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ORIGINAL COMMUNICATIONS.

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THE REMOVAL OF OBSTRUCTIONS AND CICATRICIAL CONTRACTIONS OF THE NOSE BY THE PLASTIC METHOD.*

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Obstructions, congenital narrowing, cicatricial contractions and occlusion of the nasal passages are so frequently met with in our daily work that it may seem superfluous to attempt a discussion of such commonplace occurrences. But as these seemingly simple maladies often tax to the utmost our patience, our skill and even our ingenuity in dealing with them, perhaps some suggestions regarding their treatment may not be without interest.

The anterior nasal openings are most frequently narrowed or obstructed by cicatricial contractions that have resulted from injuries or burns, or from ulcerative processes such as syphilis, lupus and smallpox. In some cases the atresia may be congenital.

In the anterior portion of the nose cicatricial obstructions in the form of synechiæ, the result of inflammatory or ulcerative processes, are most frequently met with. These synechiæ may occur in any portion of the nasal passages, from the vault to the floor, from the vestibule to the posterior portion of the septum and turbinated bodies, uniting any of the different structures normally separate.

They may consist in the adherence of the upper surfaces, occluding the vault entirely, or the lower portion, contracting the floor, or even the entire passage, or they may be limited to bands of cicatricial tissue,

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extending across at some intermediate place, the most frequent site being between the middle turbinated body and the septum.

In the treatment of these conditions, when the atresia is located at the anterior nasal orifice, dilatation by means of conical plugs, expanding bougies, or instruments, is commonly advised and employed. In the case of synechiæ in the interior of the nose, the methods employed are division or removal of the adhesion or contraction by the knife, scissors or punch-forceps, and the interposition of a metallic, hard rubber or celluloid plate, or similar substances, or gauze or cotton, or the simple passing of a probe or sound frequently between the parts to keep them separated until the opposing surfaces are healed.

In the majority of cases the result is unsatisfactory, on account of the length of time the appliance is required to be worn to prevent a recurrence, and on account of the readiness with which the bands re-form or re-adhesion takes place, or contractions go back to their old conditions after these attentions are discontinued.

In all operations within the nasal passages the important precaution must be taken to avoid wounding opposite surfaces since in some cases synechiæ have followed or have been caused by operative procedures in the nose. This accidental complication can be avoided by operating on one side of the passage only at one time, so as to maintain the mucous membrane of the opposite wall intact until the site of the operation is thoroughly healed before operating upon the opposite wall, should the latter be necessary. This is very essential in all cases in which the surfaces are not so widely separated but that the formation of a band is possible after the operation.

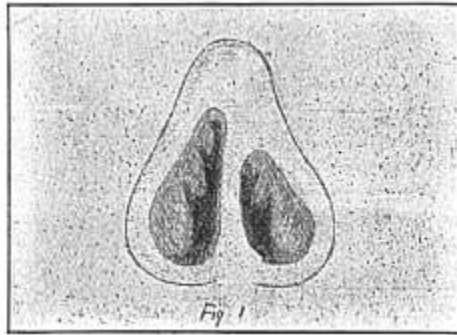
In order to secure this condition after operations for the removal of synechiæ or other contractions of the passages in which opposing raw surfaces are unavoidable, it occurred to me that the denuded surface on one side might be covered with skin or mucous membrane or healed tissue taken from the surface of the contraction or band or wall of the passage, so that reunion of the surfaces would be impossible.

This plastic method of dealing with these conditions in the interior of the nose was suggested by my subcutaneous plastic work, that has so much interested me in connection with the correction of nasal deformities. This method I have now employed for a considerable time, and the excellent results obtained have induced me to present it for your consideration.

Before I employed this method the plan that gave me the best results in the treatment of synechiæ was to touch one side with the galvano-cautery after the band had been cut away, for the reason

that cut and cauterized surfaces do not readily grow together. In the case of slender bands this method is simple and effective, but where the cut surfaces are extensive and the passage narrow the method of covering one side with mucous membrane is far superior. In each case, however, the method must be modified to meet the requirements of the conditions present.

In the treatment of contracted conditions of any portion of the nasal passages, whether located in the vestibule or elsewhere, if we attempt to enlarge the passage by simply cutting out the inside of the contraction, we not only fail to obtain the desired result but the effect is to increase the difficulty by reason of diminishing the amount of skin or mucous membrane on the interior of the ring, so that when healing takes place the opening becomes smaller than before the operation. In dealing with such contractions, therefore, we must not



only increase the extent of skin surface or mucous membrane, but we must interpose on one side of the passage at least an unbroken surface of skin or mucous membrane, to prevent the union of the cut surfaces. This is particularly true if the contraction is located at one of the angles of the passages; for if there is no sound skin, or mucous membrane at the junction of the cut surfaces to prevent their reunion (as is necessarily the case of webbed fingers to prevent their reunion when brought together again, nothing can prevent the surfaces from gradually growing for an indefinite period of time they may be.

