration exists, it can always be made to heal, and there is no danger of ultimate loss of the sæptum or even external deformity resulting from a perforation, there can be no objection to deliberately cutting away all of the obstructing cartilage, and so opening up both nasal passages and obtaining an abundant supply of air through the nose. But is it a fact that ulceration never occurs when a perforation is made with a cutting instrument if the wound is protected from irritation, or that ulceration, when present, can readily be made to heal, or that external deformity never results from perforation of the cartilaginous sæptum? The danger of perforating is spoken of in almost all writings on operations on the sæptum, and it is the natural inference that it is the belief of the authors that ulceration or erosion is apt to follow perforation. Zuckerkandl * says that in the cases of healed perforation of the sæptum dissected by him the mucous membrane on the border of the hole was found to be very thin, and I presume that is generally if not

* *Anatomie der Nasenhöhle*, vol. i, second edition, Vienna and Leipsic, 1893.

always so; but this thin covering will, I believe, always be developed if the wound made in perforating the sæptum with a cutting instrument is carefully dressed and protected from irritation; but the patient not infrequently dislodges with his finger a few of the crusts formed in the process of repair, and ulceration is eventually produced, which in the course of time slowly progresses, filling the nasal passages with obstructing secretions and causing extensive destruction of the sæptum. Because of this danger I have thus far never perforated the sæptum unless reasonably certain that the edges could be adjusted so that an opening would not be left. I may have overestimated the danger of leaving a hole in the sæptum, but in the light of the evidence presented by a considerable number of cases falling under my observation of the destruction resulting from perforation, I have been constrained to avoid making one if a successful result can be obtained in any other way. I have seen a number of cases in which perforation has been deliberately made with the most satisfactory results, and many others in which the results were far from satisfactory; but in none of the latter had careful after-treatment been carried out. If it can be demonstrated that with proper surgical precautions and after-treatment the edges of a perforation can always be made to heal, I feel sure that we would all resort to this method of operating in certain cases as being altogether the surest way of obtaining permanent relief.

Perforation of the cartilaginous sæptum, as a result of a non-specific ulceration or erosion, is described in most modern text-books on diseases of the nose, and has been made the subject of a number of special articles; but this condition has been so little considered in its relation to sæptal operations that I desire to present for discussion a question which has frequently arisen in my mind—viz., If

a successful result can not be obtained in any other way, are there not conditions under which perforation of the cartilaginous sæptum can be made a perfectly justifiable procedure?

Delavan,* in referring to Blandin's operation by means of the punch, says that "this procedure is eminently clumsy and unsurgical, and in reality is unjustifiable as being liable to do more harm than good."

Roe † condemns the use of the punch for the removal of the angular portions of a deflected sæptum. He asserts that "by its use we simply cut away a deformity which we should correct, and leave a hole through the sæptum in which crusts and secretions constantly accumulate, thus becoming a lasting source of irritation."

Lennox Browne,‡ in commenting upon Bosworth's statement that he had only once perforated a sæptum, remarks: "Looking moreover to the comparative frequency of sæptal perforations, unassociated with any dyscrasiæ, caries, or necrosis, and their non-liability in such circumstances to cause deformity—a point correctly insisted upon by Bosworth himself—one hardly sees why a perforation should be so much dreaded." Elsewhere in the same work he writes: "The entire closing of a perforation by healing process is unknown in my experience, and it is doubtful if such a happy result ever occurs; but spontaneous or induced arrest of the ulceration is the rule."

Bosworth,# in writing on perforations due to erosion, expresses his belief that their clinical significance is trivial, that they do not weaken the support of the nose to the extent of causing external deformity.

* *Reference Handbook of the Medical Sciences*, vol. v, p. 272.

† *New York Medical Journal*, April 7, 1894.

‡ *Diseases of the Throat and Nose*, London, 1893.

Diseases of the Nose and Throat, New York, 1889.

Greville Macdonald,* in writing on deflections of the sæptum, says: "Almost always, however, there is a certain amount of thickening in the cartilaginous sæptum, the paring down of which will generally prove sufficient for the removal of symptoms. Should there not be sufficient material for this, no objection can be raised to cutting off enough of the projecting angle with the saw, although we thereby make an opening into the other side. From such a procedure there is no risk of subsequent deformity to the nose."

