TWO CASES OF BLINDNESS DUE TO SPHENOIDAL
AND ETHMOIDAL SINUS DISEASE,

BOTH CASES TERMINATING FATALLY: NECROPSY.

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A NUMBER of cases of the nature indicated by the title of this paper are on record. Sandford, six years ago, brought a case under the notice of the Ophthalmological Society in which there had been double optic atrophy from sphenoidal sinus disease, and was able to show the condition present in the skull after death. McBride mentions a case recorded by Rouge where there was exophthalmos, strabismus, deafness, and blindness. Death soon occurred, and the sphenoidal sinus was found diseased. Sphenoidal sinus disease sometimes gives rise to retrobulbar neuritis as described by Holmes. In addition to the above a considerable number of cases of sphenoidal sinus disease have now been placed on record by Schäfer (who first recorded the condition), Grünwald, Nöbel, MacDonald, Bronner, Heryng, etc.

In my two cases, I think the extensive disease in the ethmoid was the chief feature. Added to this were the symptoms of serious brain mischief.

CASE I. Ozaena: Necrosis of Nasal Septum: Ethmoidal and Sphenoidal Sinus Disease: Brain Complication: Death.—On September 8th, 1896, I saw with Dr. Hunton, in the Stockton Union Hospital, a youth (H.G.), aged 18, grocer's assistant, with the following history:

On August 31st, 1896, he was grinding a tea mill when he suddenly became unconscious, and was convulsed for an hour. On September 1st he felt quite well again. On September 3rd he had another fit. He experienced a cloud over both eyes, and went totally blind within forty-eight hours. He was removed to the Union Hospital. The temperature was 99.2°. There was no albumen or sugar in the urine. The temperature never rose above 100°. He was conscious, comfortable, and had no pain whatever. The pupils were widely dilated, reacted very slightly to light, but there was no perception of light. The left disc was pale, ill-defined, and the veins over-distended. The right was slightly pale. Up to this illness he had enjoyed very good health, and there was no history of syphilis or tubercle. His heart and lungs were healthy. The opinion now formed was that of some disease about the body of the sphenoid, namely, sarcoma, or perhaps gumma. A bad odour from the patient led me to examine his nose, which was found full of greyish-green ozaena crusts. He now stated that he had seen pieces like bone and skin come away from his nose. As douches were useless, the nose was cleared of crusts with probe and forceps on September 25th, and the following observed:

The nose is very roomy, turbinates much atrophied, nearly the whole of bony septum is away, horrible foetid pus is coming from the open ethmoidal cells, and the perpendicular plate of ethmoid is necrosed and loose. We now diagnosed sphenoidal sinus disease, with secondary brain mischief in the region of the optic commissure.

After free douching, cocaine was applied and the ethmoidal cells scraped out and part of the necrosed perpendicular plate removed.

On October 2nd, as the patient was no better, the sphenoidal sinuses were explored, after the plan of Grünwald and Schäfer, namely, by passing a fairly large trocar along the lower border of the middle turbinate until the point came against the basisphenoid; then the point was tilted upwards and backwards, so that the trocar lay across the middle turbinate, and was then pushed firmly and very steadily on, until the point entered the sinus (a solid perforator with a shoulder a quarter of an inch from the point answers better). After the operation the discharge was increased in amount, and the patient felt better. Sight, however, did not improve. Later he was put on a mixture of potassium iodide and nuxvomica, and kept quietly in bed, without, however, improving.

On October 7th he had another fit, became unconscious, and developed facial paralysis and divergent strabismus. He sank, and died three days later.

I greatly regret to state that permission to make a *post-mortem* examination could not be obtained. In this case I think there had been an escape of pus into the brain cavity, followed later by a suppurative meningitis. The family history was difficult to obtain, the boy's parents were dead, and he was practically without relations. He had the flattened nose usually seen in these cases, but there were no definite indications of hereditary syphilis.

CASE II.—K. S., a girl aged 14, was sent to the North Riding Infirmary, Middlesbrough, on March 9th, suffering from blindness, which had come on a fortnight previously.

