was tamponaded with gauze, and a fresh sponge was placed in the trachea. The tube was removed in ten days. The patient could then breathe well. The result of the operation has been complete relief from dyspnoea, and the patient can articulate in a whisper, though half his larynx has been removed. Recurrence of growth in the pharynx I looked upon as certain.

I last saw the case in January, 1902. The growth was returning in the depths of the wound. Dyspnoea was entirely relieved. The main interest of this case is the great difficulty of estimating the actual extent of growth in advanced laryngeal cancer. I spent a fortnight over the study of this case, and concluded it was free of the pharynx, in which I was wrong. The case also affords a striking contrast to the others. It illustrates forcibly a clinical truth which all of us may lay to heart. That if an adult, especially a male, should suffer from abiding hoarseness and laryngeal irritation, no time should be lost in getting a careful laryngeal examination, so that if a growth exists it may be detected and dealt with in its earliest stages. The results, as shown by the cases detailed to-night, are as good as neglected cases are disastrous and unsatisfactory.

NOTES AND REFERENCE.

¹ Holmes's *System of Surgery*, 3rd edition, vol. xi, p. 697. ² The blade should be flexible and the teeth minute. ³ The patient was present at the meeting and read aloud with a good and distinct voice. ⁴ Recently seen (February, 1902), quite well, voice much improved.

SOME OBSERVATIONS ON THIRTY-FIVE CASES OF CHRONIC SUPPURATION OF THE MAXILLARY ANTRUM.

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THE following observations are based upon the notes of 35 cases of chronic antral suppuration seen in private practice during the past two years.

A far greater number might have been brought forward had my hospital cases been included, but the difficulty in following up the result of treatment in such patients is so great that no excuse is needed for presenting a comparatively small number as the basis of the present communication.

It has long been my conviction that empyema of the maxillary antrum is of greater frequency than is usually supposed and that it will frequently account for symptoms which at first sight do not suggest any connexion with the nasal accessory sinuses. In making this statement I am fully aware that those who make a special study of any branch of medicine or surgery, perhaps not unnaturally fancy or even believe, that a disease is common because their peculiar opportunities allow them to see many examples of it, and that this conception tends to grow "in spite of ourselves." But while making every allowance for this mental tendency I would still maintain and hope to show in what follows that such a conviction has not been arrived at without due consideration and a fair estimate of the results of experience.

ANATOMY.

Both in the same as in different individuals the antra vary as much in size as they do in the thickness of their component walls. From the points of view of etiology, symptomatology, diagnosis, and treatment, it must be remembered that the antrum communicates with the middle meatus of the nasal cavity by an opening situated near the roof of the antrum at the upper border of its inner wall, a disposition which renders drainage of the sinus a difficult matter except when the patient is lying down. Under the last-mentioned circumstances the contents of the antrum will flow backwards towards the naso-pharynx. The opening into the nasal cavity (maxillary ostium) is overhung by the middle turbinal bone, and therefore a purulent discharge issuing from the antrum would be seen in that cleft between the middle and the inferior turbinal bodies, known as the middle meatus of the nose.

Finally, an examination of a series of maxillary bones will show that the roots of the molar teeth, and often that of the second bicuspid tooth, approach more or less closely to the

floor of the antrum, and that not uncommonly the apices of the fangs form mammillated projections in the floor of that sinus. Such projections may be separated from the lumen of the cavity by a thin layer of bone, or only by mucous membrane. Under such circumstances the liability of the antrum to become infected by septic inflammation around the roots of the teeth is very obvious.

ETIOLOGY.

Whilst it was formerly maintained that antral suppuration was almost invariably due to infection from a carious tooth, it is now universally agreed that some cases are infected by way of the nasal cavities, and that the majority of these are met with as complications of one of the acute specific diseases.

