

MALIGNANT GROWTHS OF THE MOUTH AND PHARYNX.*

BY M. A. GOLDSTEIN, M. D., SAINT LOUIS, MO.

The laryngologist with his well-developed habit of locating and treating circumscribed lesions in the upper air tract, as local affections, may very easily fall into the error of considering malignant neoplasms which may develop in this area, in the same light. The local manifestations of carcinoma and sarcoma in the mouth and pharynx, are by no means the vital factor in the consideration of this question; it is to the liberal distribution of the lymphatic vessels and their glandular adnexa in these areas that so great a mortality is due, and this often makes even radical operative interference ineffective. When a malignant neoplasm in the pharynx has been well-developed, the entire anatomical zone surrounding such a growth, including numerous lymphatic vessels and glands and important blood vessels may be rapidly involved.

In the light of recent pathological research, it has been noted that carcinoma cells have been found in lymphatic vessels leading from cancerous lymphatic glands directly connected with primary neoplasms in the pharynx, and as such, offers a most substantial proof of the serious and often fatal role of the lymphatic system in its association with such neoplasms and its importance as a metastatic agency.

The Importance of Early Diagnosis. Too much stress therefore, cannot be laid on the importance of an early diagnosis, and on this alone the life of the patient often depends. This is the vital issue of malignant growths in all of the areas of the upper respiratory tract, and especially is this true of the tissues of the mouth and pharynx because of their being literally imbedded in the lymphatic system. I can best illustrate the value of prompt operative interference and microscopic diagnosis, by a report of the following case:

S. L., white, female, age twenty-three, presented herself at my clinic in the out-patient department of the Jewish Hospital of St. Louis. A small papilloma-like growth was seen on the tip of the dorsum of the tongue, about a quarter of an inch from the edge and in the median line. The patient had first noticed this little growth about three months ago, and her only complaint was that it annoyed her at times when the little mass came in contact with the teeth.

* Symposium paper presented at the tenth annual meeting of the American Laryngological, Rhinological and Otolological Society, Chicago, May 30, 1904.

The growth was irregular in shape, about one-half c. m., in its longest diameter, and extending one-quarter c. m., above the mucous surface of the tongue. The surface was irregular, and I assumed that it was probably a papilloma developed from the filliform papillæ. I excised the growth with a small knife and forceps by a "V" shaped excision. Bleeding was profuse, and was gradually checked by an application of a bead of pure chromic acid. I placed the specimen in a small vial with alcohol, and carried it in my vest pocket for about a week expecting to make and stain sections of an interesting typical papilloma of the tongue. Not finding leisure, I handed the specimen to Dr. R. B. H. Gradwohl, and was greatly surprised a few days later to receive the following report of the examination of this specimen:

"Microscopic examination of the specimen submitted to me reveals numerous cancerous elements. The specimen was fixed in formalin, hardened in rising strengths of alcohol and imbedded in celloidin. To the naked eye it appeared to be a small papilloma. Sections showed connective tissue with nests of epithelial cells irregularly arranged. Diagnosis, epithelioma.

R. B. H. GRADWOHL, M. D.

I have a slide of it here for your inspection. I regret to say that I have temporarily lost track of the patient, but hope to trace her again. The growth was removed ten months ago. This is an object lesson illustrative of prompt diagnosis even in an unsuspected case, and requires no further comment.

The Favorable Conditions of the Pharynx for the Development of Malignant Neoplasms. The anatomical and physiological character of the mouth and pharynx affords a most favorable condition for the development of malignant neoplasms, and especially of the carcinoma group. As carcinoma in its manifold forms depends on the undue and pathological proliferation of epithelial cells and tissues, and as the pharyngeal cavity affords a greater variety of epithelial tissues than may be found in any other mucous cavity of the body, the frequency of development of such neoplasms here may be rationally accounted for. Then too, must be considered the frequency of bacterial infection in the pharynx. It is claimed that constant or recurring irritation or ulceration of a tissue is an important factor in the etiology of cancer. A faucial tonsil, exposed to repeated attacks of follicular inflammation and ulceration, may perhaps be classed under this head. The smoker's pipe stem and its constant friction against the surface of the tongue has been occasionally quoted as a source of mechanical irritation which might have a bearing on such etiology. The immoderate use of tobacco and alcohol and ulceration and cicatrization produced by syphilis and carious teeth have also received recognition in our search for an irritating cause of cancer.

