not to forget that one organ, although it may have its special functions and special diseases, is still only a part of a part or of the whole, and that we ought always carefully to examine and see if the one disease be not in some connection with some affection of a neighbouring organ, or with some constitutional disease.

ON APROSEXIA,[1]

Being the Inability to Fix the Attention and other Allied Alterations of the Cerebral Functions caused by Nasal Disorders.

BY DR. GUYE,

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DURING the last ten or twenty years a great number of authors in various countries have drawn attention to disorders of the nose, and to the remote effects of such disorders in other organs. Voltolini was the first to observe the dependence of many cases of asthma on nasal polypi. Hack, the lately deceased professor in Freiburg, described a series of pathological nasal reflèxes, and, although the rather complicated theory by which he tried to explain them is open to deserved criticism, he has the merit of having promoted observations and discussions which have much enlarged our knowledge of these pathological reflexes.

I believe it is generally admitted that we have the right to consider as pathological nasal reflexes only such symptoms as can be looked on as modifications of the normal nasal reflexes. So may the normal expiratory nasal reflex, sneezing, be changed into nasal cough and asthma ; so may the vasomotor reflex be exaggerated and produce local hyperæmia of various regions of the head and face, morbid sensitiveness to alcoholic stimulants ; so may the secretory reflex give rise to unnatural flow of tears, and to conjunctivitis, as in hay fever. But besides abnormal reflexes, nasal disorders will produce disturbances in contiguous organs which are open to other more simple mechanical interpretation. All aurists are but too well acquainted with the influence of nasal disorders on the tympanic cavity, and on the organ of hearing.

That nasal disorders, acute coryza, as well as the most chronic forms of nasal obstruction, influence the cerebral functions in a more or less serious manner has been known to all who have given any attention to diseases of the nose ; but it has not, I believe, received the attention it deserves, especially from the general practitioner. If it were known generally how many cases of chronic headache, of inability to learn or to perform any mental work, are due to chronic disease of the nose, many of these cases would be easily cured, and the number of children who are victims of so-called over-pressure in education would, I firmly believe, be notably reduced.

[1] This is the completed paper, a portion of which was read in the Otological Section of the British Medical Association's meeting at Leeds, August, 1889.

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I have for a long time past made a point of studying the impairment of the cerebral functions caused by disorders of the nose, and I have given the name of aprosexia (from προσέχειν τὸν νοῦν) to one of the symptoms which seems to me to be next to headache, the head symptom, or in other words, the elementary and generally the initial symptom. What I call aprosexia is the inability to fix the attention on any definite more or less abstract subject. A young man—a student, for example—will try to read. After having read a sentence he will have to read it again, three, four times and more, and in some cases he will then know what he has read, and go on, always struggling with the same difficulty. In other cases he will not know it even after reading it repeatedly, and will throw away the book or newspaper and fear to take it up again. If it was a lesson which he had to learn, and he has at last been able to master it, after one or two days he will have forgotten all about it, and have to begin anew. The slightest mental exertion will give him headache, he will not be able to learn anything by heart, and will not get on with his studies. Some schoolboys will feel an inability to get on with some special branch of study—for example, mathematics—others with history, being unable to remember any dates or numbers. The headache will be sometimes permanent, but it is mostly intermittent; in some cases it will be there regularly in the morning after rising, in others it will come up at school-time, as the result of the slightest mental exertion.

Case 1: The first case which attracted my attention was that of a boy whose sister was under my treatment for ear disease in connection with nasal obstruction. The father asked leave to bring me his boy, who had no ear-disease, but who could not breathe through the nose, and could not learn anything. I found complete nasal obstruction, and the boy, who had been to school for a year, had not been able to learn more than the three first letters of the alphabet. I removed a mass of adenoid tumours from the naso-pharyngeal cavity, and when his father brought him again, a week later, he told me that his son had learnt the whole alphabet in that week, and that he thought him all right now.

This case remained for a long time a unique one in my observations, and it is only since more general attention has been given to the remote effects of nasal disorders, that I found out how numerous are the cases resembling this one in more or less particulars.