During recent years influenza has been a somewhat prolific source of suppurative inflammations in the nasal accessory sinuses, while scarlet fever, typhoid, pneumonia, and diphtheria have accounted for a smaller number of cases. Under such circumstances the inflammation, which at first may be acute, passes gradually into the chronic phase. This transition may be due to the virulence of the primary inflammation inducing chronic congestion and increased secretion from the nasal mucosa which, in many cases, undergoes stagnation and provides a suitable medium for the growth of septic organisms. This tendency will be promoted when such pathological obstructions are present as postnasal adenoids, well-marked degrees of hypertrophic rhinitis, or difficulties of efficient drainage such as are met with in the antrum.

My own experience leads me to believe that dental caries is by far the most frequent cause of chronic antral empyema. Not only have diseased teeth been present in every one of the 35 cases herein considered, but in the scores of cases seen in hospital practice during the past ten years, I cannot remember having seen three cases in which evidence of past or present disease in the corresponding molar or bicuspid teeth was not present.

And here I would point out that although the crown of a tooth may appear perfectly healthy, a condition of pyorrhoea alveolaris may extend the whole length of one or more of the roots, and thus carry infection to the antrum. Furthermore, an abscess may be present between the roots of a tooth which possesses a healthy crown. I have exhibited specimens of both these conditions at the Laryngological Society of London.¹ Again, an isolated area of caries on the crown of a tooth must not be regarded as incapable of evil influence on the antrum, for septic infection may undoubtedly spread through the lymphatics of the healthy bone. In the two cases referred to my suspicions were attracted to the apparently healthy teeth because on exploration of the antrum for diagnostic purposes, the patient immediately complained of toothache in the first molar tooth.

It may be argued that the dental caries is secondary to antral suppuration and spreads from the root towards the crown of the tooth, but such a course of infection must be exceptional, for careful inquiry will nearly always elicit a history of dental trouble which preceded the antral symptoms. Then again, the rapid improvement of antral empyemata which often takes place when a septic tooth is removed would suggest a causal relationship; improved drainage will not explain the improvement, because efficient intranasal drainage is often ineffectual until the suspicious tooth has been extracted.

Four of my cases are of interest in that the frontal, ethmoidal, and sphenoidal sinuses were also in a state of chronic suppuration, but I have been unable to ascertain what was the primary source of inflammation in any one of these patients. It may be that all the sinuses were infected simultaneously, or that the higher sinuses were alone primarily diseased, and that the antrum acted as a receptacle rather than as a generator of pus. Finally, and not improbably, the antrum was primarily infected, and in course of time its septic contents contaminated the anterior ethmoidal cells, and ultimately the frontal sinus. In one patient whom I have been able to watch for nine years this was certainly the course taken by the disease.

Three cases presented all the features of fetid atrophic rhinitis ("ozaena")—that is, the formation of fetid crusts in abnormally wide nasal cavities, the symptoms dating from

childhood). Michel maintained that this disease was due to suppurative lesions in the nasal accessory cavities, and Grünwald's experience lends some support to this view. I have never been able to convince myself of the relationship of these lesions. If atrophic rhinitis be caused by suppurative inflammation within the nose or its accessory cavities, how is it that we meet with so many cases of empyema which have lasted for years (5 to 20), in which extensive degenerations of mucous membrane and of the bony framework of the accessory cavities have taken place, and yet the characteristic features of atrophic rhinitis are absent?

In the three cases of fetid rhinitis included in my present list there was a small nummulus of muco-pus in the antral cavities, but it was quite different in appearance and consistence from the yellow, liquid, fetid discharge met with in the majority of antral empyemata.

In none of my patients have I met with any instance of antral suppuration arising from traumatism, although the careless application of the galvano-cautery to the ethmoidal region, and the use of septic instruments for intranasal operations, have been recorded as factors inducing the lesion under discussion.

SYMPTOMS.

The diversity of symptoms, and the frequency with which they sail under false colours, are the most striking features of chronic antral suppuration.