Statistically, the relative frequency of carcinoma and sarcoma in the pharyngeal cavity to those found elsewhere, may be expressed in the proportion of about 1 to 10, as evidenced by the following data:

Jessett has collected from various papers 4600 cases of cancer of which 400 were cancer of the tongue, i. e., about 8½%. In England and Wales, Butlin reports in a total number of deaths from cancer, 24,443 cases, 550 of cancer of the tongue, 15%, cancer of the mouth, and 301, cancer of the pharynx. The proportion of males to females was as 267 to 49. This proportion is further elaborated in the tables of Jessett, Whitehead, Barker, Gurlt, Czerny, Kocher, Paget and Bruns.

Organs Involved; the Character and Frequency of the Neoplasms. Of the special organs of the mouth and pharyngeal cavity and the frequency of their involvement by malignant neoplasms, we name in order, the tongue, faucial tonsil, uvula, soft palate and lingual tonsil.

The Tongue. Cancer of the tongue occurs at the rate of one in every forty cases of carcinoma. It is gratifying to note that with the introduction of more radical forms of operation and promptness in recognition of this neoplasm that the per cent of cures following radical extirpation has increased from 8% prior to 1885, to 32% since then, as indicated in the statistics of Butlin, Whitehead, Kocher and Kroenlein.

Billroth states that epithelioma is the only type of malignant tumor that attacks the tongue primarily. There are, however, several well-authenticated cases of sarcoma reported in the last decade. Butlin records a case of small round-celled sarcoma in a man of forty, without previous syphilis. Dunham reports a case of large-celled sarcoma of the tongue in an habitual smoker of 61. Barling in 1896 operated on a case of small round-celled sarcoma, and patient was alive 3½ years after operation.

Butlin divides sarcoma of the tongue into three classes: (a) Sarcoma of a relatively benign character, arising in the muscular substance of the tongue, causing a smooth elevation of one or both sides, without glandular enlargement.

(b) Malignant sarcoma involving glands, recurring and requiring more than one operation; or recurring and spreading to the glands in the neck, ultimately terminating fatally. These are microscopically usually of the spindle-cell variety.

(c) Small round-celled sarcoma or lympho-sarcoma, at the base of the tongue, always followed by recurrence, no matter how extensive the operation.

(b) *Faucial Tonsil.* Primary carcinoma of the fauces and especially of the faucial tonsil, is exceedingly infrequent. Gurlt reports but six cases of primary cancer of the tonsil, in a total of 11,131 cases of cancer. About 125 authentic cases of carcinoma of the tonsil have been thus far reported.

Differential Diagnosis. The determination of a primary malignant growth located in the faucial tissues, requires minute and careful diagnosis and in a number of reported cases, has proven almost as difficult a problem as the question of the substantiation of primary tuberculosis of the larynx. Because of the rapid infiltration and invasion of adjacent tissues, diagnosis of primary neoplasms of the faucial tonsil must be made in the early development of the growth. Microscopic examination of the suspected growth should be made at the earliest possible opportunity, and it should be here observed that it is often a matter of extreme difficulty to the pathologist, to differentiate a syphiloma in the stage of an ulcerated, broken down gumma, from carcinoma, or even round-celled sarcoma of the tonsil, especially is this true if the section is taken after ulceration has developed. In removing a portion of the growth for microscopic examination, this fact should be borne in mind, and the section should not include the ulcerated portion.

Carcinomatous invasion is so rapid, that unless a case is seen early, all of the tissues of the pharynx and the lymphatic areas of the neck may be involved, and the original site of the primary neoplasm will be determined with much difficulty. The entire course of a carcinomatous invasion of the pharynx has been variously estimated from inception to death, at from six to twenty months. The following picture of the development of carcinoma of the faucial tonsil, is graphically described by Gibb—"The tonsil first presents a dark red appearance, with a grayish-white spot in the center. The velum, posterior wall of pharynx and all surrounding tissues of the affected side are hyperemic. The growth of this projecting mass is exceedingly rapid; within a month it exceeds the confines of the tonsil, and spreads, cauliflower-like, over the surrounding tissue. At this period there is no ulceration, though there is excessive vascularity. How unlike syphilis, with which it is most likely to be confounded."