It is with aprosexia as with giddiness in Ménière's disease. If the aurist asks all his patients complaining of ear disease if they suffer or have suffered from giddiness, he will receive an affirmative answer in a great number, perhaps in the majority of his cases. If the physician in all cases where giddiness is complained of makes a rule of examining the state of the ears, he will, as well as the aurist, discover a relation between giddiness and ear disease in a great number of cases. But the patient will rarely find it out for himself; on the contrary, very often he will be quite incredulous when he is told that his giddiness and his vomiting are caused by the state of his ears. So you may treat a great number of cases of nasal obstruction, either on account of secondary aural or perhaps laryngeal lesions; and if you do not inquire after the existence of aprosexia or headache, very few patients will complain of these

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symptoms. If, on the contrary, you make a rule of enquiring after them in every case, you will be astonished at the frequency of these complaints. It is of more importance still that medical men in general practice be impressed with the frequency of that relation, and that they make it a rule in every case of habitual headache, and inability to work, and loss of memory, to inquire into the state of the nose, and to ascertain if the normal nasal respiration be not impeded, and habitually or temporarily superseded by breathing through the mouth.

Some of these cases are boys at school or at college, who complain of headache as soon as they have been for an hour or two at school. The master, seeing that they are unable to work, sends them to take a walk or sends them home for a holiday of some weeks. They are treated by rest and iron, and when they come back the same symptoms recur. After a local treatment of their nose and naso-pharynx, and generally as soon as their nasal respiration is restored, they are quite well, and get on with their work as well as others.

Case 2 : A typical case of this class was the following :—A boy of fourteen, J. A., was brought to see me on 4th May, 1888. Since an attack of croup in his childhood, he had always coughed much, and had had a bad cold two or three times a year. For a year he had very often had headache ; it began generally in the morning, got worse in school, and rather better in the open air. At the same time he had aprosexia, and often a circumscribed redness on the forehead. The master then sent him away to have a walk because he was not able to learn anything when in that state. As medical treatment had proved of no avail, and the mother of the patient thought the ailment rather serious, she had just decided accordingly to the advice of her doctor to have a consultation with a psychologist, when another doctor, a relative of hers, advised her to bring the boy first to me, because it might be that the cause of his illness would be found in some nasal condition. I found the hearing power reduced in both ears : right ear, watch 0·50 m. ; left ear, 3 m. (normal distance 9 m.) In the right ear there was some hard black cerumen, which I left for removal on a later occasion. In the pharynx I discovered a few flat infiltrations, indicative of larger adenoid infiltrations in the naso-pharynx. On digital exploration I found these, and scraped part of them away with my finger nail and subsequently with my annular curette. After this, and after the Politzer's douche I found the hearing power, right ear, 2 m., left ear, 6 m. On the 11th of May (after a week), right ear, 1·50 m., left ear, 6 m. No headache had occurred at all the whole week. The cerumen in the right ear was removed. After this and Politzer's douche hearing was in the right ear, 2 m., left ear, 6 m. On the 18th of May, right ear, 2 m., left ear, 8 m. On the 25th of May, right ear, 2 m., left ear, 6 m. No headache. I removed instrumentally a rather large adenoid tumour. After Politzer's douche, right ear, 2·50 m., left ear, 8 m.

I did not see the patient again, but I heard from his relatives that he remained quite well. From the first day of the treatment the patient, whose headache and aprosexia were of such an alarming nature that a psychological consultation was intended, had not had headache again for a moment, and his working or learning powers were quite restored.

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Then I have seen students working for an examination who, having tried repeatedly to read with a special tutor, and observing that after a week they had forgotten everything, gave it up for half a year, and tried again with the same result. After a local treatment of the same kind as mentioned above, their working power was restored, and they took their degree after a few weeks' work.

