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AN IMPROVED METHOD OF TREATING DEPRESSED FRACTURES OF THE NASAL BONES.

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ERRATA.

Page 3, line 13 from above, for giveing, read *giving.*
" " " 15 " " " a degree, read *an injurious degree.*
" " " 31 " " " restoration, read *respiration.*
" " " 7 " below, " bone and maxilla, read *bones and maxillæ.*
" 4, " 11 " " " during, read *subsequent to.*

AN IMPROVED METHOD

OF

TREATING DEPRESSED FRACTURES OF THE NASAL BONES.

The following paper by Dr. LOUIS D. MASON, was read before the Anatomical and Surgical Society of Brooklyn, December 15th, and published in the *Annals* of the Society for March, 1880 :—

In the osseous structure or framework of the nose the principle of the arch is involved, the sides being formed by the nasal processes of the superior maxilla, the crown or centre by the nasal bones. This is well seen in some of the mammals notably the monkey.

Experiments upon the cadaver have shown that any force sufficient to depress or break down the crown of the nasal arch necessarily involves fracture to a greater or less extent of the nasal processes of the superior maxilla, an exception being in young children, in whom a depression may occur without fracture, by a spreading apart of the nasal processes, and thus a depression of the crown of the arch be produced. We also except those cases alluded to by Hamilton, in which the nasal bones are broken at their external lateral margins, and are crowded back or driven in between the nasal processes, constituting "a displacement or dislocation rather than a fracture." The result of experiments upon the cadaver have led me to conclude :

I. That in all fractures of nasal bones, with depression of bridge, the nasal processes of the superior maxillæ are necessarily involved.

II. That both nasal processes are usually fractured, and the line of fracture is nearly on the same plane on either side.

The indications for treatment are to reduce the fracture or restore the norma' contour of the nose, and to retain the fragments in position until union shall have taken place. The majority of surgical authorities agree that reduction is easily effected, and recommend the ordinary grooved steel director as best adapted for this purpose, as it combines with delicacy sufficient strength. Passing the director into the meatus just beneath the depressed fragments, pressure is made forward and upward until we have attained a satisfactory elevation of the depressed bones, aiding our efforts within the nose by external manipulation.

In the class of fractures under consideration the great difficulty consists in our inability to retain the fragments in place, the sides as well as the centre of the arch being broken down. We have to deal with extensive comminution, and hence under the usual plans of treatment, although the arch may be temporarily restored,

it cannot be kept in position. There are certain conditions that increase this tendency of the fragments to become displaced :

I. The swelling that takes place between the integument and bone.

II. The efforts of the patient to clear the throat and nostrils as in hawking, snuffing, etc.

To these add the facts that the usual dressings are inadequate, not capable of nice adjustment, and readily disarranged, and it becomes apparent why it is not easy to keep the fragments in position.

The usual methods of treatment may be classified as those applied from within the nose, and those without.

Belonging to the first class are pledgets of lint and canulæ. To the second class, moulds and compresses of lint with adhesive plaster. In Hamilton's treatise these various methods, with comments as to their utility, are given in a concise form, as follows :

"I am not certain that it will always be found so easy to retain these loose fragments in place as it is to replace them. The very swelling which takes place so promptly under the skin tends to depress the fragments, unsupported as they are by any counter-force, a tendency which possibly is in some instances increased by attempts on the part of the patient to clear his nostrils by snuffing and hawking." "None of the plans which I have seen suggested, possess, in my estimation, much practical value. Few patients will consent to the introduction of pledgets of lint or of stuffed bags, or indeed of anything else, sufficiently far up into the nostrils to answer any useful purpose. The membrane is too sensitive, too intolerant of irritants to enable us to have recourse generally to such methods. Then, too, it would require on the part of the surgeon, more than ordinary tact to accomplish so nice and delicate an adjustment of the supports from below as these cases demand, where the slightest excess of pressure, or the least fault in the position of the compress, must defeat the purpose of the operator." In lieu of a better method, the author recommends the use of pledgets of lint in fractures with extensive comminution.

The employment of canulæ he regards as unnecessary and harmful, and recommends "nicely adjusted compresses made of soft cotton or lint, and secured on the nose with delicate strips of adhesive plaster," as the best form of external dressing.

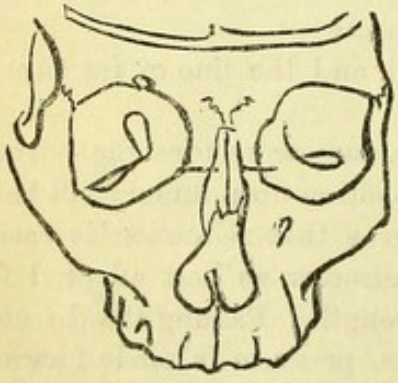

Fig. 1.—Showing needle passed beneath nasal bones.

The method I have to suggest is to pass an ordinary surgical needle of medium size, so that it shall afford not only a posterior support to the nasal bones, but shall act as a tie-rod, holding together the sides of the nasal arch.

The necessary appliance consists of a handle to carry the needle ; this is hollow, and has a screw-top, a convenient receptacle for needles when not in use. The needle is the ordinary three-cornered surgical needle of medium size, somewhat flattened at the head, so as to be more readily held in the handle by a thumb-screw, and ground to a drill point ; it is also nickel-plated or gilded, to prevent corrosion. In an emergency any strong needle-carrier would do, and the needle could be easily prepared. After proper elevation of the depressed fragments, the needle is passed usually through the line of fracture of the nasal processes on either side, (Fig. 1.)