Personal History.—She had had inflammation of the eyes five or six years before, lasting about three months. The present illness began three months before with a small sore in the roof of the mouth. This healed, the patient then began to complain of the head, and became listless and drowsy. Sight began to fail about two months later, and was entirely lost in four or five days. A discharge from the nose began three months before admission, and has increased.

Family History.—Father and mother living. Father denies any specific disease. Patient is the third and only living child. The first died immediately after birth, the second lived six weeks.

Condition on Admission.—The patient is extremely pale and unhealthy looking. Very tremulous when examined, otherwise inclined to be drowsy, and sleeps a great deal. The pupils are widely dilated. Has old corneal opacities, more marked in the right eye. Not the faintest perception of light, pupils do not react to light; movements of the eyes good. Does not complain of pain. Walks easily. Nothing definite in the fundus on

examination with the ophthalmoscope; prescribed iron and ordered urine to be carefully examined. The tector of ozaena was not detected at this examination, and nothing had been said about discharge from the nose. A few days later I again examined the patient; she was *in statu quo*. Sleeps a great deal. Temperature varies between 98° and 100°. I detected a very bad odour from the patient, and observed distinct flattening of the nose. As nothing had been found in the urine, I proceeded to examine the nose, and found it full of typical greenish ozaena crusts. Thinking now of the previous case, I began to suspect sphenoidal disease. I ordered frequent douching of the nose with strong soda solution. This, however, had no effect, so I cleared the nasal passages with probe and forceps, and, after douching away the stinking pus which had accumulated under the crusts, I observed the following: There is a very large perforation of the nasal septum, in fact the whole bony septum seems to be absent. The ethmoidal region is occupied by granulation tissue covered with pus. There is dried pus on the nasopharyngeal wall. The nose is very roomy. The inferior turbinate is hardly recognisable, the middle turbinate much smaller than normal. The movements of the soft palate are to be seen on swallowing, and one can also recognise the Eustachian orifices. A further examination of the fundi at this time satisfied me that no definite changes were to be observed. No scar is to be seen in the roof of the mouth; there are no scars about the angles of the mouth. The teeth are fairly good and not peg-shaped, the hearing is good. The opacities in the cornea are probably the result of interstitial keratitis; they interfere, to a certain extent, with the examination of the fundus. We had now two things in favour of hereditary specific disease, namely, the corneal opacities and the early deaths of the two other children. I accordingly prescribed syrup ferri iodide c. potassium iodide grs. x., and decided to puncture the sphenoidal sinuses at an early date. The temperature at this time was slightly subnormal. On April 1st the sphenoidal sinuses were punctured in the same manner as in the previous case; next day there was considerably more discharge from the nose, and continued so.

Examination, April 7th.—Patient not so drowsy, still very pale and tremulous; bears the cold very badly; temperature still rather unsteady; pupils not so widely dilated, but do not react to light; patient still quite blind.

Ophthalmoscopic Examination.—Optic discs show decided change since previous examination, they are distinctly pale, evidently a commencing atrophy; nose very clean; inspissated pus on naso-pharyngeal wall looks as if it were trickling down from the openings in the sphenoidal sinus. On April 6th the temperature in the morning was 98°, in the evening it was 99°. On the morning of April 10th I passed a probe into the sphenoidal sinuses through the puncture openings previously made. Nothing further in the way of operative interference was done. The temperature on the morning of the 10th was 98.8°, in the evening 99.2°. From this date until the 13th the temperature varied between subnormal and 99.4°. On the evening of the 13th the patient, after being up in the afternoon, complained to her father, who was visiting her, of feeling very sleepy and drowsy, more so than usual. On the morning of the 14th the temperature was 101.4°, and the patient was very somnolent. Later in the morning she fell into a comatose condition, from which up to late in the afternoon she could be roused by shouting to her. In fact this could be done until half an hour before death, which took place about 4.30 P.M. The pulse on the morning of the 14th was distinctly slow, from 55 to 60 per minute. In the afternoon and shortly before death it was very slow—from 45 to 50 per minute. Prior to the onset of the coma the patient had not complained of pain in the head or anywhere else, only of the drowsiness. There were no sweatings or rigors.

