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THE EXTERNAL OPERATION ON THE FRONTAL SINUS.

BY ROSS HALL SKILLERN, M.D.Phila.

IT was thought that the last word had been said for all time when Killian brought out his bridge method for operating upon the frontal sinus. This is true as far as radicalism is concerned; however, in our country many potentialities force themselves into consideration which in Germany and Austria are completely ignored, at least as far as the ordinary patient is concerned. I refer to the after-effects of the operation. These include permanent defects or disfigurement (œdema of eyelids, sinking in forehead, contraction of scar, fistula formation) as well as neurosis (hemicranial anæsthesia, neuralgia, paralysis of upper lid, and diplopia), not to speak of the formation of crusts and scabs in the nose with its attending dryness. When we reflect on these possibilities it is with no little hesitation that we broach the subject of a complete Killian to one of our better-class patients. The reason is perfectly obvious: he or she must run the risk of one of these after-effects, the operator must assume the responsibility, and the diseases may not be cured. (In the latter instance I refer particularly to those cases which have complained only of an old, chronic discharge.) However, the fact stares us in the face that something must be done, and that something must take the form of an external operation, it being presupposed that internal operations including all

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forms of treatment had been applied. This brings us to the gist of our argument. What forms of external radical operation shall we advise our patient? Before attempting to answer this question let us briefly consider the indications for this radical procedure. These indications may be divided into the absolute and relative.

By the absolute I mean those cases in which the disease has made such progress as to seriously threaten some neighbouring organ and even life itself. Threatened or actual cerebral and orbital complications occupy chiefly this category, and here the prompt performance of the operation is essential for the continuation of life. Other indications which may be classed as absolute, although by no means as urgent as those previously mentioned, are:

(1) When the subjective symptoms are severe enough to interfere with the business pursuits of the patient.

(2) When severe exacerbations occur.

(3) In abscess or fistula formation.

The relative indications depend largely upon the patient himself as well as the proclivities of the attending surgeon. The following, however, may be considered typical:

(1) When headache continues with no apparent change in the amount or consistency of the secretion.

(2) When, despite frequent irrigations, the pus continues fœtid, even though diminishing slightly in amount.

(3) When the X ray shows a large sinus with many ramifications and the disease does not appear to yield satisfactorily to internal treatment.

Assuming, then, that no doubt existed as to the indication for an external operation, we again revert to the question as to what form of operation is advisable. Prejudice and bias for any particular method should be thrown to the winds, and we should consider only the future welfare of our patient in deciding this momentous event. At this point, however, two conditions may confront us which in themselves leave us without a choice and demand certain forms of surgical procedure. I speak of the pathological condition present and the anatomical configuration of the parts.

If internal rupture has occurred, causing cerebral or orbital complications, it will be necessary to remove structures regardless of everything else until the parts are sufficiently exposed as to insure the best probable results. This may necessitate sacrificing both the anterior and inferior as well as more or less of the posterior

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or cerebral wall in the endeavour to remove diseased structures, procure sufficient drainage, and save life. If the patient survives the cosmetic result may leave much to be desired, but this deformity is far more acceptable to him than a smooth, unwrinkled forehead coupled with a shroud.

Again, if necrosis of one or more of the walls has occurred with external rupture, the destruction of bone may make it impossible to carry out an idealistic procedure in that particular case, one being obliged to resort to the operation of second choice, or, indeed, to one that will be adaptable regardless of its general desirability.

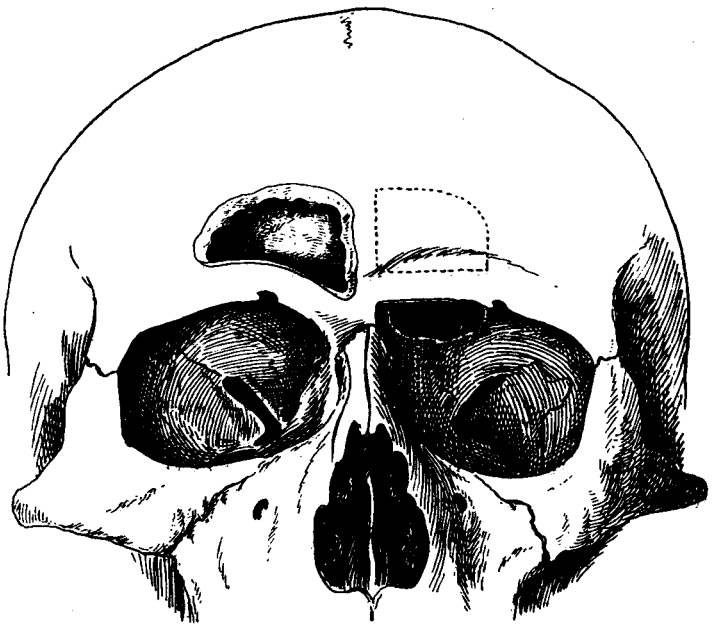
The anatomical configuration of the sinus may also play an important part in the choice of the particular method to be adopted. If the sinus does not extend high in the forehead, it may be entirely unnecessary to make the opening above the supra-orbital ridge, while in shallow cavities the bridge, as advocated by Killian, may be, with certain limitations, omitted. Again, lateral extensions toward the malar bone naturally require a longer incision and a larger area of bone resected than for extensions posteriorly. It is, of course, presupposed that all of these points have been thoroughly studied by means of appropriate skiagrams.

