cough. She was ordered aperients, one blister, and 20 grains of aspirin every six hours. On the next day the pain was relieved and the temperature was normal. On the 5th the dose was ordered thrice daily and on the 6th it was lessened to 15 grains, the pulse being 60. The effective dose for such a case was thus lessened too soon and on the 8th some relapse occurred (the menses also). The 20-grain dose was resumed every four hours and, together with salicylate of opium lotions, quickly afforded relief. On the 15th, the pulse being again 60 and the temperature being subnormal, the dose was reduced to 15 grains thrice, and later twice, daily. On the 19th and 23rd slight relapses occurred, which yielded at once to increased doses. On the 19th stiffness of the joints only was complained of, which was treated by Tallerman-Sheffield baths and quinine with iodide of potassium. On Feb. 8th she was discharged well, except for slight valvular mischief, probably old.

CASE 9.—A girl, aged 18 years, was admitted into the hospital on Jan. 20th, 1902. She had had a previous attack of acute rheumatism when seven years of age; the present one began a month previously, but she had kept up till the last three days. She complained of pain in the feet, the wrists, and the hands. Her temperature was 101° F. She was constipated and had a coated tongue. There were effusion in the left knee and a systolic apex bruit, probably old. She was ordered aperients and 20 grains of aspirin every three hours. On the 21st her temperature was normal, her pulse was 76, and the pain was much less. On the 23rd her temperature was subnormal and her pulse was 68. On the 25th her temperature was 97.2° and her pulse was 58; she had little pain, so the dose was halved. On the 29th the treatment was alternated with iodide of potassium for stiffness. On Feb. 11th the patient was discharged well, except for the bruit.

CASE 10.—A youth, aged 17 years, was admitted into the hospital on Jan. 17th, 1902, with his first attack of acute rheumatism of one week's duration. His temperature was 102.4° F. and his pulse was 72. He had a systolic apex bruit and there were pain and swelling mostly in the ankles and the knees. He was ordered 20 grains of aspirin every four hours, a blister to the knees, and an aperient. On the next day he was much easier, his temperature was subnormal, and his pulse was 60. He was ordered to alternate an alkaline iodide with the aspirin, and a blister to the region of the heart. He progressed well till Feb. 7th, when tonsillitis occurred. He was convalescent on the 14th, when syrup of hydriodic acid was substituted and he was discharged on the 20th, the bruit only remaining.

CASE 11.—A man, aged 38 years, was admitted into the hospital on Feb. 10th, 1902. In July, 1900, he was an in-patient for three weeks with acute rheumatism and mitral affection; he was treated by salicylates and the temperature fell from 102° F. to normal in 36 hours. In August he was readmitted for another three weeks and again in October till the middle of December with relapses which were more or less controlled by salicylates. (His father died from rheumatism and his brother has it.) Three weeks before admission he had sore-throat; one week previously the feet and legs became painful and then other joints. The patient was sleepless and his temperature was 103°. He had a systolic apex bruit and an increased area of cardiac dulness. He was ordered 30 grains of aspirin every four hours and a blister to both knees. On the next day, after five doses, he had great relief, "much more," he said, "than from salicylates." His temperature was 96.4°, his pulse was 80, and there was no marked depression. He was ordered to halve the dose. On the 12th the patient perspired much in the night; he was now free from pain: the temperature was subnormal and the urine alkaline, with a specific gravity of 1020. On the 15th the bruit was as before; the dulness was normal. The aspirin was continued every six hours, then thrice daily, and he recovered well without relapse, being up on the 21st and out on March 2nd. He has, however, been readmitted once since then to go through a similar experience.

Considerations of space prevent the printing of notes of some 30 or 40 somewhat similar cases, including some of pleurisy and neuralgia. Subacute and chronic cases react less favourably, but the preceding suffice to show the power of the drug to relieve without discomfort and also the necessity of using sufficient doses continued sufficiently long if relapses are to be avoided.

Hove.

THE PREVENTION OF THE RECURRENCE OF NASAL POLYPI.

By EUGENE S. YONGE, M.D. EDIN.,

HONORARY ASSISTANT PHYSICIAN, MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT.

THE pathogenesis of recurrent nasal polypi, together with that of the primary growths, is still somewhat involved in mystery. It is true that the attractive field of speculative pathology has been diligently tilled, but with a few exceptions I do not think the harvest of definitely proven facts has been a very rich one. On the other hand, a study of this interesting subject, both in this country and on the continent, has convinced me that in the matter of the evolution of successful methods of treatment the labours of the clinical observer have been distinctly more fruitful. By successful methods of treatment I do not mean those procedures only which have for their aim the mere initial removal of the polypi, but rather those whose object it is to prevent the tendency to recurrence which these growths exhibit in such a marked degree. In some instances the recurrence of nasal polypi is only apparent and is due to the inaccessibility of their site of origin. The growths seem to arise most commonly from the concavity of the middle turbinate bone, from the lower part of the infundibulum, the uncinate process, or the bulla ethmoidalis—in other words, from the region of the middle meatus. Less frequently they may spring from the long free border of the middle turbinal. When, therefore, all visible polypi have been removed from the nose, others may still be packed away in the recesses under the middle turbinal and may rapidly enlarge and develop after pressure has been removed.

