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SOME OVERLOOKED CAUSES OF COUGH.¹

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RIEDEL says "the intensity of paroxysms of cough is in no way immediately dependent upon the extent or intensity of the local alterations, so that we cannot form any definite conclusions from the nature and severity of the cough as to the seat and extent of the pathological alterations." This statement may well serve as the text for a paper dealing with extra-thoracic causes of cough. In a general way there are two kinds of cough: in one the explosive effort is attended by the dislodgment of some material within the air passages; with this we have nothing to do. In the other, sometimes called a useless cough, there is no expectoration. It may be tormenting, persistent and painful, but it is not attended by any systemic disturbance. Some of the causes of this latter will claim our attention. This kind of a cough is essentially chronic, since it depends upon a persistent lesion and, although worse in winter, it often persists throughout the year. You will readily understand from the foregoing that I do not propose any panacea for cough as ordinarily met with, nor advise that the chest be less thoroughly investigated in any case of cough; but I shall try to emphasize the fact that there are causes of cough outside the thoracic cavity.

The reflex cough, excited by the presence of a foreign body within the external auditory canal, is noteworthy for other reasons than that of being a mere pathological oddity, as each of you may know from experience if a probe has been passed into your ear, thus demonstrating the peculiar sensitiveness of a part of the canal. The irritation of other branches of the pneumogastric nerve may give rise to cough, and in this connection Dr. Leaming's facetious remark upon the nerve may well have place: "The pneumogastric

is a chummy, friendly nerve. It is the source of all our friendships. We dine together, drink together, smoke together by its influence, and in an assembly of people a cough will immediately be answered by coughs through the hall." Prof. W. H. Thompson enumerates fourteen kinds of useless cough, but I am especially interested in only such as are dependent upon some abnormality of the upper air passages.

Beginning with the nose, the subject of reflex cough due to irritation within its passages has been studied for some time. Such a cough is almost invariably set up when the nasal mucous membrane is touched with a probe, or when even a bland spray is used in the nose for the first time. It were easy to wax eloquent over adenoids and faucial tonsils as a cause of cough; but I forbear, for individually and collectively during the last three years we have exhaustively discussed this subject.

That follicular pharyngitis—really lymphoid tissue on the posterior wall of the pharynx—may be a cause of persistent cough has been well shown by Dr. Mayer, who reported twenty such cases, and devised a special instrument to remove the redundant tissue. A relaxed and elongated uvula occasionally causes an annoying tickling and a cough; but this usually innocent bit of tissue has been so sinned against that one hesitates to refer to it in this connection. "Our good daily paper" for a long time bore the advertisement of a man who named nine kinds of palate catarrh, against which he warned the public and for which he had the cure. I have seen cases in which he has amputated the uvula, short, as a step in the treatment but not the relief of the patient.

Dr. McCoy has investigated a nocturnal cough of children which he considers due to the drainage of mucus and saliva toward the larynx while the child lies upon its back—a sudden paroxysm of cough following the entrance of the fluid into the upper part of the larynx.

The most common of the, so to speak, outside causes of persistent cough is the presence of lymphoid tissue and varices at the base of the tongue, and since this is the most important I shall confine myself to its consideration. The foregoing causes should, however, be in mind when searching for the source of a persistent cough which does not yield to the usual treatment.

The entrance to the pharynx is surrounded by a ring of lymphoid tissue, which is made up of adenoids in the naso-pharynx, the faucial tonsils upon either side of the throat, and completed by a more or less irregular mass of lymphoid tissue upon the base of the tongue. Although to the eye these various aggregations of tissue seem somewhat unlike, they all belong histologically to the same class—lymphoid. That at the base of the tongue is sometimes spoken of as the lingual tonsil. It extends from near the circumvallate papillae toward and into the glosso-epiglottic fossa. It is separated into two lateral halves, being divided in the median line by the central glosso-epiglottic ligament. The degree of hypertrophy of course varies, and it never reaches the large proportions observed so often in the faucial tonsils. I recall one case in which, upon drawing the tongue forward, two large masses presented upon either side of the base of the tongue, and stood up to such a height that a mirror was unnecessary for examination of their upper and anterior surfaces. Usually the hypertrophy does not exceed three-eighths of an inch in thickness

¹ Read before the Springfield Medical Club, December 14, 1898.

and often is not more than one-eighth of an inch. It is made up of irregularly rounded masses of about the same color as the surrounding mucous membrane.