McBride† is of the opinion that falling in of the nose does not occur. He mentions the case of a medical student in whom the cartilage was deficient from just within the nostrils almost if not quite to the dorsum of the nose. The tip of the nose was a little lowered, but no deformity could be said to exist.

Morell Mackenzie,‡ in writing on traumatic rhinitis, says that "the lower and anterior part of the cartilage always remains intact; the bridge of the nose never falls in, . . . although, when perforation has once taken place, it is difficult to prevent the formation of a tolerably large hole in the sæptum; the morbid action is strictly confined to a small area, beyond which its ravages never extend. The use of simple sprays will soon restore the surrounding mucous membrane to a fairly healthy condition."

Lefferts,# after giving suggestions as to the course to be pursued in the treatment of erosion or perforation of the sæptum due to mechanical irritation, says: "Care, patience, and persistence are the only elements now necessary for the attainment of success."

* *Diseases of the Nose*, London, 1892.

† *Diseases of the Throat, Nose, and Ear.* Edinburgh and London, 1892.

‡ *Diseases of the Throat and Nose.* London, 1884.

Medical News, vol. xl, 1882.

Robinson,* in writing on hæmorrhage due to erosion or ulceration of the sæptum, asserts that a plan of very simple treatment, when persisted in, will bring about a complete cure in one or two months.

E. J. Moure,† in discussing the value of electrolysis for the destruction of deviations and spurs of the nasal sæptum at the Eleventh International Medical Congress held in Rome last month, said that, in cases of marked deviation without thickening, he preferred a quickly made perforation, permitting the access of air into both nasal fossæ; and Ruault, at the same meeting, in referring to the possibility of perforation occurring as the result of the use of electrolysis, expressed the opinion that it was "absolutely immaterial; indeed, it is often necessary to seek it in place of endeavoring to avoid it, as this is the only rational intervention in cases of total lateral deviation."

It will be seen from the foregoing quotations from the writings of careful observers that there is no diversity of opinion regarding the danger of external deformity occurring as the result of perforation of the sæptum, that they are generally agreed that perforations due to erosion do not extend beyond the cartilage, and that, even after the destructive process has continued for a long period of time, it can be arrested, and the edges made to heal under appropriate treatment. The question is simply as to whether a perforation ever constitutes a morbid lesion unless subjected to mechanical irritation. I do not recall having seen a case of non specific perforation with unhealed edges in which the parts were not being subjected to irritation of some kind.

I am not aware that the presence of a perforation with

* *American Laryngological Transactions*, 1887.

† *Journal of Laryngology, Rhinology, and Otology*, vol. viii, New Series, No. 5, 1894.

healed edges is in any way harmful, even though it has considerable dimensions. A certain amount of catarrhal disease of the mucosa is usually present in these cases, but there is no evidence to prove that the perforations bear any causative relation to it unless the edges have for a long time been the seat of ulceration. If, therefore, a perforation does not in any way interfere with the proper physiological function of the nose, its presence can be a matter of but little consequence so long as its edges are healed.

After the study of perforations in a large number of cases, I am inclined to the belief that, with proper care in the after-treatment, perforations can be deliberately made without injury and with great relief in a certain class of cases; that, if the breath-way through the obstructed side can not be obtained without leaving a hole in the cartilaginous sæptum, such a procedure is justifiable if the patient can be impressed with the necessity of leaving the parts alone, and it is reasonably certain that the case can be carefully followed until the healing of the edges has occurred. Otherwise, I believe it to be an unjustifiable method of operating. I except from this statement the perforations made near the entrance of the nostrils, particularly in a sæptum bent obliquely across one or both openings by the Blandin punch. This method of securing an increased supply of air is, it seems to me, a highly objectionable one for several reasons: (1) because of the irritation to the edges which is certain to be produced by the stream of air drawn through the opening; (2) because of the easy access of the finger to dislodge accumulated crusts; (3) even when the edges are healed, it is apt to give rise to a whistling sound, which is annoying to the patient as well as to others; and (4), while perhaps supplying a sufficient amount of air for respiration, it does not restore the normal function of the obstructed naris. I believe it is safe to say that, if a per-

foration is made in the sæptum of a subject free from dyscrasia, and the edges are not irritated, but rather subjected to careful antiseptic treatment, they will heal. Under such circumstances I believe that the procedure is safe, is justifiable, but under any other conditions it is to be condemned. The removal of the ban which has been placed on this method of operating to the extent which has just been indicated would, I feel sure, result in relief to a considerable number of cases which no other means now employed will effectually reach.