Polypi tend to return so long as any polypoid tissue is left, so that the removal of all such residual tissue which may be visible with forceps, snare, galvano-cautery, or chromic acid is a necessary part of the treatment. The cauterisation of the particular pedicles of the excised growths is recommended by some authorities; but this manoeuvre has, in my experience, been very frequently impracticable as the growths often sprang from areas which were hidden from view. The coincidence of polypi with suppuration in the accessory sinuses, especially the ethmoidal cells, is a common one. One observer¹ believes that nearly all cases of nasal polypi are due to suppuration in the sinuses, but this conclusion is not in accordance with the experience of the majority of surgeons; the polypi have, indeed, in some instances been considered to be the cause of the sinus disease, chiefly by preventing free drainage from the cavities. It would be possible to quote a considerable number of instances within one's own personal knowledge in which the two conditions of sinus disease and polypi had been found in the association of probable cause and effect but the following may serve as examples.

CASE 1.—A man, aged 25 years, was sent to me at the Hospital for Consumption and Diseases of the Throat for obstruction of the left nasal cavity, discharge of pus from that side, and unilateral headache. The cavity contained several large polypi and there was also empyema of the left frontal sinus and of the anterior ethmoidal cells. The nasal obstruction had not been noticed for several months after the nasal discharge had begun to be troublesome. A modified Kuhnt's operation was done on the frontal sinus and the anterior ethmoidal cells were also curetted. When last seen, one year after the operation there had been no recurrence of the polypi.

CASE 2.—A man consulted me about the middle of the year 1902 for post-nasal discharge of pus and nasal obstruction on the left side. He gave a history which pointed to an attack of inflammation in the left sphenoidal sinus and posterior ethmoidal cells 18 months previously from which time he dated his nasal symptoms. The nose had gradually become blocked on the left side and at the time of examination the obstruction was very marked. A collection of polypi was found towards the posterior part of the cavity projecting into the naso-pharynx. The polypi were removed and the posterior ethmoidal cells were curetted. Great relief was experienced and up to the present there has been no recurrence either of the growths or of the suppuration.

¹ Grünwald: Nasal Suppuration. Translated by Lamb London, 1900.

CASE 3.—This patient was a man, aged 32 years. There were a small collection of polypi on the right side and empyema of the corresponding antrum. The polypi were removed and the antrum was opened by alveolar puncture. The polypi recurred later. Six months after the first operation, as the antrum had not healed and the patient was anxious to get rid of the discharge, the radical (Caldwell-Luc) operation was performed and the nasal cavities were again treated. When last seen (six months after the last operations) the patient appeared quite cured of his nasal and antral disease.

Lambert Lack² has comparatively recently made some valuable observations on the origin and the radical treatment of polypi. He believes that these formations usually owe their origin and their tendency to recurrence to disease of the underlying bone—the morbid condition being an osteitis and a periostitis of the ethmoid. These observations have been practically confirmed by Thurston, Martin, Cordes,³ and others, although the last-named writer (Cordes) did not in his investigations always find bone disease in mild cases of polypi on microscopic examination. The growths, therefore, according to the foregoing theory, do not arise as independent morbid formations but are of the nature of outward and visible signs of morbid processes in the subjacent bony tissues. Clinical testimony in support of this statement appears to be provided by the fact that the inclusion of a portion of underlying bone, when removing a polypus with the snare, is found to be of distinct value in reference to the prevention of recurrence. Still further evidence is forthcoming in the excellent results in many cases of systematic treatment of the whole bony area from which the polypi grow.

It is a matter of common experience that when the polypi are few in number, are of long standing, and are not complicated by sinus suppuration, treatment with the snare will often effect a cure. In these instances the initial bone disease may be presumed to have subsided. More commonly, however, and especially if the growths are numerous and a radical cure is wished for, further treatment will be required. When all visible polypi have been removed it will be necessary to expose the parts from which they grew and to cut away the diseased tissues. This will probably involve as a preliminary the removal of a considerable portion of the middle turbinal or of what represents that structure. With local anaesthesia the undermentioned procedure⁴ has seemed, in my experience, to be the most rapid, the most effectual, and the least painful method of carrying out what is desired. The manner of applying the cocaine is of importance. Two long strips of sterilised gauze are dipped in 40 per cent. cocaine solution; one of these is inserted between the middle turbinal and the septum, the other is pushed within the concavity of the turbinal, well into the middle meatus, and a third strip is introduced between the former two under the inferior border of the turbinal. After a lapse of ten minutes the operation is commenced. Luc's flat nasal forceps of the largest available size is introduced into the nasal cavity, passed to the insertion of the middle turbinal, and the portion seized is twisted and rapidly withdrawn. The major part of the turbinal can be removed by three or four such applications of the forceps, which should be made in rapid succession, the whole process only occupying a very short time. After drying the parts by packing with gauze the region which has been exposed by the removal of the turbinal can be examined and polypoid remnants and other diseased tissues removed by the same forceps or by a ring knife. Luc⁵ additionally advises the opening of the posterior ethmoidal cells at the same sitting with his forceps.

