

## LYMPHO-SARCOMA OF THE PHARYNX LIMITING THE MOTIONS OF THE JAWS AND AXIS BY INVADING THE PREVERTEBRAL AND PTERYGO-MANDIBULAR SPACES.\*

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*History.* The patient was well until December 1904. At this time, he began to snore in his sleep and to have gradually increasing difficulty in breathing through his nose, so that in the course of some weeks he had to keep his mouth open at all times to breathe. His voice also at this time acquired the dead quality of obstructed nasal respiration and he gradually became somewhat deaf. He was first seen at the Chicago Policlinic on September 5, 1905. Posterior rhinoscopy at this time showed a pink growth with smooth surface arising from the vault of the pharynx and reaching downward until it almost rested upon the soft palate. Anterior rhinoscopy showed the nares to be clear. His hearing for the watch at this time was two inches for the right and three inches for the left ear. In spite of the suspiciously rapid development of this mass at a period of life when adenoid growths usually atrophy, its gross appearance so closely resembled that of a hypertrophied pharyngeal tonsil that it was deemed such and thoroughly removed with the pernasal forceps through the nose, perfect nasal respiration being established. The amount of tissue excised was great. Histologic examination of a microtome section of the excised growth showed nothing that could not accord with the diagnosis of a large fibrous hypertrophy of the pharyngeal tonsil.

Shortly after the operation, the patient was lost from observation and was not seen again until September 1st, 1906, when he stated that nasal breathing had remained perfect until two months after the operation when the snoring and nasal obstruction reappeared but never became as marked as before it. The removal of the growth was followed by a discharge from the left ear which has existed ever since. There was no improvement in the deafness at any time. Since the operation he has had occasional nosebleed occurring about once in two weeks, the blood in some of these attacks flowing down behind the palate. In the few months preceding his second visit to the clinic, he declined rapidly in strength and weight and had headache with vomiting in the morning at times. In July, he began

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to notice difficulty in opening his jaws and in swallowing, symptoms which have persisted with increasing intensity ever since.

The record of the examination of the patient to October first, is as follows: Inspection of the oropharynx shows a bulging downward of the soft palate evidently due to a mass resting upon it above. The posterior wall of the pharynx also bulges in a forward direction so that it nearly reaches the velum palati making posterior rhinoscopy impossible. Exposure of the parts behind the soft palate by raising it with a palate hook shows a portion of a soft pink, nodular tumor to the right of the median line which extends out of sight up into the nasopharynx. The jaws can only be opened part of the way, being suddenly checked by a resistance when the incisors are  $\frac{3}{8}$  of inch apart. The lateral motions of the jaw are also nearly arrested in both directions. Rotation of the head in the atlo-axoid joint is only possible to a slight degree, the head being turned by twisting the entire neck. Nutation is free. In order to palpate the nasopharynx the patient's jaws had to be pried open with a gag, causing him some pain. The finger in the nasopharynx feels a soft tumor nearly filling the postnasal space and occupying the usual situation of an adenoid growth. Palpation of the posterior pharyngeal wall shows it to be carried forward by a soft elastic mass which bleeds freely when touched. The tumor can be indistinctly seen through the right naris from in front but it does not enter the nasal fossae, which are free. The pulse is rapid, 120 to 130 beats to the minute and this frequency has been constantly found whenever the pulse was noted during the past month. The temperature when taken has been found to vary between normal and 100 Fahrenheit. The pupils react normally to light and accommodation. The cardiac and pulmonary physical signs are normal with the exception of persistent tachycardia unaccompanied by demonstrable cardiac dilatation.

Laryngoscopy is imperfect because the smooth bulging of the posterior pharyngeal wall prevents carrying the mirror far enough back for a good view into the larynx and the hindrance to the opening of the jaws adds to the difficulty. The motions of the left vocal cord may be faintly seen while the right one is hidden by the epiglottis.

An enlarged gland of the size of an almond may be felt at the angle of the jaw on the right side. The retromaxillary regions are partly filled out by an indistinct swelling.