Briefly stated, it may be said that a straightforward case of antral suppuration manifests itself by a purulent nasal discharge, the patient alone being cognisant of any unpleasant smell. In many instances the continued irritation of this discharge induces a congested or polypoid state of the nasal mucosa, and various degrees of nasal obstruction become an additional feature in the case. During sleep the discharge tends to pass backwards into the pharynx and throat, so that on waking "hawking," "screeding," and "sniffing" become habits which are unduly exercised during the earlier hours of the day.

If no examination of the nasal cavities be made it is only too likely that the patient will be told he is suffering from "chronic postnasal catarrh," and possibly a lotion will be prescribed for him to "sniff up the nostrils," or "change of air" may be advocated.

No improvement takes place, and the deferring of that hope which springs eternal in the breast of both physician and patient is only too likely to cause a nausea which has been stated on good authority to affect the cardiac region.

We may now pass on to those symptoms which often drive the patient to seek relief, and yet they are of such a nature as not to suggest any connexion with the nasal discharge.

Headache and Neuralgia.

These symptoms may be so distressing that no mention is made of any nasal trouble which, by comparison, is only looked upon as an inconvenience. The frontal discomfort may be a true neuralgia, that is, limited to the area of distribution of the supraorbital division of the fifth nerve, the trunk of the former being painful on pressure. The attacks are commonly worse during the earlier hours of the day, and the pain may be very severe. If the patient has lived in malarial regions the periodicity of the neuralgia will suggest "brow ague" and (as I know to have been the case) the sufferer will probably be saturated with quinine, but to no advantage.

It will sometimes be noted that the headache alternates with a free discharge of pus from the nose.

In other instances diffused frontal headache is the complaint, less commonly it may be located in the temporal, vertical, or even the occipital region, and sometimes deep-seated pain is referred to the orbit.

Of my 35 cases, headache or neuralgia was the chief symptom in 9 patients.

In one young man who was sent to me in the hope that I might find something to account for his headache, this symptom came on about once every ten days and was so severe that he was obliged to leave his work and go to bed until the bout passed off. He made no mention of any nasal discharge, but both antra were full of pus. The headaches have entirely ceased since these were drained. In another patient the headache was intolerable if she leant over to write a letter or to lace up her boots.

In five cases the symptoms were defined as a "dull heavy feeling" over the forehead which prevented any concentration

of thought and rendered the patient devoid of energy. Such expressions as "weight on the head," "as if the brain was in a fog," "can't take interest in anything," are not uncommon ways by which these patients seek to translate their feelings into words.

Gastric Symptoms.

Some of my patients complained of loss of appetite, dislike of the sight of food, various forms of indigestion, nausea, etc. Such individuals often have a sallow, unhealthy, cachectic appearance, such as we are familiar with in certain forms of abdominal malignant disease. Probably these symptoms are the result of a septic gastritis, which as Dr. William Hunter has shown, may be due to the constant swallowing of septic matter from the mouth and neighbouring regions. The immense improvement which immediately takes place in these cases when the supply of pus is cut off is nothing short of marvellous.

Pharyngeal and Laryngeal Irritation.

Cough is a not uncommon symptom of antral empyema; it is often worse in the morning owing to inspissation of pus which flows during the night into the pharynx and larynx. Various degrees of chronic inflammation of the pharyngeal and laryngeal mucosa are caused by the irritation of the purulent discharge issuing from the antrum, for example, hoarseness may be produced either by a chronic congestion of the vocal cords or by a swelling of the mucosa in the inter-arytenoid fold which prevents the normal apposition of the cords when phonation is attempted.

A most striking illustration of these effects occurred in a patient who had spent one and was ordered to spend a second winter in Egypt because of a weakened state of the pharyngeal and laryngeal mucosa, which there was some reason for thinking might be the early stage of tuberculous laryngitis. In former years there had been some suspicious physical signs in the left apex. Astringent topical applications with outdoor exercise produced no relief. On one occasion when examining his throat I noticed a tiny speck of pus on the mucous membrane which transillumination suggested might have come from the antrum. Exploration showed this sinus to be full of pus, and since draining it by the alveolar method the symptoms have entirely disappeared. The patient never complained, suggested, or showed any intranasal signs of antral disease.

