

CHAPTER LX.

THE CLASSIFICATION OF TUMORS.

IN the following pages the author proposes, after proper reflection, and after a thorough study of the views and observations of the latest writers, German, English, and American, to present to his readers the subject of tumors, precisely as in his own clinical service he meets with, classifies, and treats the lesions. He assumes, to a certain extent, a disregard of the arrangement of others, because one here adopted seems most rationally to introduce and evolve the subject. The classification opens, it is believed, the study to the ordinary practitioner with a clearness and simplicity which permits of easy and of full clinical understanding, while at the same time it is not seen to limit in any way the examinations and inquiries of the most inquisitive histologist.

The surgical expression "tumor" is a term having origin in the Latin verb *tumeo*, to "swell;" it applies necessarily to any unnatural enlargement of a part, no matter where such enlargement is met with or from what cause it arises.

A tumor is a swelling which varies in signification from that which has a meaning in some accidental and, it may be, evanescent functional derangement—as, for example, a foot œdematous from exhausting exercise, an abdomen swollen from accumulated flatus, a duct expanded from obstruction of its outlet—to that character of an outgrowth which is without explanation in itself or in any immediate physiological or anatomical perversion—a something which, by exclusion, is to be classified as an expression of a mediate, or systemic, antecedent.

(A study of tumors to be exhaustive is to be pursued from a twofold standpoint,—clinical and histological. The first has to do with that classification of the conditions which directs the practice demanded. The second analyzes under the microscope the histogeny of a growth, and describes the expressions of its minute anatomy.)

Clinically, experience fairly demonstrates that a rational primary distinction of tumors is found by separating them into two classes. One class embraces every lesion that possesses a local self-explanation, as, for example, a sebaceous tumor, a ranula, a hernia, a hydrocele. The other comprises all that remainder, the explanation of which lies outside of local conditions; examples in this latter direction being recognized in the nodes of syphilis, the degenerating glandular enlargements of tuberculosis, the multitudinous expressions of cancer.

All tumors of the first class are, *in themselves*, of a necessity, benign. All tumors of the second class are to be viewed, not in themselves, but in a dyscrasia of which they are simply phenomena.

Tumors of the first class, having only a local signification, demand only a local treatment; tumors of the second class, having, save in the accident of the habitat, no local signification, but being of constitutional meaning, receive scientific treatment only through remedy directed to the vice in which they exist.

Tumors of the first class are to be termed homologous, indicating by the term, not likeness to associated tissue as exhibited by some of the neoplasia, but that a tumor is wholly part and parcel of a location in which it exists.

Tumors of the second class are to be distinguished as heterologous, the expression indicating neoplasia, no matter what the likeness; a something which is more or less foreign to the *part in which it is found*.

Clinical Illustration in Diagnosis.—A patient having a tumor in his groin presents himself to a surgeon. What is the nature of the tumor? It may be a hernia; an undescended testicle; a hydrocele of the spermatic cord; an inflamed lymphatic gland. It may have the constitutional meaning of a syphilitic or of a tuberculous bubo. It may be an expression of cancer. To satisfy himself as to the nature of the particular condition represented, the practitioner can only proceed as follows. First, he must recall the anatomy of the part. In the groin of the human male is a canal,—the inguinal. This canal is entered by a ring from the abdominal cavity, and has an outlet through a second existing in the aponeurosis of the external oblique muscle. In this canal lie, enveloped in a sheath, the spermatic vessels. This canal constitutes the passage transmitting the testicle from the abdomen to the scrotum; the entrance to it may permit of the insinuation of a knuckle of omentum or of intestine. In this inguinal region exist a number of lymphatic glands. This, then, is the anatomy, and these are the data. Is the tumor a hernia? There is no impulse on cough; no doughy feel; no diminution in size when the patient lies down; no ability to thrust the tumor into the abdomen; no enlargement of either inguinal ring. The tumor is not a hernia. Is it an undescended testicle? The testicle is to be felt in its place in the scrotum. The tumor is not an undescended testicle. Is it hydrocele of the spermatic cord? There is no fluctuation on percussion; no ability to change the position; no fluid as test is made with an exploring-needle or aspirator. It is not hydrocele. Is it an inflamed gland of a local inflammatory signification? There is absence of history. The tumor, then, is not of immediate signification; this, it would seem, the explorer must know to a certainty. By exclusion, then, such tumor is exhibited as belonging to the second class. The question remaining is as to the vice represented. Of these vices there are three, syphilis, tuberculosis, cancer. The former two have histories. The last is an arcanum. If the knowledge of the surgeon enables him to exclude the first two his diagnosis is made,—the tumor before him is cancer.

EXAMPLE.—At a late hospital clinic there appeared before the class of the author five patients. These patients, suffering alike from swollen, enlarged cheeks, were ranged side by side for diagnosis. Patient 1 was found to have the tumefaction dependent on a periodontitis; patient 2 was laboring under caries of the jaw, originating from a dead tooth-root; patient 3 suffered from necrosis, the result of injury; patient 4 had a lymph effusion consequent on a fracture; patient 5, with very limited swelling of the cheek, associated with enlargement of the maxilla, presented in his case no local nor common systemic explanation; out of exclusion the lesion, in the last case, pronounced itself cancer. The first four patients, their lesions being self-explaining, were quickly made well; the last—whose case was without an accounting explanation—died, and died from that condition which, in its developed state, was by all called carcinoma.