Case 3: Mr. F. F., aged twenty-six, a student of law in Leiden, came under treatment on January 26, 1888. Two years ago he had had nasal obstruction for some time, and was treated with nasal injections. Since that time he has always breathed only through one nostril at a time, and at night he breathes through the right nostril when he is lying on his left side, and through the left one when lying on the right side; at the same time he keeps his mouth shut. In October of last year he had for a time a catarrh of the tympanum, with ringing in the ear and loss of hearing. After some treatment by Politzer's insufflation, these symptoms disappeared. He was also troubled with giddiness for some time. Headache he had often formerly, now rarely. Alcohol always produced much congestion. His complaint now was loss of memory, which made his reading for an examination quite impossible. He had twice taken a special tutor, but had had to give up studying because anything which he had mastered with great application he forgot regularly after a fortnight. Hearing power in the right ear was 0·50 m., in the left ear, 0·60 m. The membrana tympani, right and left, were normal. The pharynx was normal. Water injected into the nose ran round normally. The mucous membrane of inferior turbinated bone was rather hypertrophied on both sides. In the naso-pharynx adenoid tumours were found and removed, partly by the finger nail and partly instrumentally. After this and Politzer's inflation hearing power was, right ear, 0·80 m., left ear, 1 m.

February 7, right ear, 1·50 m., left ear, 2 m. The right turbinated bone was treated with cocaine and solid nitrate of silver on a probe.

On February 21, right ear, 2 m., left ear, 3 m. The patient reported that he got on better with his reading. Treatment of the left nostril was conducted in the same way as for the right on the former occasion.

On March 29, right ear, 2·50 m., left ear, 4 m. The memory was quite normal again. Four days before this the patient had passed his examination successfully. On this day I removed a cartilaginous crista from the left side of the septum narium, and I did not see the patient again. I only heard afterwards from relatives of his that his condition remained excellent.

Remarkable in this case was (1) the exaggerated sensitiveness to alcoholic stimulants, which is frequently observed, and which must be the consequence of an exaggeration of the vasomotor reflexes; (2) the alternative respiration through one nostril only at a time; and (3) the experimentum crucis, *i.e.*, the successful result of his examination a few weeks after the close of the treatment.

Another rather remarkable case recently treated was the following:—

Case 4: Mr. Herman K., aged seventeen, was brought to me by his brother, a young medical man, on July 10, 1889. He had been treated some four or five years ago on account of nasal obstruction and headache,

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by a laryngologist in Cologne, by cauterization of the nose, with rather good temporary result. Nevertheless he continued to sleep with his mouth open, and he suffers now and then from headache and aprosexia. Since February last he got worse, and was no longer able to do any mental work. He often reads the simplest things four or five times over without knowing what he has read. He is staying in the country now doing nothing. To read a newspaper, or to take a walk in rather warm weather, is enough to produce headache. His general health is not very good. A year ago he weighed one hundred and twenty-six pounds, now only one hundred and six. He makes no complaints about the ears; there is no ringing, and no giddiness.

Hearing power right and left, 3 m. On the pharynx I found large flat adenoid infiltrations, the mucous membrane of inferior turbinated bones rather swollen, and on digital exploration the pharyngeal tonsil largely hypertrophied. I removed it partly by the finger nail, and partly instrumentally, and prescribed saline nasal injections and a contra-respirator for the night.

July 25. He has had no headache at all. Aprosexia a great deal better. The contra-respirator is still employed every night. Cauterization of the right inferior turbinated bone with nitrate of silver.

August 1. Same treatment on the left side, and removal of some remaining part of the pharyngeal tonsil.

August 29. A week after the last consultation, the patient, after an exposure to rain and cold, had a slight acute nasal catarrh, with some catarrh of the left tympanum, and ringing in the left ear, which still persists, with some redness and concavity of the membrane. After inflation, according to Politzer's method, the symptom subsided and did not return. He now weighs again one hundred and twenty-six pounds, has had no headache, and works without any difficulty for his admission into an agricultural school.

Nov. 7th. The brother of the patient came to tell me that his brother was quite well, that he slept now with his mouth shut, and would continue the after-treatment for some time. The result of the treatment was very satisfactory indeed, especially on account of there being a rather strong hereditary nervous predisposition. The father has been in a lunatic asylum for some years, one brother has been suffering from epilepsy, and the patient himself was considered to be a very neurasthenic boy.