Aural Symptoms.

Two of the 35 cases were sent to me for relief of ear symptoms—the first for tinnitus in the right ear together with right nasal obstruction.

The latter was due to a very large moriform hypertrophy of the mucous membrane of the right inferior turbinal. The soft redundant mucous membrane was removed, but the ear symptoms remained unabated until the pus in the right antrum was discovered. After four months of alveolar drainage the patient wrote saying that she had removed her tube, and "since the discharge from the nose has stopped the noises in the ear have quite gone."

In the second case the deafness was due to serous exudation in the tympanum. The right antrum was full of pus, and the corresponding nasal mucosa were in a very wet, boggy condition. I have reason for believing that in both these cases the aural symptoms were due to extension of catarrhal inflammation from the nasal mucous membrane which was set up by the purulent discharge in the antrum. The second patient made no mention of his nasal symptoms until directly questioned on the point.

McBride has already recorded cases where aural suppuration proved intractable until a purulent antral discharge was efficiently treated.²

Haemorrhage.

In one instance the symptom which led the patient to seek my advice was the occasional discharge of blood into the mouth from the back of the nose. I found a number of unhealthy, easily bleeding granulations in the right mid-meatus, associated with antral suppuration. Since this cavity has been drained, the "blood-spitting" has entirely ceased.

I venture to think the above instances justify me in stating that antral suppuration is more frequently present than it is supposed to be, and that many cases are overlooked because the symptoms of which the patient complains do not suggest any connexion with suppuration in the maxillary sinus.

Were further proof of this statement necessary, I would draw attention to the fact that out of 169 necropsies made by Lapalle, in 55 of them pus was found in the sinuses, the antrum being most frequently affected. We can scarcely believe that in all these cases the disease arose during the patient's fatal illness.

PROGNOSIS.

If antral suppuration be uncomplicated by similar disease in the ethmoidal or frontal sinuses, by nasal polypi, or by such gross lesions as carious areas of the bony walls of the

sinus, the prognosis as regards relief of symptoms is good, but one must speak with reservation when a "cure" or total cessation of discharge is being considered.

In forming a prognosis we must weigh the following points:

1. Source of original infection. Pure dental cases would seem to be more amenable to treatment than those of intranasal origin.
2. The length of time which has elapsed before treatment is undertaken. The longer that time the more advanced will be the degenerative changes in the antral mucosa.
3. The general health of the patient. Two of my patients were most positive that the discharge absolutely ceases when they go to the seaside, but returns when they resume their city life. A third tells me he can at once increase the discharge by indulging in alcohol, excessive smoking, or any disregard of the ordinary rules of health.
4. The persistence and regularity with which the patient will follow the prescribed treatment.

DIAGNOSIS.

If in conjunction with the symptoms already noted, a purulent discharge be seen in the middle meatus, and if after careful removal of this pus by means of a wool mop, it reaccumulates after the head has been held for a few moments, so that the maxillary ostium becomes the lowest point of the antral cavity, then it may be presumed that the pus comes from the antral cavity. These suspicions would be strengthened if on transillumination the suspected antrum was less translucent than its fellow.

Transillumination of the antra is effected by placing a 6-volt electric lamp within the closed mouth: if the sinuses be healthy both cheeks and infraorbital regions appear translucent; if one antrum be unhealthy the corresponding infraorbital region will be rendered opaque or considerably less translucent than that upon the healthy side.

Finally, intranasal exploration and irrigation of the antrum by means of a fine trocar and cannula (Lichtwitz's) passed backwards and outwards through the inferior meatus, and piercing the inner antral wall about 1 in. beyond the anterior end of the lower turbinal bone, will in any case give conclusive proof as to the presence or absence of pus in the antrum.