"Within three months, ulceration of the surface of the mass takes place. This process is peculiar and characteristic. The ulcer is not deep, causing a gouged-out appearance of the mucous membrane as in other ulcerative diseases. It seems like a destruction, first, of the most prominent portion of the growth, and breaking down of the adjoining tissues. As fast as the tissues or the margin of the growth melt away, the disease spreads over the part. While there is undoubtedly a loss of normal tissue, the appearance presented is a sub-

stitution of an abnormal tissue in excessive quantity, in place of the normal tissue. The growth spreads rapidly to the surrounding tissues, ignoring anatomical boundaries, and attacking everything in its way. It very early involves the velum and the posterior pharyngeal wall, extending upwards into the naso-pharynx, and downwards, involving the sides of the tongue and the inner surface of the jaw. The destruction and discharge of the dead tissue is accompanied by a more or less free secretion, and a very disgusting and penetrating odor."

Sarcoma of the tonsil is not as infrequent as carcinoma. Arslan in a collected series of 110 cases of neoplasms of the faucial tonsil, regards sarcomata as the most frequent of the malignant types. The round-celled or lympho-sarcoma is the microscopic form most frequently encountered. It is the round-celled sarcoma of the tonsil which may be so readily mistaken for carcinoma, or sometimes for benign infiltration and repair tissue even by careful microscopic examination.

In the early stage of development, sarcoma of the tonsil may closely resemble a simple hypertrophy of this tissue. The rapidity of growth, the characteristic lancinating pain and unilateral involvement, will soon afford an easy differentiation from simple hypertrophy. Macroscopically, there is also a homogeneous surface appearance of the tonsil, with obliteration of the lacunæ.

Being of the connective tissue type, sarcoma has not the same tendency to rapid invasion of the adjacent tissues as is so characteristic of carcinoma. When ulceration has begun, the macroscopic differentiation between sarcoma and carcinoma is extremely difficult. If seen in the ulcerative stage, carcinoma or sarcoma of the tonsil may be mistaken for syphiloma. Even the microscopic appearance of syphiloma with its round-celled infiltration, closely resembles sarcoma or carcinoma of the tonsil in the ulcerative stage. If there is the slightest doubt of a definite diagnosis, as between malignancy and syphilis, it is conservative and rational to order early anti-syphilitic therapy.

Lupus, though of exceedingly rare occurrence in the pharynx, may be mistaken for these several malignant neoplasms. Clinically, lupus is a slowly-developing process, and usually associated with corresponding lesions of the skin. The pathological process in lupus consists of a breaking down and absorption of tissue with little or no ulceration, rather than of intense hyperplasia, rapid destruction and vicious ulceration. Another important differential factor, is the role of the lymphatic system. In sarcoma there is a tendency to limitation of the growth to the connective tissues of the organ which is attacked, and a comparatively slow involvement of the lymphatics.

In carcinoma, the entire system of lymphatic glands of the head and neck are most rapidly included in the development of the growth.

Tuberculosis of the pharynx might also be mentioned as an ulcerative lesion to be considered in differential diagnosis. Primary tuberculosis of the pharynx is an exceedingly rare condition, and is characterized by a shallow ulceration, with viscid muco-purulent secretion. Such an ulcer does not penetrate deeply into the tissues, confining itself to the mucous membrane, and showing ill-defined margins. Pulmonary and laryngeal manifestations of tuberculosis soon become evident; the typical hyperpyrexia is present, and the diagnosis is microscopically substantiated by the presence of giant cells and tubercle bacilli in the lesion, and tubercle bacilli in the sputum.

(c) *Soft Palate and Uvula.* The development of primary epithelioma of the uvula is of very rare occurrence. Lennox Browne reports but one case of such a neoplasm occurring in this location. Walker Downie also reports a case of primary epithelioma of the uvula, the growth involving only the uvula and the free portion of the soft palate. Removal was successfully effected under local anæsthesia, and no recurrence has been reported in about two years. As the uvula is not so intimately connected with lymphatic tissues as are the faucial area, a free excision of such a neoplasm if promptly done, offers a more favorable prognosis.

Oppenheimer reports a case of primary epithelioma of the uvula, of typical microscopic character. In each of the three cases here reported, the patients were males, respectively of 48, 56 and 81 years of age.