Nearly all the cases I observed were boys or young men at school or at the university. The only female case was a young girl preparing for the study of pharmacy, an exception which confirms the rule. As a rule in fact, cases of aprosexia nasalis are found in young people studying or preparing for study, or especially for examinations, and generally they would be looked on as cases of over-pressure in schools.

Now I am far from denying the existence of over-pressure in education, especially in the latter half of the nineteenth century, nor of our duty to try to keep it within rational limits. But when we see a number of cases, which to a superficial observer are victims of over-pressure in schools, give way to local treatment of the nose, we must acknowledge that what

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is looked on as the result of over-pressure is very often caused by a morbid state of the individual, and is open to a very effective treatment.

As to the physiological interpretation of the symptoms of aprosexia, we must first keep in mind that in a psychological aspect the inability to direct the attention on a particular subject, and to fix cerebral impressions in the memory looks much like a symptom of fatigue or cerebral exhaustion. But we cannot logically call something a symptom of fatigue when it exists very markedly in cases where there can be no question of fatigue.

It may of course be, and in fact it is, very often caused by fatigue; and, in the same sense as Dr. Charlton Bastian, speaking of aphasia, at a meeting of the British Medical Association two years ago, said very rightly that after a certain age we all of us suffer more or less from aphasia, so I might say that we all suffer from aprosexia when we are tired or overworked. But the question is, How is it that this cerebral symptom of exhaustion is produced by nasal disorders? I think in this way: Cerebral exhaustion must be the consequence of one of two causes. Either the nutrient matter which has to repair the loss produced by the function of the brain is not yet sufficiently procured or assimilated, or the products of the "tissue change," which have to be eliminated, are incompletely removed. This removal will, according to physiological principles, have to take place, partly, at least, by means of the lymph vessels; and, in this respect, we must point to the fact found by Axel-Key and Retzius, that large lymph vessels leave the cerebral cavity together with the fibres of the olfactory nerve. It is highly probable that structural changes in the nasal mucous membrane, and especially such as will exert pressure on the lymphatics, will impair or prevent the current of the cerebral lymph through the nasal mucous membrane. The retention of the products of the chemical processes in the tissues of the brain will lead to results which we may expect to be the same as those of physiological exhaustion, that is, of fatigue.

Besides structural changes, it is evident that local hyperæmia, which is so frequently seen as a pathological nasal reflex, will be apt to produce the same pressure on the lymphatics. And in this respect some cases of paroxysmal vasomotor aprosexia are very interesting. In these cases the aprosexia was not constant, but was produced especially by causes which influence the vasomotor reflexes, as change of temperature, coming from the cold into a warm room, and the paroxysms were accompanied by very marked redness of a spot on the forehead, corresponding to the frontal sinus. These paroxysms lasted from a quarter of an hour to an hour or more, and the patient was unable to understand and to recollect things which were told or explained to him during that time, which he could do quite well as soon as the paroxysm was over.

As to the way in which headache is produced in cases of disorders of the nose, especially by swelling of the mucous membrane, I have proposed the following explanation. The air contained in cavities communicating with the nose will be absorbed, and its pressure diminished, as soon as the free communication with the nose is impaired by the swelling of the mucous membrane. So it is with the tympanic cavity, with the frontal

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and other sinuses. Such a cavity will then begin to act as a dry cup, and produce collateral hyperæmia *ex vacuo*. We have, so to say, an *experimentum crucis* for this sort of headache in the experiment of Politzer. In this experiment air is not only drawn into the tympanic cavity, but at the same time into the sinus communicating with the nose; and, in fact, when such patients are treated by Politzer's insufflation at the time when headache is present, we see it almost constantly disappear for a shorter or longer period. We see the same happen very often in cases where an acute catarrh of the tympanum produces tenderness of the mastoid process, which tenderness, in its first stage at least, disappears after an inflation by Politzer's bag.

A few words about the relation between aprosexia and neurasthenia. A friend of mine, who is a psychologist, had the kindness to give me, as his opinion on my first publication on the subject, that he quite agreed with me as to the description of aprosexia, and that he had found the symptoms in a number of patients, but that he was inclined to consider aprosexia as a symptom of neurasthenia. I would not like to go so far as that. It is true of aprosexia, as well as of other pathological nasal reflexes, that they mostly occur in neurasthenic patients. But when by local treatment all the symptoms are cured and the patient restored to health, I think it is more natural to consider the local disorder as the cause of the symptoms than to look on that disorder as a symptom of general neurasthenia.