With the exception of the last, the value of the foregoing tests will vary very much in different cases. As already stated, when the patient is examined, it occasionally happens that no pus is to be seen anywhere in the nasal cavity, which may appear quite normal. This may be due to a free use of the handkerchief immediately prior to the examination. Even the posture test may fail to induce a flow of pus into the middle meatus, especially if there be much swelling of the soft parts in the region of the "ostium," which prevents the free discharge from the antrum.

Transillumination is a most valuable diagnostic measure if it be taken in conjunction with other signs. I have already described cases illustrating its value, and am of opinion that unilateral opacity, irrespective of present or past disease, and produced merely by abnormal thickness of the bony walls of the sinus, is uncommon—it did not occur in any of my 35 patients. In one case of four weeks' duration the opacity was very slight, and only sufficient to raise a suspicion of disease, which, however, was verified by exploration.

In connexion with this valuable test the inexperienced should remember:

- (a) That it is the infraorbital translucencies rather than those of the cheek which must be compared.
- (b) The opacity is caused by the thickened mucous membrane of the antrum and not by an accumulated discharge, for the opacity is equally great after thorough irrigation, and many months after the discharge has ceased the absence of translucency is still very definite.
- (c) A toothplate not removed from the mouth will on transillumination produce opacity in the corresponding (and possibly healthy) antrum.
- (d) Intense opacity in an adult extending from the orbit to the lower part of the cheek, and associated with pain and distension of the cheek, should suggest the possibility of malignant disease of the antrum.

TREATMENT.

One of two methods is usually adopted in the treatment of chronic antral suppuration:

1. By drainage and irrigation through an opening in the alveolus, which is kept patent by means of a silver tube. The opening is generally made by a simple perforator or awl, through the socket previously occupied by a molar or second bicuspid tooth. Twice daily the tube should be removed, and some simple antiseptic lotion, for example, boracic or Condy's fluid injected by means of a suitable syringe. The best form of the latter is a modification of Higginson's enema syringe. As the discharge diminishes in amount the irrigations are less frequently carried out, and when after an interval of a week no discharge returns with the lotion, the tube may be removed and the case considered as cured.

In three of my cases the alveolar puncture was followed by free arterial haemorrhage from the nose and mouth. One patient fainted after losing three-quarters of a pint of blood, and the bleeding was only checked by plugging the antrum through the alveolus and applying counter-pressure by a plug of gauze packed into the nasal cavity. In the second case the haemorrhage ceased just as I was about to carry out these measures. In the third patient the bleeding set in eight hours after perforation, and seemed to arise from the socket of the tooth rather than from the floor of the antrum.

In four patients intense neuralgia has followed the insertion of the silver tube, but in every case this was almost instantly relieved by the removal of the tube and its substitution by one of smaller calibre. It would seem wiser, therefore, always to use a tube appreciably smaller than the opening which one makes in the alveolus. The inflammatory swelling around the tube will nearly always be sufficient to prevent it from slipping into the mouth, but in one case much alarm was caused in the household by the patient accidentally swallowing her tube whilst talking. In a hospital case I remember an anaesthetist suffering considerable anxiety on account of the patient's continual coughing during a prolonged anaesthesia. It was soon ascertained that this was due to the wanderings of an antral drainage tube in the sensitive regions around the glottis.

The method of alveolar drainage I followed in 34 of the 35 cases here discussed. In 13 the tube was removed within three months; in 9 the discharge has so diminished as to have practically ceased, but the patient prefers to keep in the tube "in case the discharge should return." In 8 cases I have been unable to ascertain the result of the treatment. In 1 the discharge is as free as before the drainage tube was inserted. Two patients refused any treatment, and 2 were complicated by suppuration in the other sinuses (frontal, ethmoidal, or sphenoidal).