Post-mortem Examination.—This was kindly performed by the house-surgeon, Dr. Donaldson, in my presence, the head only being examined, and the following changes will, I think, be sufficient explanation of the cause of the blindness and a fatal termination. The base of the brain was very adherent to the anterior fossæ of the skull, and the base of the brain corresponding to the anterior fossæ was covered by a considerable quantity of fairly firm lymph. The cribriform plate of the ethmoid and the whole of the ethmoid was soft and carious, the whole breaking down under slight pressure of the fingers, causing pus to exude freely from the ethmoidal cells. The base of the skull occupied by the sphenoid was removed, and on examining the sphenoidal sinuses the openings made by the trocars were readily found. The anterior walls of the sinuses were carious and soft, and the sinuses contained pus. The whole brain was soft and putty-like in consistence, evidently the result of a general softening. There was no fluid in the ventricles.

In all probability ozaena in these cases was not true ozaena or atrophic rhinitis, judging from the extensive necrosis and loss of bone tissue. I believe they should be classed among syphilitic cases, and this would apply more especially to the second case, where there was undoubted evidence and history of hereditary specific disease. Some authorities hold that ozaena, or atrophic or foetid rhinitis, is a disease of the mucous membrane; others that ozaena is secondary to disease of the sinuses (Michel, Grünwald).

Noebel (of Zittau) and Löhnberg (assistant) in the *Berl. med. Woch.* (March 12th, 19th, and 26th, 1900) discuss the whole question very thoroughly. Noebel says Ludwig Grünwald, in pointing out the relations of ethmoidal and sphenoidal disease to ozaena has placed it in the clear light of physical investigation, and after him there is nothing more to add. Therefore Noebel believes in the focal theory of the disease as against its being a disease of the mucous membrane or of the turbinates. Noebel says Grünwald's investigations have not advanced treatment, and he has some very important suggestions to make on that point. He does not believe in heredity as a predisposing cause. He considers ozaena to be in most cases a residue of infectious disease—for

example, scarlet fever, diphtheria, etc.—and this explains why it is seen in more than one member of the same family. As to the factor, he says, just as cavities in the mastoid, lung, etc., have their odour, so have cavities of the nose, and is due to saprophagous parasites, which produce the gases formed from the products of bone necrosis.

As regards treatment, where there is ethmoidal disease he scrapes away the granulation tissue, diseased bone, etc., and opens the ethmoidal cells to give exit to pus.

Noebel's plan of opening the sphenoidal sinuses is worth noting. Previous to operation he applies a 20 per cent. solution of cocaine, in nervous cases partially anæsthetises, but prefers cocaine.

Armamentarium.

In addition to Grünwald's forceps and sharp spoons, he has three modifications of Bechmann's scissors; one pair of scissors curved on the flat to the right to cut through the left middle turbinate; another pair curved to the left to cut through the right middle turbinate; thirdly, a pair curved on the edge down towards the fingers; lastly, a pair of punch forceps to punch out as large an opening as possible in the anterior wall of the sphenoidal sinus. The dressings are sterilised and the nose well douched out.

First Step.

Separate the posterior half of the middle turbinate with the curved scissors cutting transversely through the middle turbinate. Cut away the posterior half with the scissors curved on the edge, then haul it away with snares or forceps and plug the nostril. A few days after this, having first found the ostium of the sphenoidal sinus with a probe, we enlarge it with a sharp spoon so wide that a blade of the punch forceps passes into the cavity. Now snip away the bony anterior wall of the sinus until a large opening is got.

If by now caries is demonstrated, we remove the granular degenerated mucous membrane with a sharp spoon, taking great care at the roof where is the brain, and at the outer side where is the optic nerve and the carotid artery. If the mucous membrane is not seriously diseased leave alone, but make the opening as large as possible, for it has a tendency to diminish in size as shown by Moritz Schmidt.

After cleansing the nose introduce iodoform gauze into the cavity, and into the nostril a tampon saturated with eucalypti oil, then send the patient to bed. Plug afresh daily. After the fourth day douche with astringents. Two effects of the operation manifest themselves—namely, cessation of headache and disappearance of factor. Both are explained by the free exit of the discharge. Naturally suppuration cannot cease until the cavity is healed.

Finally, Noebel says all attempts to solve the disease (ozæna) from the point of view of the turbinate theory, has proved unfruitful.