Large perforations increase the liability of fracture of the nose; but, if the edges are healed, that certainly is a preferable condition to the possession of a stout sæptum, if such can only be maintained at the expense of an obstructed naris. My contention, therefore, is this: that, in any case without dyscrasia in which it is known that the after-treatment can be thoroughly carried out, and the intelligence of the patient is sufficient to guarantee that the wound will not be subjected to mechanical irritation, there can be no objection to the removal of a portion of the cartilaginous sæptum for the relief of stenosis due to angular deflection without thickening, or to the sæptum being much too large for the bony framework of the nose.

I am well aware of the dangers associated with this teaching; that, if perforation of the sæptum is sanctioned, it will be greatly abused; but this does not alter the fact that if the osseous portion of the sæptum is not encroached upon and the after treatment is all that it should be, greater relief can often be obtained from this procedure than can be afforded by any other method of operating.

Membranous Adhesions.—I do not doubt that you will agree with me when I say that one of the most disappointing and annoying things in association with nasal surgery is the occurrence of adhesions within the nasal passages.

That they are in the majority of cases the result of operations performed by unskillful hands is undoubtedly true, but that they occur not infrequently after operations performed by surgeons of large experience and possessing skill and judgment is equally true.

In addition to the ordinary surgical knowledge one needs to possess something of the art of the sculptor as well as the skill of the mechanic in order to cope successfully with the class of cases to which I refer. What may appear to be a perfectly satisfactory result immediately after an obstructing mass of cartilage has been removed may in a few weeks prove to be extremely disappointing and unsatisfactory because of the formation of extensive adhesions binding the walls of the passage together. Such cases reflect discredit upon the operator, and certainly in most cases the reflection is just and proper, for a want of care in operating is no doubt the commonest cause of adhesions; but there are cases in which the exercise of the utmost skill and care would seem to be insufficient to prevent their occurrence.

It is, I think, generally agreed that adhesions do not occur after operating on the turbinated bodies unless that part of the sæptum lying directly opposite has been injured; and that they do not occur after cutting operations on the sæptum unless the turbinated tissue opposite the wound has been broken during the operation, or has recently been subjected to some operative procedure, the wound from which has not completely healed; in other words, that adhesions can not occur after operating on either wall of the naris if the mucous membrane on the opposite side is intact. The sides of a nasal passage may be brought into contact after removal of redundant cartilage by the collapse of the outer wall, or by turgescence of the turbinated structure opposite as the result of irritation

from the wound on the sæptum, thus causing contact for a varying length of time. It is during this period in such cases that adhesions occur if there is a solution of continuity on both walls at points lying directly opposite each other; but if the mucous membrane on one wall is unbroken and smooth, adhesions will not take place no matter how much swelling there may be or how long the parts remain in contact during the process of repair.

Occasionally the results of operations on the sæptum performed by careful surgeons look like bungling attempts to secure relief, for, after the parts are healed, a portion of the opposite wall is found to have become adherent to the wound, and the condition of the patient is worse than that for which the operation was originally performed, and yet the operator may feel certain that the opposite wall had not been injured by his instruments or been the seat of recent treatment of any kind. I believe that many such cases can be explained by a fact which seems to have been overlooked, and has apparently been proved by my experience in a number of cases—viz., that cut surfaces on the sæptum will become adherent to scar tissue on the turbinates made by the galvano-cautery at some previous time. My meaning may perhaps be made clearer by referring to the cases of three patients quite recently under my care for relief of nasal stenosis and in whom adhesions followed operation on the sæptum.

I was asked to operate in the late spring for the removal of an overgrowth of cartilage in a very narrow nasal passage of a young lady whose inferior turbinates had been considerably reduced in size by the aid of the galvano-cautery point several months before. I removed the redundant cartilage with the saw and immediately afterward the patient left town for the summer. When she reported again in the autumn I found a long and narrow bridge

across the naris corresponding in length and width to the wound which I had made in removing the cartilage. As during the sawing operation the greatest care was taken to prevent injury to the opposite wall, I could find no other explanation for the adhesions than that they had occurred between the cut surface of the sæptum and the surface of the inferior turbinated body made rough and uneven by the previous application of the galvano cautery.