2. In one case only, and that of a medical man who was tired of the profuse discharge through the alveolus, which persisted in spite of irrigation, the radical operation was carried out at his own request. This procedure involves the exposure of the anterior surface of the antrum through an incision made along the gingivo-labial fold extending from the level of the first molar to the canine tooth. A portion of the anterior antral wall, the size of a sixpence, is removed by means of gouge and mallet, and the whole extent of the diseased mucous membrane lining the sinus is thoroughly curetted away. A counter-opening is made into the inferior meatus of the nose which should be as large as that made in the anterior antral wall. After thorough disinfection of the parts the sinus is plugged with a strip of antiseptic gauze, the proximal end of which is passed through the naso-antral opening and cut off level with the nostril. The bucco-antral wound is united by fine sutures, or allowed to close by granulation as rapidly as possible.

The packing is removed from the nose in forty-eight hours, and irrigation kept up through the naso-antral opening for some three or four weeks, by which time the purulent discharge should have entirely ceased.

The results obtained in these cases lead me to the conviction that the alveolar method should always be advised in the first instance for the following reasons:—(a) It is simple, and affords drainage from the lowest point of the suppurating cavity. (b) The small operation can be easily performed under "gas" anaesthesia, and the patient, after one or two visits to the surgeon, can carry out the treatment himself with the greatest ease. (c) In many cases the result will be successful, in practically all relief and diminution of symptoms will take place, and in those few instances where it fails to do

much good, the surgeon can always fall back on the more radical measure.

Here we must not confuse the terms radical operation and radical cure; in both instances the adjective will be correctly used, but in the second case we cannot guarantee that the term "cure" will be justified by results.

Those who have frequently performed the operation (the so-called Caldwell-Spicer operation) will agree with me that in spite of all care taken to explore every nook and cranny of the antrum and to remove the pyogenic membrane hidden therein, yet some small portions may escape the curette, which will ultimately infect the newly-grown granulating surface and so rob us of our desired result. The operation is one of some magnitude, and necessitates a prolonged anaesthesia of at least thirty to forty minutes, and the patient will be laid up for a week or more, during which his convalescence may be rendered unhappy by considerable pain, swelling and oedema of the soft parts over the antrum. Hence it seems obvious that at least a fair trial should be given to a simpler proceeding (alveolar puncture), which even in long-standing cases sometimes gives a perfect result. The only exception I would make to this rule would be for a patient whose circumstances demanded as short a treatment as was possible, and in whom one found the nasal mucosa in the middle meatal region in such a state of advanced polypoid degeneration as rendered it practically certain that a similar condition was present in the antrum. In such a patient only careful curettage, combined with free drainage, would offer any prospect of success. This point would not be insisted on were it not for the fact that from time to time it has been advised that the radical operation should be adopted in the first instance in all cases of chronic antral suppuration.

REFERENCES.

- ¹ *Proceedings of the Laryngological Society*, November 1st, 1901. ² *Lancet*, 1901.

THE TREATMENT BY ASCH'S OPERATION OF DEVIATIONS OF THE NASAL SEPTUM,

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IN view of the common occurrence of deviations of the nasal septum in healthy persons, it is almost a work of supererogation to mention that treatment of the condition is only required in the minority of cases; in fact, in those instances where definite symptoms are found, which are referable to the displaced structure. In certain individuals the deflection is largely concerned in producing not only marked nasal symptoms, but also in bringing about disabilities which are not confined to the nasal cavities themselves, but affect correlated organs and induce grave discomfort or even suffering. The condition is usually most marked in the triangular cartilage of the septum. The cartilage may be more or less displaced into one or other nostril, or the deformity may be of a sigmoid character, obstructing alternately the right and left passages; there may be an angular deflection, an obtuse bending or a combination of these conditions, possibly combined with distinct spurs or outgrowths.