The focal theory has cleared up the essence of the disease from all points of view. That theory teaches us that the nasal suppurations—ozæna and others—depend chiefly on disease of the ethmoidal and sphenoidal sinuses, and to obtain cure or relief the treatment required is surgical, or it is without success. Grünwald and Schäfer have been in the habit of using a trocar to puncture the sphenoidal sinuses. Their plan is described along with Case I. Spiess employs a trephine.

COMPLETE PROLAPSE OF THE RECTUM SUCCESSFULLY TREATED BY INTRA- ABDOMINAL FIXATION.

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THIS operation is suggested in several of our recent British textbooks, but as there are not many recorded cases the following one may be of interest. In May last, a male child, aged 12 months, was brought to the out-patient department of the Belfast Royal Hospital suffering from an extensive complete prolapse of the rectum. The protruding mass measured 4 inches in length; it was very congested, and the mucous membrane was marked with a number of small ulcers. The

bowel could only be reduced under chloroform, and when reduced the sphincter was completely relaxed and offered no support at all.

The patient had been under Dr. Clokey's treatment for three months before coming to hospital, and had been given various astringent injections, had had the buttocks strapped together, and had worn a pad and T bandage at different times without the slightest benefit, and was finally sent to hospital for operative treatment.

On admission the bowel was reduced under chloroform and the buttocks carefully strapped together; the child was also circumcised. During the following twenty-four hours the bowel came down six times, and each time reduction was more difficult on account of the increasing congestion of the bowel, so I decided to open the abdomen and fix the rectum in its place. This was done through an oblique wound over the left iliac fossa, the abdominal wall being opened by splitting the muscles and aponeuroses parallel to the direction of their fibres. The small intestines were pulled over to the right and the rectum pulled upwards as far as possible. The peritoneum was then stripped off a part of the iliac fossa so as to expose the iliac fascia, and then the bowel was stitched with a continuous fine silk suture to the exposed area of iliac fascia. The suture was put in in an oval manner, so as to bring a large area of bowel into contact with the fascia. The portion of bowel so bound down was quite close to the attachment of the mesocolon, in order to prevent an aperture being left in which intestine might later become strangulated. The operation was simple, and easily performed. Next day the child seemed none the worse, and it made a rapid recovery, and has not shown the slightest sign of any relapse, although it had an attack of diarrhoea in August. The laparotomy scar is now quite firm, and has not stretched at all.

This was the first case of complete prolapse of the rectum on which I have operated, and I decided on this operation in preference to that which is, I believe, commonly performed in these severe cases—namely, complete removal of the prolapsed portion of bowel—on account of the success attending the similar operation of ventrifixation of the uterus, and on account of a dislike to mutilate the lower part of the rectum for fear of giving rise to stricture or want of control of the bowel, and also because I believe that the operation I performed is less risky as regards immediate recovery than that of removal of a part of the bowel.

The only objection I see to this apparently ideal operation is the risk of a subsequent ventral hernia, and this can be minimised to a great extent by splitting the muscles and aponeuroses as far as possible, and not cutting them.

MEMORANDA: MEDICAL, SURGICAL, OBSTETRICAL, THERA- PEUTICAL, PATHOLOGICAL, Etc.

THE USE OF TUBERCULIN IN THE TREATMENT OF LUPUS VULGARIS.

It is with the hope that tuberculin may be useful in similar cases that I publish the following notes of a case in which surgical measures had been adopted previously at varying intervals over a period of three years, but without any material improvement: J. R., aged 40, a cook, was admitted into the Sussex County Hospital on May 1st, 1899, for lupus of the nose of three years' standing. The part had been scraped under an anæsthetic eight or nine times, the scraped surface having been touched with acid nitrate of mercury or fuming nitric acid on different occasions, and on no one occasion had the surface continued healed for more than a few weeks. Latterly the septum had become affected, and had been scraped, but the gelatinous-looking nodules had reappeared, and the disease was evidently advancing and infiltrating previously healthy tissue. There was no definite pain in the nose, but there was a smarting sensation which was more appreciable in cold weather. The patient had been in Guy's Hospital seven years previously for tuberculous disease of the left elbow-joint; the joint was excised, and she made a good recovery.