The superficial blood-vessels connected with the lingual tonsils are often much enlarged, standing out like varicose veins, hence the term "lingual varix" as applied to them. This point is worthy of note, as they are themselves sometimes the cause of symptoms referable to the throat; and a rupture of one of these vessels gives rise to hemorrhage which, taken to be of pulmonary origin, is a cause of much alarm. Dr. Robertson says "perilous hemorrhage has occurred more than once" from division of one of these vessels by a galvano-cautery point applied for the reduction of these or of the near lymphoid hypertrophy. My friend Dr. Waterman, of New York, told me of a serious hemorrhage in a case of his own following application of galvano-cautery. Dr. Joel has reported three cases of supposed hemoptysis in which examination of the sputa showed no bacilli nor could any lesion be found in the chest. Examination of the base of the tongue showed bleeding from lingual varices. Others have referred to the same source of hemorrhage, and Lennox Browne has called attention to the taste of blood in the mouth on waking, which he attributes to a venous leakage from this source.

Lymphoid hypertrophy at the base of the tongue has been studied for but a relatively brief period, though its image appears in the mirror whenever this is introduced for examination of the larynx; yet the eye always sought the better known and more interesting region of the larynx, and the explanation of the disturbances which its presence induces was sought in other regions.

Redundant tissue in this locality causes direct mechanical irritation of the larynx. It is situated just above this organ and in front of the epiglottis, whose upper free border often curls forward upon itself, bringing it in contact with the hypertrophied tissue at the base of the tongue. Indeed, cases are reported in which the degree of hypertrophy was so great that the free border of the epiglottis was incarcerated in the mass and had to be pried out with a probe. In singers a most annoying tickling, resulting in cough, is caused by the vibration of the epiglottis in contact with the base of the tongue during vocalization. The following cases are marked examples of this hypertrophy as a cause of cough:

CASE I. Mrs. B., age thirty years, consulted me March 6, 1897. Had coughed every winter for twelve years, at times so constantly and violently that she had been compelled to take to bed; on one occasion was confined to bed for a period of six weeks. All her friends considered her case one of tuberculosis, though no pulmonary lesion could be found. She had some small remains of adenoids, the tonsils were slightly hypertrophied, and there was a marked enlargement of the lingual tonsil with the largest varices I have seen. Treatment of the base of the tongue with the galvano-cautery cured the cough, and restored a normal use of the larynx. She had been a singer with a strong contralto voice, but for years was unable to sing because of inability to control the voice, and because of hoarseness which followed any attempt to use the voice. She was a member of a literary society, and though contributing papers was unable to read them because of the same hoarseness. She now sings, and reads her own papers.

CASE II. Mrs. R., a large, strong, healthy woman, fifty years of age, complained only of local throat symptoms and a persistent cough. There was a sense of fulness, obstruction and tickling referred to in the throat, and the patient was hoarse. During the winter of 1895-96 she coughed nearly all the time, sometimes incessantly day and night. Ordinary remedies were of no avail. At the beginning of the winter 1896-97 the same experiences were repeated. Because of the local symptoms, and hoping that treatment of the throat might have some influence on the cough, her physician advised her to consult me. She declined to trust herself to a specialist and coughed on for some weeks longer. Finally, on February 17, 1897, she plucked up courage enough to come to my office. Nothing abnormal could be found in the upper air passages except lymphoid hypertrophy at the base of the tongue, and its removal cured the cough. She went through last winter without coughing, and called upon me within a few days to assure me of her perfect comfort.