Carcinoma of the uvula or soft palate has its origin in the muciparous glands found in this tissue. Carcinoma of the soft palate is usually primary, and in many cases, limited to the soft palate, although occasionally, late in the disease, it does extend to the adjacent structures. Braden Kyle states that, "A peculiarity of carcinoma in this location is that on its removal, there is an early recurrence." This is scarcely substantiated by the cases above cited, of primary epithelioma of the uvula. If the tendency of carcinoma to spread depends much on the location of the invasion and on the proximity of tissue favoring rapid cell proliferation, it is reasonable to conclude that where glandular and lymphatic elements are least numerous and where it has been clinically observed that the spread of the growth is less rapid as is the case in carcinoma of the soft palate and uvula, it seems but a rational conclusion that a recurrence after a radical removal of epithelioma would be less frequent. Surgically, it is also much easier to remove malignant tissue of the soft palate, than similar tissue involving the lateral areas of the pharynx.

An important pathological question which is occasionally encountered in neoplasms of the soft palate is a transition of an apparently benign growth to that of a malignant type. Melville Black reports an unusually large papillomata of the soft palate in a girl of eleven years of age, the mass nearly filling the opened mouth. The growth was removed and recurred one month later. There were constant recurrences in spite of frequent removal, the actual cautery, injections of formalin solution and application of lactic acid. Within three months after the first microscopic examination, the pathologist reported the neoplasm to be a large round-celled sarcoma.

I offer a preliminary report herewith, of a case from my private practice, occurring during the past month: E. A., age 45 years, a man of unusually good health and habits, was operated for a cartilaginous spur of the nasal septum. I casually observed a small growth about one-half c. m., in diameter, pear-shaped and pedunculated, attached to the free border of the soft palate, right side, half way between the edge of the uvula and posterior pillar of the fauces. The growth had been present for twenty years, and had never caused the patient the slightest discomfort. Nevertheless, I urged its removal because I thought it did not belong there. Microscopic examination revealed a papilloma with suspicious round-cell infiltration. I am not ready to discuss the microscopic pathology of this specimen until a more careful examination has been made, and the opinion of other pathologists has been given. It is possible that here too we are dealing with a papilloma of the soft palate, slowly undergoing some form of malignant degeneration. This raises the important question: "Does undue or unnecessary interference, either of surgical form or chemical, electric or actual cautery predispose to more rapid development or even recurrence of such a neoplasm? Or, as has been generally admitted that mechanical irritation or even the irritation of ulceration and cicatrization of a tissue may actually cause the development of a malignant growth, is it possible that our zeal and energy in surgery may actually be responsible for the creation of a carcinomatous or sarcomatous lesion in a tissue which showed no absolute evidence of its existence?"

Therapy. There are but two courses of treatment open for consideration at the present time. 1. The X-Ray and Radium treatment. 2. The radical operative removal.

The X-Ray and Radium therapy is still so much in the experimental stage, that definite results can not yet be recorded. If the brilliant possibilities for the use of such a therapy be realized and the numerous preliminary reports of remarkable improvements and cures can be substantiated, then the X-Ray and Radium light will offer us an ideal solution of this grave problem. Until then, we must

content ourselves with radical excision and dissection of the involved tissues, and of all adjacent structures which threaten metastasis.

Enucleation of a faucial tonsil alone even in the earliest possible stages of malignancy is not sufficient to safeguard the patient against recurrence. Crile says, "A mere enucleation of a gland or tissue can no longer be regarded as an effective surgical procedure. To insure a complete extirpation of a carcinomatous affection, it is necessary to remove not only the affected area and its lymphatic glands, but also the intervening tissues. The entire anatomical zone in which the lymphatic vessels course and in which the glands lie, must be removed *en masse*. For a radical dissection, the arteries, vein and nerve are entirely separated, and lie directly on the muscular bed without the intervention of any fascia. In all cases, the removal of the lymphatic glands and vessels in the region of possible metastases should be none the less vigorously done than in cancer of the breast."

Here is the opportunity and justification for radical surgery.

Prognosis. We should be encouraged I think by the records of the past two decades, all of which present substantial evidence of the cure of a larger percentage of cases of malignant neoplasms in every portion of the body. This may properly be credited to the more radical forms of operation, and the greater proficiency in early recognition of our cases.