The results of this procedure, with regard to the prevention of recurrence, have been very favourable, cases being cured in two, or at most a few, sittings, which would otherwise have had to endure weeks of treatment. If a recurrence does take place it is not of a severe nature and is usually more easily treated than is the primary condition on account of the modification which has taken place in the anatomy of the parts. Other methods differing in detail but having the same object as the above—viz., the treatment of the parts from which the polypi grow—have been attended with good results. General anaesthesia may, if necessary, be employed.

Lack: Proceedings of Laryngological Society of London, December, 1900, and Journal of Laryngology, July, 1900.

³ Cordes: Archiv für Laryngologie, 1900.

⁴ "Luc's method." The forceps is made in three sizes by Vaast, 22, rue de l'Odéon, Paris.

⁵ Luc: La Presse Oto-Laryngologique Belge, May, 1903.

Lastly, the most advisable method of treatment for severe cases of multiple polypi, with a history of several operations for their removal, is still somewhat *sub judice*. On the one hand, there is little doubt that when polypi are thoroughly removed in the ordinary way the intervals between the recurrences in certain cases tend to become longer and longer. On the other hand, one knows of instances where it has been felt necessary to clear out the nasal passages at comparatively short intervals for a period of years. For the severer cases of polypi, especially if associated with suppuration and extensive ethmoidal diseases, Lack⁶ has recommended a procedure which, briefly stated, is as follows. Under a general anaesthetic all polypi are removed, as is also the middle turbinal if still present. When there are many polypi but the extent of the disease is unknown, Lack advises commencing treatment by removing some of the larger growths with the snare under cocaine. This often enables a better view of the parts to be obtained and a more accurate estimate of the extent of the disease to be formed. The essential part of the operation is the thorough scraping of the lateral mass of the ethmoid with a large ring knife, by which large masses of polypi, degenerated mucous membrane, and fragments of bone are got away. Scraping is continued until all friable tissue is removed, the finger being introduced from time to time to ascertain the condition of the parts and the progress made. The field of operation is undoubtedly a perilous one, the vicinity of the cribriform plate being especially worthy of respect. It is, of course, highly advisable that the operator should have a very intimate knowledge of the region and that he should carefully abstain from using any force in an upward direction; also that a large ring knife should principally be employed. My own experience of this operation for severe cases of polypi, although somewhat limited, has, on the whole, been very encouraging. In no instance have any dangerous symptoms occurred. A temporary black eye has resulted on one or two occasions and in a case at present under observation there was after the operation a considerable outgrowth of granulations in the right nasal cavity which looked like a rapid return of the disease. These, however, have become considerably less and seem to be in process of spontaneous disappearance. The operation would not appear to be applicable to elderly patients.

Manchester.

ON THE NATURE OF CURSCHMANN'S SPIRALS.

BY E. E. LASLETT, M.D. VICT., B.Sc. LOND.,
SURGEON TO THE HULL AND SCULCOATES DISPENSARY.

CONSIDERABLE difference of opinion still exists as to the nature of the spirals present in the sputum of asthmatic persons. Dr. J. F. Goodhart in his article on asthma in Allbutt's System of Medicine¹ expresses the opinion that they are allied in nature to the plugs in the sputum of plastic bronchitis. So far as I have been able to find he is the only writer who holds this opinion. I have for some time had under observation a patient who suffers from asthma-like attacks and whose sputum presents features which lead me to believe that some forms (if not all) of the spirals are, as Dr. Goodhart suggests, of similar origin to the casts of fibrinous bronchitis.

The patient is a woman, aged 26 years, of delicate constitution. There is nothing of special interest in her family history. She first began to suffer from attacks of dyspnoea 18 months ago. At first the attacks occurred at rare intervals but gradually they became more frequent and prolonged until at one time she was almost constantly troubled with wheezing and troublesome cough and the more severe attacks occurred at intervals of about a fortnight. The patient was always forewarned of the onset of an attack by a feeling of tightness in the chest with diminution, even to cessation, of the previously abundant sputum. This discomfort increased during the day until towards midnight the dyspnoea became severe and the cough had

⁶ Lack: Cheyne and Burghard, Manual of Surgical Treatment, Part v., London, 1902.

¹ Allbutt's System of Medicine, vol. v., p. 296.