CASE III. Mrs. M., forty-five years of age, consulted me February 1, 1897. She was a frail looking woman, and might properly be spoken of as having a nervous temperament. Seven years previously she had an attack of influenza attended by a severe cough, and each winter since had been tormented by a persistent spasmodic cough, usually without expectoration and which failed to yield to medication. Careful and repeated examination by her attending physician discovered no pulmonary cause of the cough. Spasmodic attacks often occurred at night and some demulcent was kept beside the bed for immediate use. Such violent attacks came on upon waking that the patient dreaded to have morning come. The only abnormality found in the upper air passages was lymphoid hypertrophy and varices at the base of the tongue. This was reduced by the galvano-cautery, with entire cessation of the spasmodic, useless cough.

CASE IV. Mrs. S., age forty-six years, a plump, vigorous individual, who said she was in perfect health except for a cough which had tormented her for a year. It began with an attack of bronchitis, which resulted from an exposure to cold and dampness. The general symptoms subsided, but the cough continued. She was under the care of her physician for a long time and finally deserted him for a homeopath, gaining nothing by the change. She came to my office September 24, 1898. The nose and naso-pharynx were normal, but the tonsils, especially the right one, were much enlarged, and she had lymphoid hypertrophy at the base of the tongue. I advised the removal of the tonsils, as well as cauterization of the other hypertrophy, but the patient strongly objected to any cutting operation, and, as there were no symptoms referable to the oro-pharynx, treatment was begun by reduction of the lingual tonsil, and with the accomplishment of this end cough was relieved.

CASE V. Mrs. C., of middle age, wife of a prominent medical man of this city, gave a history of a more or less persistent cough since the age of twelve years, often as bad in summer as in winter. There was no period of any duration when she was free from the cough. Examination of the chest by the most careful diagnosticians failed to discover any cause for it. No medication short of narcotics could check it. No locality either at home or abroad could be found where she was free from it. The paroxysms at times have been so prolonged and severe that the chest walls have

been made exquisitely painful from the mechanical violence of the cough. At times sleep was so broken, both for herself and, through her, for others of the household, that narcotics in some form and sufficient in quantity to quiet the cough had to be given. On January 28, 1898 (the date of her call at my office), there was no lesion of the upper air passages save at the base of the tongue, where I found hypertrophy and intense engorgement of the blood-vessels. With reduction by the galvano-cautery the cough was cured.

The causes of hypertrophy of lymphoid tissue in this region may be the same as for the growth of the pharyngeal and faucial tonsils. The starting point may well be an attack of measles, diphtheria or scarlatina. While this hypertrophy has long been looked upon as a chronic process and peculiar to adult life, it certainly occurs in children, and there are not lacking records of acute inflammation of this tissue. During this summer two cases of this hypertrophy associated with adenoids and enlarged tonsils in young children came under my observation. In one, a girl of eight years, the hypertrophy was so marked and the symptoms such that it seemed probable that treatment would be necessary, but upon removal of adenoids and tonsils the symptoms referable to the throat, together with the cough, disappeared. Swain saw forty cases of acute inflammation of the lingual tonsil in three years; of these but two went on to the formation of abscess. I recall a case in which, from the history and symptoms presented, I expected a case of severe tonsillitis, and was much surprised on examining the patient's throat to find the faucial tonsils normal. There was marked inflammation of the lingual tonsil, with more pain and difficulty in swallowing than occurs with ordinary tonsillitis. Robinson read a paper before the American Laryngological Association at its last meeting, in which he spoke of this enlargement as a cause of cough in children, but the impression left with me was that in the cases he observed the swelling was acute. In the discussion, Gleitsmann and Rice stated that they had not seen such cases in children. Even though enlargement occur in children, the same train of symptoms is not produced as in adults, for their throats are far less sensitive. For the most part, we may consider this hypertrophy as belonging to adult life and that the process is a chronic one. The tissue increases slowly, and up to a certain limit produces no symptoms, when an acute attack, as of *la grippe* or bronchitis, inducing congestion of the throat, may cause a further increase in thickness sufficient to bring it in contact with the epiglottis, and cough results. The acute attack subsides but the cough remains. Women are much more prone to suffer from the symptoms described than are men, for obvious reasons. I have treated many cases in men, but you observe that all the cases herewith reported are women. They were selected as the most marked cases of which I have notes. From the November number of the *Journal of Laryngology, Rhinology and Otolaryngology*, I am able to give the latest word said on the pathology of this tissue as given by a French society of laryngologists. In the normal adult the lingual tonsil is represented by a few scattered follicles, sometimes so few and small that the tonsil may be said to be completely atrophied. The pathology follows the lines of that of the pharyngeal and faucial tonsils. The following affections are met with:

(1) Catarrhal tonsillitis, uncomplicated or associated with diffuse angina.