In order to explain more clearly the plastic method employed for the correction of these different contractions, I have attempted to show the different steps in the operation by these diagrammatic illustrations.

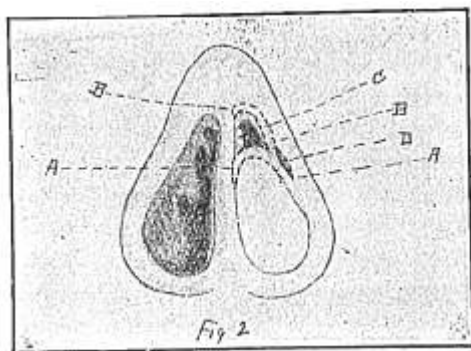
In atresia of the anterior nasal passage, Figure 1 represents a contracted condition of the upper portion of the opening and the vestibule.

Figure 2 shows the line of the incisions for correcting this condition.

The incision "AA" represents the method for making the flap of skin to be turned up into the apex of the opening after the redundant tissue has been removed.

The line "BB" shows the incision for the removal of this tissue, and also represents the flap after it has been turned up into the apex of the opening and stitched there by very fine horse-hair sutures.

"C" represents the flap made from a portion of the redundant skin removed and turned back to cover the denuded border at that point. This flap is also stitched in place by fine horse-hair sutures.



In this operation the only portion of the opening uncovered by skin or mucous membrane is the portion of the septum at "A," where the end of the flap has been removed. This is, however, of such limited extent that the skin and mucous membrane readily spread over it, requiring no further attention.

Figure 3 represents a condition of atresia, occupying the lower portion of the vestibule, which is dealt with in a manner similar to that occupying the upper portion of the vestibule, just described.

The line "AA," Fig. 4, shows the incision for raising the flap, to fill in the lower border when the redundant tissue has been removed.

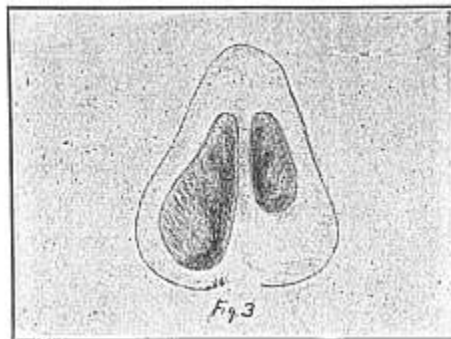
"BB" represents the flap in place, and "C" the portion of skin turned inward into a place prepared for it, so as to cover the denuded wall at that point.

These flaps are also stitched into place with fine horse-hair sutures.

It is needless to say that the whole operative procedure should be done with strictly aseptic precautions. Sometimes the coaptation and union of the flaps is facilitated by gentle pressure from the packing of the nostril for a few days, and the aseptic condition of the nostril is also thereby more easily maintained.

The packing employed should be cotton previously soaked in a 1/3000 bichloride solution and squeezed nearly dry before inserting. This is far preferable to gauze which owing to its porosity soon becomes saturated with secretions or discharges that quickly decompose and become septic.

The operation for the removal of synechiæ is performed in a similar manner by utilizing the mucous membrane of the band for covering the denuded surface on one side of the nostril where the band has been cut away.



When the synechia is limited in extent or thickness a flap from one side, preferably the upper side, is sufficient to cover the surface where one of the ends of the band has been cut away. The flap is raised by a small knife similar to a tenotomy knife with its point curved in the flat, and double edged, thus enabling the operator to go part way round the band with the knife and thereby secure a broader flap. When this is done the remaining portion of the band had best be removed before either end of the flap is cut loose.

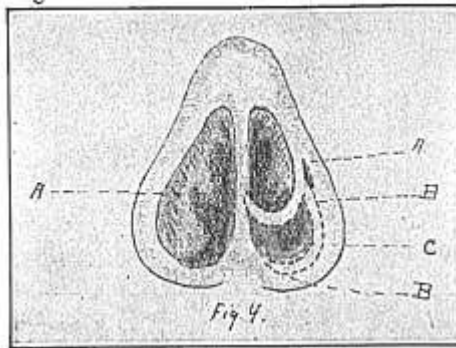
Figure 5 represents synechiæ between the middle turbinated bodies and the septum and the method of making the flaps for covering the denuded surfaces on one side of the passages after the bands have been cut away.

On the right hand side of the drawing, is shown a condition in which but one flap only (preferably from the upper side of the band) is required for covering the denuded space on the septum.

"AB" shows the line of incision for making the flap. "AC" shows the flap applied against the septum where the band has been cut away at "DD."

On the left hand side is represented a more extensive synechia, in which the flap from both the upper side "EF" and the lower side "GH" is required to cover the denuded surface on the septum. "EG" shows the two flaps placed against the septum and stitched together at "I" with fine horse-hair sutures after the synechia has been cut away at "JJ."