The line of fracture can be readily felt before inserting the needle, or can be searched for subcutaneously with the point of the needle. By thus supporting the fractured nasal processes, we sustain the nasal bones, which rest upon them. Should the line of fracture not prove symmetrical, we can drill through the nasal processes on either side, at such points as circumstances may dictate. Under any conditions the needle will have three points of support; the nasal processes on either side and the nasal septum (Fig. 2.) To complete the dressing, a small strip or ribbon of pure rubber bandage is placed over the bridge of the nose by puncturing either end on the head and point of the needle (Fig. 3,) giveing the rubber sufficient tension to exert a gentle downward and lateral compression, but not enough to interfere with the circulation of the part, or to exert a degree of pressure on the fragments. The point and head of the needle may be protected by small pieces of cork. At the end of the sixth day, or as soon as consolidation is sufficiently advanced to sustain the fragments, the needle may then be withdrawn as we do the pins in acupressure or hare-lip when they have served their purpose. Anæsthesia will be necessary during the manipulation for the restoration of the arch, the passing of the needle, and probably for its removal also.

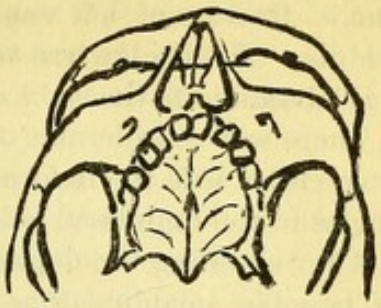

FIG. 2.—Showing course of needle as viewed from below, looking up into nasal cavities.

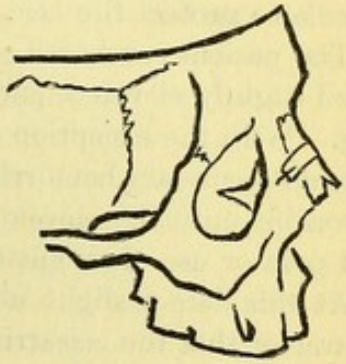

FIG. 3.—Showing rubber tape passed over bridge of nose, and fastened by needle thrust beneath nasal bones, exerting lateral support.

The advantages that this method seems to possess are as follows:

It gives adequate posterior support to the fragments, and binds them together.

Does not admit of displacement by any ordinary movements or subsequent swelling.

Does not impede restoration. Admits of constant inspection of the fracture without removal of the dressing. Permits the application of evaporating lotions if desired. Inflicts the least possible injury to the soft and hard tissues, being simply a needle puncture. Is comparatively inexpensive and simple in its application.

Since presenting the results of the above operation, as practiced on the cadaver, I have been enabled through the courtesy of my colleague, Prof. Jarvis L. Wight, M. D., to test its merits on the living subject, and herewith present the case as reported by Dr. Beasley, house-surgeon to the Long Island College Hospital.

John Grady, aged 14, U. S. school-boy, fell on the 5th of April, 1880, from a wagon, striking upon his forehead and face, sustaining a contused and lacerated wound of forehead—the upper lip on the left side being torn away from its nasal attachments—the principal injury being a compound and comminuted fracture of nasal bone and nasal processes of sup. maxilla.

He entered the Long Island College Hospital the following day, April 6th, for treatment. He was seen by Prof. Wight, the surgeon on duty, who requested Dr. Mason to take charge of the case and perform his special operation for fractures of this class.

The patient was etherized in the presence of the medical class and the resident staff of the hospital. A careful inspection was made when the patient was

thoroughly etherized. Both nasal processes of sup. maxilla were involved. The line of fracture of left was near the base of the process, on the right side near its middle. The bridge was very much depressed and flattened; the right nasal bone was lateralized to the right and made a small puncture through the skin on that side.

There was considerable œdema of eyelids, and face was somewhat puffy. Viewed from either side the deformity was very great, the end of the nose being at right-angles to the depressed bridge.

After elevating the depressed fragments and overcoming the deformity as much as possible—manipulating in the usual manner—Dr. Mason passed an ordinary surgical needle (ground to a drill point) through the line of fracture on either side, thus supporting the nasal arch. To complete the dressing and give further stability to it, a piece of thin rubber about half an inch wide, was slipped over the head and point of the needle, and rendered moderately tense, so as to exert a gentle compression; small pieces of cork were placed on the head and point of the needle to protect the face.

The patient recovered without excitement from his ether, and was placed in bed, head slightly elevated, and evaporating lotions applied to face and nose over dressing. With the exception of some suppuration and œdema of forehead wound, and a small secondary hemorrhage from coronary artery of torn lip, the case progressed favorably until the eleventh day, at which date the needle was easily removed without pain or use of an anæsthetic.

At this date a slight ulceration at seat of needle puncture, but of so trifling a character that the circatrix, if any, will be scarcely noticeable. The contour of the nose is excellent and is much better than was anticipated. Over site of needle there is a slight thickening or periostitis which renders the nose a trifle more prominent than normal at that point. But this is not observed, except on close inspection, and will, in time, become absorbed. The boy breathes well through his nostrils.

At no time during the operation was there any pain or uncomfortable sensation at seat of needle, nor did its removal cause any suffering. The results as far as the operation goes may be said to be perfect. The boy remains in the hospital for further observation, and his general health is good.

In commenting upon the notes of this case I would lay stress on the fact that the presence of the needle was not painful nor irritating, and the ulceration, although the needle remained in eleven days, (an over-precaution on my part,) was trifling.

Again, the use of evaporating and other lotions, directly upon the dressing, demonstrated a valuable quality of this special appliance over the usual forms of external dressings. And finally, the stable and efficient character of the appliance as demonstrated by the result.