(2) Phlegmonous tonsillitis, (a) suppurative; (b) peritonsillar phlegmon, that is, suppuration of the fascia forming the floor of the tonsil.

(3) Chronic hypertrophy. This is common and occurs with equal frequency in both sexes, though, as previously stated, the symptoms are more marked in women than in men. The chronic hypertrophy falls into three clinical groups: (a) latent; no symptoms; (b) those cases in which the symptoms might be spoken of as local; sensation of foreign body present, pharyngeal tenesmus, desire to swallow, reflex cough, nausea, clearing the throat and phonatory disturbances, in singers hoarseness or loss of voice and change of register; (c) nervous reflexes—convulsive tic, etc.

(4) Varicositis at the base of the tongue may give rise to symptoms similar to those of hypertrophy, and also to hemorrhage.

The hypertrophies and inflammations are met with only in adults.

Anatomical differences: ciliated epithelium lines the crypts of the lingual but not of the other tonsils. The distribution of the glosso-pharyngeal nerve explains the pains due to inflammation of the lingual tonsil. The distribution of the superior laryngeal explains the laryngeal reflexes.

Pathological differences: the lingual tonsil is rarely affected in children. Lesions do not extend to neighboring structures, as in the case of the faucial tonsils.

While this paper should deal, strictly speaking, only with the symptoms of cough due to lingual hypertrophy, as an aid to diagnosis other symptoms should be borne in mind. These include tickling and irritation in the throat, and a sensation as if something were present which must be got rid of, causing a constant desire to clear the throat. In singers and public speakers hoarseness and uncertainty in placing the voice is induced, and the throat is soon exhausted in the effort at phonation. This is no doubt the lesion of clergymen's sore throat.

The diagnosis, that is, the assignment to lymphoid hypertrophy its due share in the cause of cough in a given case, may not be an easy matter. The whole upper air tract should be examined. If the nose, nasopharynx and oro-pharynx are normal, if no other cause of cough be discovered, if the laryngeal mirror shows marked hypertrophy at the base of the tongue, and especially if the epiglottis from its form and position presents its free border in contact with this tissue, then it is reasonable to consider the lymphoid hypertrophy a cause of cough and treatment will soon render diagnosis positive. Bosworth suggests that the examination be made without drawing the tongue forward, as in its natural position the amount of impingement upon the epiglottis is more clearly estimated. He also speaks of an ingenious diagnostic suggestion made by Siefert, who cocaineized the sensitive areas, thus giving for a time relief to the symptoms. In treatment the general condition of the patient, as well as the local lesion, usually calls for consideration. As a local application, various preparations of iodine have been recommended with more or less authority, but in chronic hypertrophy of a marked degree more radical measures are called for. The use of a modified tonsillotome, the snare and the galvano-cautery are recommended. Because of the existence of large veins in connection with these growths, in some cases the cutting instrument

involves a risk which should be avoided. The snare is applicable only to prominent growths. The galvano-cautery leaves little to be desired in the way of results, though the patient could be pardoned if immediately after treatment he made disparaging remarks of the method. The part should be thoroughly cocaineized, and but a small area upon one side treated at a sitting. For a few days following treatment the food should be soft and bland, and use of the voice in reading and singing should not be allowed.