In another case in which an operation of a similar character was performed in the late spring, and in which equal care was taken to avoid injury to the opposite wall, adhesions occurred during the summer, and I am convinced that they were not due to injury of the turbinated tissue during the operation. I had advised the removal of a large spur on the sæptum of this patient a year before, but as she objected to a cutting operation at that time I contented myself by destroying with the galvano-cautery a considerable amount of hypertrophied turbinated tissue lying opposite the portion of the cartilage which was removed a year later. I am unable to find any other explanation for the adhesions in this case than that the scar tissue resulting from the galvano-cautery incisions formed a good surface for the granulations of the sæptal wound to become attached to.

In still another case, operated upon for the removal of an ecchondroma, just before the summer vacation, quite extensive adhesions were found to be present in the autumn. In this case applications of the galvano cautery had been made to the turbinated tissue in the same naris by another physician some months before she came under my care.

What the characteristics of cicatrices produced by the galvano-cautery on turbinated tissue are, that render them liable to become engaged in the process of repair of a wound in contact with them, I am unable to say. The

microscope will, no doubt, assist in making this plain, and I regret that I have not had an opportunity to make such an investigation. It is more than likely that their liability to become attached to cut surfaces depends largely upon the character and extent of the burned surface of the turbinates—that is, whether the scar is the result of a wound made by incisions with the edge or point of a loop, or by a flat burner.

If my deductions, in regard to the liability of adhesions occurring between cut surfaces on the sæptum and cicatrices on the turbinate tissue resulting from the use of the galvano cautery knife, are correct, then in patients who present themselves for treatment, whose nares have never been subjected to operative procedures, and in whom there is need of the destruction of turbinated tissue and removal of obstructing cartilage or bone, the sæptum should be operated upon first, when, after a month or more has elapsed and it is certain that the mucous membrane is completely reformed, the turbinates can be safely destroyed by any method. If, however, as is not infrequently the case, patients object to a cutting operation on the sæptum, but are willing to submit to the destruction or removal of the turbinated hypertrophy, preference should be given to the use of the snare or acids, in order to avoid the possibility of leaving a surface which might become adherent to a wound opposite in the event of a cutting operation on the sæptum being performed later. In all cases requiring cutting operations on the sæptum, inquiry should be made to determine whether the galvano-cautery has been used on the turbinated body opposite. If it has been, it is advisable to keep the wound under observation for at least two or three weeks in order to prevent adhesions, should a tendency to their formation be shown.

Without doubt adhesions are frequently occasioned by

saws with unprotected ends, and the unskillful use of trephines and cutting forceps in narrow passages. A distinct advance will be made when all instruments used for sæptal operations are constructed with a view to preventing the possibility of wounding the outer wall of the naris. I believe that severe hæmorrhages following cutting operations on the sæptum are not uncommonly due to injury of turbinated tissue, and a pointed saw seems to be peculiarly adapted to insure injury in a narrow passage.

An error which experience has taught me is that of cutting outward with the saw at the floor of a narrow naris in finishing a section from above downward. Injury of the inferior turbinated body is apt to be produced in this way and result in adhesion of the sides at, or just above, the floor, which not only cuts off a part of the breath-way but interferes with proper nasal drainage.

In my opinion the upward cut ought always to be made first in dealing with large spurs or deflections, for, if the section is begun above, the lower portion of the part to be removed is almost instantly obscured from view by the blood clots which form on the floor of the naris. This remark is especially applicable to sawing operations performed while the patient is under the influence of ether. If a sæptal projection is removed by cutting entirely in one direction, a ridge is not uncommonly left at the edge of the wound which necessitates further operative interference to eradicate. It is a good rule, in operating with the saw, to begin the section by cutting upward, and finish it by cutting downward; but whether it is begun from above or below, the section should be finished by a cut from the opposite direction, for in this way the maximum amount of tissue can be removed from the sæptum with the least danger of injury being done to the outer wall.