Vision is perfect as proven by test types. There is no flushing of the integument of the ears and no salivation. Swallowing is some-

what difficult, the patient saying that he has to accompany the act with the inspiration of air in order to make solid food go down. He drinks without trouble. The patient speaks with a voice characteristic of postnasal obstruction.

Examination of the ears shows the right membrana tympani intact but retracted, the light reflex being present. The membrana tympani of the left ear is destroyed, the malleus being seen above as a granulating stump. There is a purulent discharge from the left ear.

Reexamination of the patient on October ninth, showed that the lateral motions of the lower jaw had become free again.

Beginning on September 7th, injections of adrenalin 1 to 1000 (following the suggestion of Dr. John E. Rhodes<sup>1</sup>) were made three times a week for two weeks into the tumor where it was visible through the right naris and upon lifting the soft palate. The total amount injected each time was from 10 to 15 minims. Because of the feeble general state of the patient and spells of giddiness which followed the injections, they have been temporarily suspended. The fact that the tumor has not grown during the past month and that the lateral motions of the jaw have returned may be due to the influence of the adrenalin.

While, as mentioned, there was nothing typical of a sarcoma in the microtome sections made from the original growth in September 1905, those made from the recurrence on the posterior pharyngeal wall a year later show tissue characteristic of a large celled lympho-sarcoma.

There are some unusual features in the history of this case that make it more interesting than that of the average pharyngeal sarcoma.

While the latter, especially when of the large-celled type, though not as well defined as a benign tumor, is apt to remain fairly circumscribed and though growing into the tissues nevertheless to project mainly from the surface, the tumor presented by this patient has a diffuse growth and infiltrates the deeper parts out of proportion to its very moderate encroachment upon the cavity of the pharynx. This infiltrative character of the tumor did not show itself until its return after its removal a year ago, as the first appearance of the neoplasm, as described, deceptively resembled a large adenoid growth, had an entirely superficial character and occupied the site

<sup>1</sup> Dr. John Edwin Rhodes, Transactions American Laryngological Association, 1906; *Journal of the American Medical Association*, p. 173, 1906.

of the pharyngeal tonsil. On its recurrence, the morbid growth not only reproduced in part the tumor in the nasopharynx but directed its growth into the posterior pharyngeal wall, in this respect also occupying a region favored by outlying portions of adenoid vegetations. The character of the tumor had however changed and instead of confining itself to the mucosa as does a lymphoid hypertrophy it entered beneath it deeply into the submucous and muscular tissues behind and at the sides of the pharynx. The depth to which it infiltrates this region is shown by the patient's inability to rotate his head freely, to open his jaws more than half way, and by the fullness in the hollow behind the ramus of the jaw.

The limited rotation of the head is evidence of the penetration of the tumor to the vertebral column and is due to interference with the motions of the atlo-axoid joint, possibly caused by infiltration by neoplastic elements of the anterior longitudinal ligament of the cervical vertebrae and anterior occipito-atloid ligament and anterior atlo-axoid ligament. Interference with the functions of the rectus capitis anticus major and minor muscles may also help to prevent the free turning of the head. Instead of rotating his head in the normal manner by motions upon the axis the patient twists his whole neck around when he turns his head bringing all of his cervical vertebral column into play to take the place of the rigid atlo-axoid joint, and using the sterno-cleido-mastoid muscles which ordinarily do not contract when the head is rotated.

The difficulty in opening the jaw is caused by invasion by the growth of the raphe between the superior constrictor of the pharynx and the buccinator muscles and by the mechanical interference by the tumor with this tendinous band which extends between the pterygoid process and the lower jaw. Palpation shows the tension on this raphe when the jaw is opened. The inability to open the jaws is also in part due to infiltration by the tumor of the internal pterygoid muscles or inflammatory processes excited in them by its presence as it fills the pterygo-mandibular fossae in which these muscles lie external to the superior constrictor of the pharynx. An inability to open the jaw is not infrequently seen in carcinoma of the tonsil, palate or tongue but is then usually due to a different cause, namely the infiltration by carcinomatus tissue of the mucous membrane fold which passes from the sphenomaxillary fossa in the region of the hamular process to the angle of the lower jaw and is called by Mikulicz the intermaxillary fold. This fold is intact in the

case presented but the infiltration involves the internal pterygoid muscles immediately behind it.