A NEW METHOD FOR THE OPERATIVE CORRECTION OF EXAGGERATED ROMAN NOSE.¹

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THE patient, a girl, thirteen years of age, was brought to me in June, 1898, with reference to the operative treatment of what may be best termed an exaggerated Roman nose. As seen in Fig. 1, an obtuse angle of 140 degrees existed on the bridge of the nose at the junction of the nasal bones with the cartilaginous structures in front. A heavy beaked appearance was produced, which was a source of acute mental discomfort to the patient. With this was associated a narrow high-arched hard palate, with exposure of the upper front teeth. An operation for the removal of adenoid hypertrophy had been done some years previously and no vestiges of the structure were to be seen at the time of my examination. The nasal septum was vertical and without spurs. The middle and lower turbinates were apparently normal.

With the object of altering the external configuration of the nose to approximate as closely as possible the Grecian type, I performed the following operation June 21, 1898, at St. Margaret's Hospital: The patient was etherized and placed in the Rose position. A pair of short curved scissors with the convexity uppermost was introduced into the left nasal vestibule. One blade was made to penetrate the triangular cartilage at its anterior extremity immediately beneath the integument, and a cut was made along the superior margin of both cartilaginous and bony septa, terminating at the junction of the perpendicular plate of the ethmoid with the cribriform plate. The superior margin of the septum was thus separated from the integument and from the nasal bones by this incision, the outline of which was essentially parallel with the angular outline of the bridge of the nose. The extremities of this angular incision were next connected by a straight cut made through the septum with straight scissors and the portion of septum included between the two incisions was removed with forceps. A septum with a straight superior outline was thus produced.

The next step consisted in depressing the bony bridge of the nose so that it should rest upon the new straight septum. A small nasal saw was introduced with the teeth uppermost into the left nasal passage and the articulation of the nasal and maxillary bones sawn through from below upwards. A similar saw cut was made through the corresponding articulation on the right side. The nasal bones were thus left articulating only with the frontal bone and with each other. A few comparatively gentle taps upon the nasal bones

sufficed to break the frontal articulation and depress them, still firmly united with each other, until they came into contact with the upper margin of the septum. With the depression of the nasal bones, the bridge of the nose assumed a straight line from tip to forehead, but a ridge at the same time appeared on either side, formed by the maxillary bone along the line of the nasal articulation. As determined by me previously in experiments on the cadaver, two or three light blows with a protected mallet upon this ridge fractured the maxillary bone, which is here very thin, along a line situated about one centimetre outside the nasal articulation and parallel to it, with the result of depressing the ridge and producing a perfectly smooth and even cutaneous surface. The operation occupied about forty minutes and was attended by comparatively slight hemorrhage. An external splint was applied to hold the nasal bones and the fragments of maxillary bone in proper position. The recovery from the operation was uneventful, being without headache or elevation of temperature. There was a slight nasal discharge for about ten days, which then ceased. The bones were firmly established in their new position in five weeks.

Inspection four months after the operation showed a straight superior outline of the nose, smooth lateral walls, and a perfectly normal skin. The tip of the nose was not decurved, but the upper lip covered the incisors better than before the operation. (Fig. 2.) Examination of the interior of the nose showed a straight septum, while the turbinates presented no discoverable change from their appearance previous to the operation. Nasal respiration and olfaction were normal. No abnormal subjective nasal symptoms were present.

In recapitulation, the essential features of the preceding operation may be said to consist in the excision of the redundant portion of the septum, the separation of the nasal bones from their maxillary articulation, depression of the bony bridge to approximate the newly-formed superior septal margin, finally, fracture and depression of the lateral maxillary ridges, the whole operation being performed intranasally and without wounding of the skin.

Clinical Department.

ON THE NECESSITY OF REMOVING THE APPENDIX AT THE FIRST OPERATION.

BY JOHN HOMANS, M.D., BOSTON,

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As time goes on I become more and more convinced that one ought always, in operating on a case of appendicitis for the first time, to remove the appendix, and although I did not do this in my first case, in January, 1886, and the boy has grown up strong and well, yet other cases have shown me that until the appendix is removed there is no assurance of freedom from a fatal attack. I do not mean to assert that every case should be operated on as soon as seen, — that is a very different question, — but I do mean to say that whenever an operation is done for the first time the appendix should be removed.

There are many cases when one can say decidedly and with conviction, "I think that things will quiet

¹ Extracted from a paper read before the Middlesex South District Medical Society, October 12, 1898.