Given, then, that we have decided to operate upon a case of chronic frontal sinusitis which presents nothing unusual either in the course of disease or in the site or extent of the sinus, what shall we first consider in performing the operation? To choose and apply surgical measures that will give us the best possible result with the least possible intervention. Let it be here well understood that thoroughness is not to be sacrificed for expediency, but rather over-radicalism is to be curbed and a safe and sane course followed. The complications which can follow the external operation may be much more annoying to the patient than the mere deformity, as the latter can usually be corrected with paraffin, or, at the worst, a plastic operation; therefore it is the former which must be guarded against, keeping, however, the possibilities of subsequent deformities always in mind.

With this end in view, and from previous experiences with the Killian, Jansen, Kuhnt, Riedel operations, I have devised a slight modification of the Jansen operation, which prevents the depression in the forehead and at the same time allows the operator an excellent approach to the ethmoid capsule and places in a safe position for protection that bugbear of the frontal sinus operator—the lamina cribrosa. The principles of this operation are to spare the anterior wall, but to obtain the requisite space by resecting the

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superior internal portion of the margin of the orbit and the floor of the sinus, thus exposing the entire lower portion or funnel of the frontal sinus (Fig.). After this has been done the usual procedures are followed, *i. e.* removal of the diseased mucosa, the ethmoid cells (and, if necessary, the sphenoid is opened), the communication with the nose may be enlarged to any desired size by merely removing the orbital plate piecemeal with the bone forceps. The wound is closed and dressed in the usual manner.



Killian method of bridge formation on right. Straight method with outline of portion of anterior wall to be removed on left.

Beside the advantage of room gained, all deformities resulting from depression are obviated. The operation is easier to perform than the full Killian, and being less extensive naturally requires less time. The only theoretical contra-indication that comes to mind is where the sinus extends far upward on the forehead in finger-like projections. In these cases it may be necessary to resect the bone to the end of the projections to avoid the formation of a subsequent fistula.

The sex factor is another point of considerable importance in choosing our method. In a young, unmarried woman we would naturally abstain from an incision which in the male sex would be considered a matter of course. We must, however, always bear in

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mind that an external operation partially done is often worse than the most extensive radical, for there is every chance that a recurrence will take place, most likely with fistula formation, which will not only necessitate a secondary radical but its period of long after-treatments and subsequent disfiguration as well.

The method, then, to be chosen depends, as we have seen, upon many eventualities; we should carefully consider the facts before us in each individual case and operate accordingly, taking as a maxim to eradicate all of the diseased area with the least possible surgical interference, but not sacrificing thoroughness to expediency.

FROM THE EAR, NOSE, AND THROAT DEPARTMENT OF THE JOHANNESBURG GENERAL HOSPITAL.

By J. C. G. Macnab, M.D.Glas., F.R.C.S.E.

A. A Modification of Skillern's Preturbinal Operation on the Maxillary Sinus.

In the *Laryngoscope* for November, 1911, Ross Skillern described a new operation, which he called "preturbinal," for exposing the maxillary sinus, and which, to my mind, appeared very sound, and a distinct advance on any other operation, even the recent one of Watson-Williams. As I was fortunate in having four cases on hand which were being treated with daily puncture and irrigation, I submitted them all to this preturbinal operation, and carried out Skillern's method in every detail, but soon found out at least three disadvantages:

(1) The dressings were always very painful.

(2) The opening had a great tendency to close up.

(3) It was impossible to know when to leave out the packing.

Accordingly I was disappointed with the result and now have modified the operation, making it partake of a more or less radical operation. Having completed the operation as described by Skillern the antrum is filled with the French embalming lotion (iodoform, menthol, eucalyptol, balsam, perm., ether), which is allowed to remain five minutes. A small curette is now employed to irritate or freshen the mucous lining of the antral floor for about a centimetre adjacent to the nasal floor. The ridge of bone having been carefully polished down, with a scissors the lining of mucous mem-

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