The temporary inability to move the jaw laterally was probably due to transitory myositis and rigidity of the external pterygoid muscles caused by the irritating mechanical presence of the tumor in the pterygo-mandibular fossa. A number of cases of inability to open the jaw from affections of its muscles, especially of the masseter and temporal muscles, are reported, the cause, however, being interstitial myositis unconnected with a tumor.

The patient's difficulty in swallowing solid food can be accounted for by interstitial invasion of the superior constrictor of the pharynx by the growth, for the latter does not obstruct the cavity of the pharynx enough to interfere especially with deglutition although it somewhat overhangs the larynx.

For the symptom of constant and unvarying tachycardia presented by the patient I have found no explanation. It is not likely that it is due to pressure of the tumor upon the superior cervical ganglion of the sympathetic nerve which lies in the region invaded by the tumor behind the superior constrictor at about the level of the hard palate, for authorities agree that this ganglion furnishes no fibers to the accelerator nerve of the heart. Stimulation of the superior cervical ganglion mechanically would produce pallor of the side of the face involved, salivation and dilatation of the pupil. Suppression of its function would produce myosis and flushing of the skin of the ear on the affected side. None of these phenomena are present and the pupillary reflex is normal so that the classical evidences of interference with the cervical sympathetic by the tumor are absent. The tachycardia can not be explained on the ground of vagus paralysis for, if this were its cause, there would be paralysis of the vocal cords or at least posticus paralysis due to interference with the function of the recurrent laryngeal nerves, which at this level are contained in the vagus trunks.

The diffuse and deep nature of the tumor makes it obviously inoperable and therefore it seems proper to resume the injections of adrenalin or to adopt some other palliative treatment.

The histologic nature of the neoplasm is in accord with its location for its development has occurred in regions normally subject to hypertrophies of lymphoid tissue, the region of the pharyngeal tonsil and its outlying collections of lymphatic follicles upon the posterior pharyngeal wall, only in this instance instead of producing a

benign hypertrophy, the lymphoid cells have acquired a malignant tendency and penetrate the normal tissues. They may be seen collected in aggregations of large cells of a typically lymphoid appearance, these collections being contained in a wide-meshed connective tissue reticulum showing typical spindle cells in places.. The lymphoid cells possess each a number of processes..

In conclusion, I return thanks to Dr. John Gordon Wilson of the Department of Anatomy of the University of Chicago for his valuable advice concerning the anatomical points involved and to Dr. S. A. Mathews of the department of pharmacology of the University of Chicago for suggestions and assistance in looking up the physiologic questions.

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**The Paraffin Treatment of Atrophic Rhinitis.** Prof. GUARNACCIA (Catane.) *Rev. Hebd. de Laryngol., etc.*, Oct. 15, 1904.

The author has treated eleven cases of atrophic rhinitis by means of the method of Gersunsky that is, by the injection of a preparation of paraffin to restore the atrophied organs to their normal contour. This treatment resulted in causing the disappearance of the offensive odor; and combined with alkaline washes repeated every two or three days, the patients were enabled to keep the nostrils free of crusts.

In cases in which the atrophic process has reduced the nasal cavity to a simple tube in which the pituitary membrane has lost its elasticity and there are numerous adhesions to the bony frame, it is of no avail to attempt this method. In doubtful cases there may be practiced what has been called the "adrenalin test". If the atrophic tissue under the influence of this substance shows a retraction, the paraffin may be injected, otherwise its results are unsatisfactory.

SCHEPPEGRELL.