Case 4 seems very striking in this respect. A different question is this: Is a neurasthenic disposition a necessary soil for the production of nasal reflexes and of aprosexia? And this question, I think, we are not yet able to solve definitely for the present. I think we are not far from the truth if we admit, from an etiological view, three forms of aprosexia, that is, (1) physiological aprosexia as the result of cerebral over-exertion or fatigue; (2) neurasthenic aprosexia, where the cerebral exhaustion is produced by abnormal irritability and restlessness; and, (3) pure nasal aprosexia, where the exhaustion is produced by retention of the products of tissue change. Of course, the three forms will admit of various combinations and complications.

I will add a few words as to the treatment which I have found successful in most of my cases. After a careful examination, I generally treat at the first consultation the naso-pharyngeal cavity: after a week I treat one side of the nasal passages, and after another week the other side. If there are important anomalies in the septum narium, I remove them either with Dr. Bosworth's saw or with the chisel. The mucous membrane of the spongy bones, and especially that of the inferior one, I cauterize with solid nitrate of silver melted on the point of a silver probe, after having used cocaine previously. At the same time I make the patient syringe his nose two or three times daily with appropriate solutions of chloride of ammonium, and salt (½ per cent. of the first and 1 per cent of the second), and I let him wear at night a contra-respirator to control his nasal respiration during sleep. Lastly, I have found it very useful in a number of cases to let the patient make a gaseous menthol insufflation after the syringing, and with the same instrument which the

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patient uses for that purpose, he can be taught to apply a Politzer's douche, which often is a great relief to him. When the secretion in the nose is very scanty, I found the internal administration of iodide of potassium in solution (1 to 2 grammes *de die*) very useful. Sometimes I prescribe the liq. chlor. ferri, 5 to 10 drops, three times a day internally, and 2 to 10 drops in a tumberful of 1 per cent. salt solution for syringing the nose. Of course, the individual predilection and habit of each medical man will make him take different ways of arriving at the same end, the cure of the patient. And this will be attained in a great number of cases. According to my experience, the prognosis is very good on one condition, and that is, that we have to do with real acquired aprosexia, and not with cases of congenital idiocy even of a slight degree. I say this because parents having heard of aprosexia, are very prone to consider their weak-minded children as suffering from that disease, and to make to themselves illusions as to the result of the treatment. It is very important not to indulge in these illusions in any case where the inability to do mental work is congenital, even when we see such children having nasal obstruction and breathing through the mouth. But when it is ascertained that the patient has a good intellect, and that the development of his aprosexia has coincided with nasal obstruction and breathing through the mouth, then there is hope; and in such cases I would like to make a variation on the words made popular by Catlin, "Shut your mouth and save your life," and to say: "Shut your mouth and save your brain."

THERAPEUTICS, DIPHTHERIA, &c.

JELENFFY (Budapest). — **A New Nasal Speculum.** *Berl. Klin. Wochenschr.*, 1889, *No.* 38.

THE author describes a new nasal speculum, which can be fixed on to the forehead of the patient, so that the operator has both hands free. The speculum does not cover the space under the nose. **Michael.**

SANDBERG, A. G. (London).—**Poisoning by White Precipitate.** *British Medical Journal*, *March* 30, 1889.

THE patient, a woman aged forty-eight years, took by mistake 20 grains of white precipitate for sal-ammoniac. She soon complained of a burning sensation in the throat; at the end of thirty-six hours the mouth became sore, and the saliva flowed freely. After forty-eight hours the gums became very swollen and covered with a grey fur, and ulcers appeared on the inside of the lips and cheeks. Mercurial stomatitis rapidly developed and reached its climax on the fourth day: the lips, cheeks, and tongue were very swollen, and there were extensive brawny swellings over the parotid and sub-maxillary regions. Numerous ulcers developed on the

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