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MODERN METHODS OF ACCESSORY SINUS TREATMENT.*

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The accessory sinuses of the nose have either suddenly been deemed worthy of consideration by the medical world, or else the infectious bacilli which have caused so many recurrences of the influenza of late years, have produced a new condition of affairs in the adjacent sinuses which has modified previously existing nasal conditions. Whether it has been the result of an evolution of new microorganisms or a specialization of known species, the fact remains that the nose has to be looked at from a different point of view than in the past.

Fetid catarrh of the early part of the past century was undoubtedly chronic antrum or sinus disease, in which the poor victim suffered from the ignorance of the surgeon. As specialists today we all come in contact with an endless chain of so-called supra-orbital neuralgias and tic douloureux, treated as such by eminent general practitioners, which are in reality sinus cases. These only fall into our hands by some happy accident, or because of an intolerable state of suffering which suggested the specialist. It does not seem out of place to attempt to enlighten the medical public on this subject, and too much space cannot be employed in elaborating the etiology and pathology of accessory sinus disease.

My province tonight, however, is limited to a review of the recent methods of treatment. First I will consider the type of cases of acute frontal sinus empyema as they have occurred in New York

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this winter. The onset has been as follows: Usually the disease is accompanied by the symptoms of an acute coryza with muco-purulent discharge and intense pain over one or both eyes; this is intensified by stooping forward, straining at stool, coughing, or by any sudden movement; the pain is not continuous, and is apt to cease at bedtime, to begin on awakening with increased intensity; unless relieved by frequent hot douches and hot applications over the forehead, the pain becomes intolerable. The use of the eyes for reading aggravates the symptoms. Morphine and phenacetin is the routine treatment of the general practitioner. We as specialists usually see the case in consultation on the seventh day. The patient is found nervously prostrated by suffering and drugs, and quite willing to undergo any operation for relief. Twelve cases which have come to me in this condition since January 1st of this year have been treated as follows: Cocaine and adrenalin was applied for twelve minutes to the middle turbinate and roof of the meatus. The anterior portion of the body is next removed by two or three transverse bites of a straight Grünwald forceps. This exposes the ethmoid cells between the internal lamella of the ethmoid and the orbital plate. The forceps is then directed one centimeter below an imaginary line drawn between the inner canthus of both eyes, and the cell structures are broken down antero-posteriorly. A blunt barrel burr drill run by an electric motor completes the removal of these cells. It is very easy while operating to feel the greater resistance of the lacrymal bone and the orbital plate of the frontal. While on the skull it always looks like a difficult matter, this procedure in the living subject is usually attended by no difficulty whatever. After the removal of the tip of the turbinate, we often find the cells so easy of penetration that the forceps and drill need not be employed. The end of a German silver Eustachian catheter moved backward and forward will often be sufficient to break down these delicate structures. Any stiff tool with a blunt end may be used. It is carried upward and backward on a plane parallel with the septum of the nose, always remembering to keep outside of the internal lamella, hugging the orbital wall and thus avoiding the cribriform plate. In using the barrel burr drill in older persons, whose cell walls are harder, we must take the precaution to cut in a forward direction using the fore finger on the upper lip as a fulcrum and inclining the drill as a radius more toward the perpendicular anteriorly as we break down the cells.

In every case operated on, it was easy to feel the moment I entered the fronta-nasal duct, a fact which it is well to verify by introducing the catheter and syringing the cavity of the sinus. The

patient is always able to tell whether the hot boric acid solution enters the frontal sinus. He generally speaks of feeling it back of the eye and in his forehead.

I do not wish to be understood for a moment as advocating this method in the treatment of chronic cases. The occasional employment of it, however, during the past twelve years, and the constant use of it the last three has led me to endorse it as the best means of affording very speedy relief to the distressing acute condition. On the second or third day all pain generally ceases and a week usually effects a cure of the disease, pain and discharge having ceased. Two things are accomplished besides this, viz., intranasal pressure is relieved, and the probability of recurrence of the malady is lessened.

This operation is advised, it is needless to say, only in those acute cases in which douching after contracting the tissues with cocaine, menthal, and adrenalin applications, does not afford relief by facilitating discharges, or in those cases which have not resolved spontaneously.

The chronic frontal sinus empyemas must next be considered. The choice of operation depends, not on the conditions of the sinus, but upon the condition of the adjoining ethmoid cells. If the posterior cells are affected, let us consider a Killian, or an operation under the orbital ridge. If we think that the posterior cells are not affected, let us seek to obliterate the sinus without disturbing the continuity of these cells. The choice of operation should be deferred, if possible, until the floor of the cavity is observed and we are enabled to ascertain whether there is an excursion of the sinus and possibly of the posterior cells over the orbital roof. In the latter case it is unwise to try to obliterate the sinus, and we do well to do a Killian operation, or extend our bone opening as far as the nasofrontal suture, in order to be able to get a more horizontal plane for operating upon the posterior cells. The one condition which would contraindicate this procedure would be the simultaneous involvement of the maxillary antrum and sphenoid sinus, in which case it would be perhaps better to do a more radical operation through the antrum for the relief of the latter conditions. The operation of Killian is commended in that the supraorbital ridge is left as a bridge to prevent deformity, permitting a free opening above and below for the free curettage of the sinus and also for the breaking down of the middle and posterior ethmoid cells.

In this country, where cosmetic results must be considered to an even greater extent than abroad, this operation must appeal to the surgeon. If we could save in this method the pulley of the superior

oblique muscle, it certainly would be a marked advance in the way of dealing with frontal sinus disease. In this operation, the frontal is beveled down by the chisel so that the skin flap comes in contact with the posterior wall of the sinus as much as possible, a procedure which promotes the formation of granulation tissue beneath the ridge. The wound is then sutured at once and the very free opening into the nose is utilized for drainage. This is a decided advance upon the operation which removes the entire wall, and it prevents the flat face which gives such a disagreeable expression to the patient.