In marked degrees, then, of nasal obstruction caused by one or other of the above forms of deviation, it may become necessary to advise an operation for the rectification of the distorted structure. A large proportion of the operations, which have from time to time been recommended with this object, have been far from universally successful; indeed, their very number is almost an index of the generally unsatisfactory nature of treatment as applied to this disease. The septum, like the habitual criminal, is a confirmed "recidivist," and by reason of its resiliency is most apt, after a straightening operation, to creep back to its old malposition. The destruction of this quality of resiliency appears to be thoroughly effected by the operation suggested by Dr. Morris Asch, and communicated by him to the American Laryngological Association in 1890. The method has met with a very considerable measure of success, and its essential objects are accomplished by making a crucial incision in the nasal partition,

breaking down the resistance of the segments so formed at their bases, and by this means coercing the now flaccid structure into a new situation, where it is imprisoned by splints until it has become fixed.

Asch's operation has now been performed by a large number of surgeons, especially in America, and the consensus of published opinion, so far as I have ascertained it, has been strongly favourable. A number of modifications and "improvements" have been suggested, but, with one or two exceptions, I have not been able to convince myself of their usefulness. In fact, in certain instances the collection of "improvements," added to the remnants of Asch's original method, has appeared to connote an operation—possibly one of some value—but not that which was recommended by the original suggester, although labelled with his name; moreover, my own experience of the operation points to the conclusion that extremely good results are to be obtained by a pretty close adherence to the method as described by Asch himself.¹

The technique of the operation is very briefly as follows: The patient, with the head drawn over the edge of the table, is anaesthetized to a point bordering on complete insensibility. The little finger is introduced into the stenosed nostril, and the point of greatest convexity of the cartilaginous septum determined. Also the presence, nature, and location of any adhesions which may exist between the septum and the lateral wall of the nasal fossa are decided upon. After breaking down the adhesions, if present, either with the finger or a curved gouge, Asch's cutting forceps are inserted, the narrow blade being in the stenosed nostril and the wide, cutting blade in the opposite one. An incision is then made parallel to the floor of the nasal cavity, and, if feasible, across the greatest convexity of the deviation. The haemorrhage for a few minutes is decidedly brisk, but there need be little delay in making the second incision, which should intersect the first at right angles and as nearly as possible at its centre. The patient is now turned over on his side and the accumulated clots of blood are allowed to flow from his pharynx and nasal fossae. After the return of the patient to his former position a little more anaesthetic is administered, and by means of the finger introduced into the stenosed nostril, the segments which have been formed by the crucial incision are thoroughly broken down at their bases and pushed into the non-stenosed nostril. On this point depends, to a great extent, the success of the operation, for unless the fracture of these segments is assured, the resiliency of the cartilage will not be overcome and the operation will fail. The septum is then thoroughly straightened with Adam's forceps, and the nasal cavities are sprayed with ice-cold Dobell's solution, or some similar alkaline and antiseptic wash. The finger is then felt to pass easily to the posterior nares through the formerly narrowed cavity. A well-fitting Mayer's splint is introduced into the previously stenosed nostril, and a smaller one, with a view to controlling haemorrhage, into the other. The smaller splint is removed on the following day but the larger one is not removed for two days, after which it is cleansed and removed every day for five weeks. The nares, for the first two weeks at least, should be sprayed daily with a mild detergent solution.

A pair of cutting forceps with blades bent at a right angle are convenient for making the horizontal cut but they are not essential.

The chief difficulty appears to be the accurate performance of the two incisions in relation to the floor of the nose, to the greatest convexity of the deviation and to each other; and, as visual inspection is in my experience impracticable, it is necessary to be guided by external landmarks. There may also be, especially in narrow nostrils, some little difficulty in introducing the broad blade of the cutting forceps. A gentle boring movement of the wrist, employed as the blades are being passed into position, has usually been sufficient to overcome this.

As I have indicated above, my personal experience of this method has been very favourable, and I mention below some representative instances in which the improvement has been sufficiently prolonged for the cases to be reasonably looked upon as successful ones. I have not had occasion to note, either in these cases or in any others, untoward effects of any kind, except a minute perforation of the septum