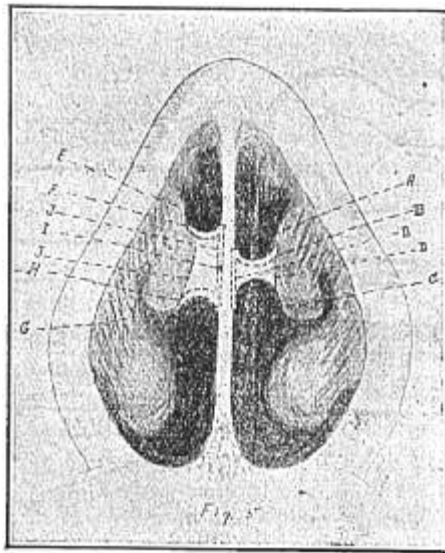
The side to which the flap should be left attached depends upon the condition and position of the parts. If the septum is not bent in this direction and sufficient underlying tissue can be removed to make a place for the flap, it is far preferable to place it on the septum; if not so placed, it should be placed against the turbinated body or the outer wall of the nose, as the case may be.



By the turning of the flap downward instead of upward it is much more readily held in place, and its union can be very much facilitated by lightly packing the nostril or by inserting a Simpson's Bernays intra-nasal plug. In using such a plug, one of a size, to exert only gentle pressure when expanded should be very carefully selected.

In those cases in which the band is very wide and covers a large extent of surface, a flap taken from one side of the band is insufficient unless the incision is carried high upon the opposite wall. In this case flaps should be taken from both the upper and lower sides of the synechia, which, after the synechia has been removed, can be cut loose at one end, turned in and stitched in place with fine horse-hair sutures. Simpson's Bernays intra-nasal plug is then introduced as in the other cases. These stitches can readily be inserted with

the small curved needles which I have devised for this and similar work held by a handle into which different size needles can be inserted. They are firmly held in the handle by a clamp extending through it which is very easily and quickly tightened by a screw at the posterior end. These needles which I show you here, Figure 6, I have found very serviceable for intra-nasal plastic work. They have a double spiral curve so as to permit the insertion of the stitch at right angle to the shaft of the needle and in a very small space. They are made for me in a very admirable manner by George Tie-mann & Co., 101 Park Row, New York.



In the treatment of synechiæ occupying the vault of the passage the plan of operation for the covering of one side with mucous membrane is similar to that for restoring the skin to one side of the vault of the vestibule in the first case described. This operation, however, is made more difficult owing to the normal narrowing of this portion of the passage. The flaps in this region are usually best held in place with packing carefully applied or with a small, properly fitted Simpson's Bernays plug or tampon. In the lower portion of the passage, owing to the wider and more ample space, stitching the flaps is readily done, although careful packing of the passage ordinarily is quite sufficient to hold the flaps in place until united.

This plastic method can be employed for preserving the mucous membrane, in operations for the removal of hypertrophied turbinated bodies, bony or cartilaginous spurs from the septum, excrescences, etc. By first raising a flap of the mucous membrane sufficiently thick to be certain of retaining its vitality, or by sawing or cutting from below upwards just through the bone or cartilage and peeling it out, the flap thus formed from the upper side is allowed to fall into place covering the wound. By this method no open wound is left and the parts heal very speedily if maintained aseptic.

In this connection I will mention a simple but effective operation for collapsed alæ, so frequently the cause of obstruction of the anterior nasal openings.

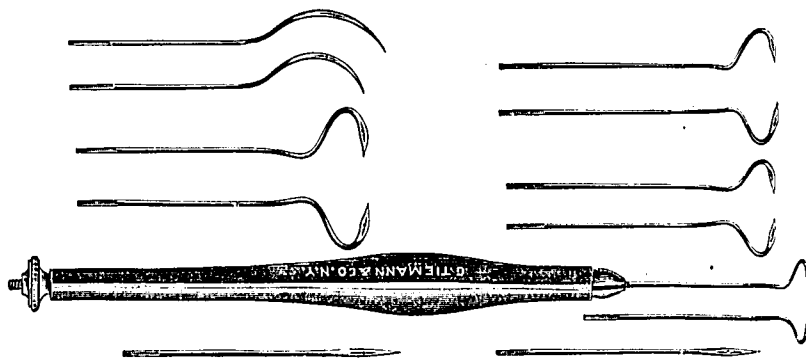


Fig. 6. Needles.

Collapsed alæ may be caused by a variety of conditions. The most frequent are paralysis of the dilating muscles of the alæ and a deformed and collapsed condition of the lateral shield cartilage. Sometimes a bent or dislocated triangular cartilage will so obstruct the entrance of the nostril that the current of air on inspiration will suck the alæ in against the septum.

A normally expanding condition of the alæ can be made by simply incising the shield cartilage from the inside through the skin at the point of the greatest depression, and removing a small wedge-shaped portion of the cartilage with the base of the wedge toward the interior of the nose. Then by stitching these edges together with one or two horse hair sutures, as the case may require, the ala is given the outward bulge characteristic of a normal nose.

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