In those cases in which we are reasonably certain that the posterior cells are not involved, the operation for the obliteration of the sinus by making an entrance above the ridge is to be strongly recommended. We have done this in five cases with excellent results. The sinus is opened, very carefully curetted, and packed with iodoform wool. The after-treatment being the same as in a mastoid operation. As the granulations appear and the sinus fills up, the flaps which have been sutured at either end of the incision are brought together until, at the end, we pack through an orifice the size of a slate pencil. If the eschar is uneven, we may pare the edges and bring the skin together in such a way that the cicatrix is not objectionable. In doing this operation, we make quite as large an opening through the floor of the sinus as if we were expecting to drain through this channel. The packing will induce a healthier foundation of new granulation tissue to form as a base, than if possibly unhealthy cells were left for a floor. In one case which I have reported, however, a mucous membrane by preference seemed to cover the sinus and I closed the external wound without waiting for the process of obliteration. Here the fact that I had made a free opening to the nose was not regretted. Drainage into the nose by means of any tube or gauze drain in any operation on the frontal sinus is unnecessary, for the reason that, if we have a large enough orifice for a drain, we have ample space to irrigate the sinus by normal salt solution, and the drain will only cause irritation and stoppage of the nostril, preventing aeration of the sinus, and possibly occasion much discomfort to the patient.

When a sphenoidal complication exists coincident with the frontal sinus trouble, Killian's operation or an operation under the ridge is indicated. When a sphenoidal empyema exists together with antrum and ethmoidal trouble, the route to the sphenoid sinus should be through the canine fossa, antrum, inner wall of the same in the region of the ostium maxillare, middle meatus, posterior ethmoid cells, sphenoid-ethmoidal recess, and anterior wall of sphenoid in the region of the ostium.

When only a sphenoid sinus empyema exists, without frontal or maxillary complications, the sinus should be entered by its anterior wall, from the largest nasal chamber. This procedure should only be resorted to after attempting to sound and catheterize the sinus through the natural orifices. As a preliminary to this operation, the middle turbinate should be removed, which procedure generally permits a good view of the anterior wall of the sinus and the ostium of that side. A thorough breaking down of the anterior wall will usually relieve the empyema without the necessity of packing. Curettage of the sinus walls should, however, be done as thoroughly as is possible in this disadvantageous locality. The many excursions of the sphenoid sinus must be remembered as well as the possibility of a posterior ethmoid cell having insinuated itself between the sinus and its superior wall. The septum of the sinus also is subject to great variation in its position making the two sides of very unequal size and shape.

Jansen, of Berlin, has developed the surgery of the sphenoidal sinus operation through the antrum in a remarkable manner; but there always is a question in my mind as to whether the dryness of the nasal cavity which is an almost invariable result of this radical operation, is not quite as disagreeable a consequence as the ethmoidal empyema which the operation seeks to obviate. If the choice were presented to me, I think I would prefer an antrum and sphenoid operation done at different times, and ask the surgeon to kindly leave me a few ethmoid cells and a turbinate or two as a souvenir of nasal function. The surgery of the antrum, has been as unsatisfactory as that of the frontal sinus as regards the variety of results which have been obtained by different operators. It would seem that even today we are not in a position to say exactly what we consider the best method of operating, for every case demands a special treatment. A paper which was quite exhaustive upon the subject, read by me before the American Laryngological, Rhinological and Otological Society last May and published in the October LARYNGOSCOPE, rather endorsed the Cauldwell-Luc operation. Since then, however, on account of objection to the canine fossa procedure, I have operated on three chronic antrum cases by removal of the entire inferior meatal wall with the exception of the most anterior portion. This was anticipated in two of the cases by the complete removal of the inferior turbinate, and in the other by turning it up by an Adams forceps into the fossa and afterwards replacing the bone which was not large enough to interfere with syringing but obscured the field of operation.

The more frequently I do this operation and find how readily the antrum may be curetted and packed, the more I am inclined to favor it. For packing it is essential to use zephyr wool, which has proved invaluable in mastoid and sinus dressings and may be inserted through very small openings. It is an excellent dressing to stimulate sluggish granulations and in attempted obliteration of the frontal sinus it proves most satisfactory. Since first advocating this method of treating the frontal sinus by obliterating the cavity I have succeeded in seven cases without a failure.

The canine fossa operation is so liable to reinfection, that it is only to be thought of in cases where necrosis has taken place in the antral walls and where free curetting is essential. This procedure in many cases has eventually to be followed by a Caldwell-Luc operation.

If we are sure that there is no bone implication, it is always best to first do an inferior meatus operation in the way already described; and I am not sure but that it is always the most judicious procedure. If by the use of silver preparations or the zinc salts, we are not able to cleanse the cavity and pack it satisfactorily to produce granulation tissue metamorphosis, we are always in a position to do a canine-fossa operation afterwards. Having an orifice for drainage and dressing already established in the nose, we may immediately close the new buccal incision. By employing this method, I have removed obturators which have been worn for years in the canine fossa or through a tooth socket, and even when the antrum trouble has not been entirely cured, the relief to the patient of dispensing with the plug in the mouth was enormous.

Syringing the antrum daily through the nose is a luxury compared with the annoyance of removing a mouth tube and introducing a canula.

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The Temperature of the External Auditory Canal—ERNST SOMMER—*Berl. klin. Wchnschr.*, Sept. 26, 1904.

The temperature of the external auditory canal averages about 36.5° C. (97.7° F.) It varies in different parts of the day, and is higher on the left side, corresponding to the greater vascularity of the left side of the head.

YANKAUER.