With the premises of the preceding pages, for the purposes of the chapter, assumed, it is to be understood that any tumor, wherever situated, being without a history which explains it, is to be called and treated as cancer. But here at once may seem to rise insurmountable objections to such classification. It might be urged, for example, that a fibroma which does not destroy life has no more explanation of its origin than has an encephaloma, which in a single year runs to a fatal end. Such objection, however, influences only the histologist; the clinician recognizes no practical difference between the conditions: they are, he assumes, expressions of a common vice. But the one kills, the other does not. If this be urged, the objection will be admitted; but it has an explanation which is easily made evident. There is, we say, but one non-self-explaining vice; this vice puts on various phases. These phases are influenced by the malignancy of the crasis, or by relation with the conditions of the individual into whose system the malady has found ingress. This we may illustrate by an example. Four men go from a healthy to a malarious district; all live in the same house, and all impregnate their systems with the same poison. In a week one succumbs to a quotidian; in two weeks the second has a tertian; in three weeks the third dies from a congestive chill; while the fourth, preserved by an inherent resistive force, antagonizes the miasma entirely. Thus also in the cancer vice: one man, either from the concentration of the virus, or from the absence of antagonizing power, dies quickly from a medullary expression; while another maintains a tumor for years, in the expression of simple sarcoma, succumbing finally in the battle by reason of some accident out of which force becomes diminished, affording thus mastery to the abeyant vice; the sarcoma quickly degrading into that which the microscope distinguishes from it as encephaloma.

The premise, then, is assumed, that any and every tumor which cannot be proved benign is to be deemed malignant. A self-explaining tumor expresses its nature and indicates its name; a non-explaining tumor demands from us no special regard for the distinctions of nomenclature, except as in an adjectival way the distinctions classify, for convenience in description, what

are to be regarded as varying expressions of a common disease. (See *Fibroma*.)

Urging the conviction that in the preceding few and very simple rules lie the fulness of a proper clinical distinction of tumors, applicable to any and all cases, the student may now, without the chance of becoming confused, proceed to acquaint himself with the growths pertaining to the parts which it is the special object of this volume to study. Before doing this, however, a comprehensive discussion of distinctions at large is to engage his attention.*

1. **Relationship.**—Homologous tumors tend, as would be inferred, to preserve isolation and individuality; a malignant growth, on the contrary, representing simply the nidus of a vice, is seen to tend to infiltration and to a commingling with adjacent tissues.

2. Homologous tumors progress regularly, are apt to remain stationary after attaining some certain size, as in an odontocoele; or they may degenerate and slough, as seen frequently in the sebaceous growths. In structure, homologous tumors are akin with the parts in which they are found; they do not possess other than a single formative capacity. Treatment of them is purely local. The tumors of a vice, on the contrary, have, as a rule, the evidences of their systemic character associated with them. They are not amenable to a local treatment: if one be removed, a second comes to take its place, appearing either in the site of removal or in some other locality.† The cure of a vice tumor resides either in the use of a specific, antidoting the poison of the vice, or in affording such increase of the natural resisting force that the destructive tendency is retarded or overcome.

3. Homologous tumors are commonly single, or, if multiple,—for example, sebaceous cysts,—are confined to a common tissue and a common association. The vice tumors exhibit their constitutional relation in the tendency to reproduction, not only in various parts, but in different tissues.

4. Homologous tumors, if painful, express common pain. Vice tumors have a character of suffering peculiar to themselves.

1. **SIMPLE INFLAMMATORY TUMORS.**—A simple inflammatory tumor refers to a swelling (which is of varying nature), associated with an inflamma-

* But it is to be asked whether or not, outside of the negation of the self-explaining tumors, there is not a something that may distinguish cancer? If there be, the author knows nothing about it. The negation has, however, a wide meaning. According as a man knows of a certainty what is not cancer, his inference as to the existence of that condition becomes reliable and valuable: he calls that cancer which he proves to be nothing else.

† But is there not some special histological expression which characterizes cancer,—some peculiar heteroclitic cell? Once it was thought so; but now it is known that certain caudate cells, deemed a few years back entirely diagnostic, are also found in foetal connective tissue. Heteroclitic cells afford information to diagnosis from location and combinations alone. The histological aspects assumed by a cancerous tumor originate out of relation. No special cell exists.

† This is attempted to be explained by Virchow on the principle influencing syphilitic absorption, or rather, to express him more critically, by embolism.

tion: thus, it may depend on simple excess of blood in a part, or on effusion of serum or of lymph.

Vascular excitement, of a grade which brings a perverted circulation under cognizance as inflammation, never increases the dimensions of a part through excess of nutritive or formative action; on the contrary, the nutrition of an inflamed part is always diminished, this being amply demonstrated by the disorganization of suppuration. Even, however, in cases where resolution occurs, the tissues are always left relaxed and degenerate, and in themselves are, without doubt, of less consistence by weight or bulk than before the attack.

It is, as well understood, a characteristic of vessels involved in inflammatory action to relieve their distention through effusion, and thus, as such effused material may be serum, fibro-serum, blood, or lymph, tumefaction is produced, which tumefaction is persistent or otherwise according to character and associations.

Concerning the first,—the simple, unmixed watery effusions,—they are found most frequently associated with lower degrees of inflammation, as in certain articular affections, in encephalocele, hydrocele, etc. In such effusions there can be no tendency either to coagulation or to organization: a tumor is formed, but it is simply a water-bag. Fibro-serum, or serum containing fibrin, has in it an organizing force proportioned to the quantity of fibrin contained, approaching to this extent the nature and character of lymph. Such fibro-serum is seen, on withdrawal from the body, to differ from serum proper in the ability it possesses to assume a jelly-like consistence, and to show the fibre-cell, as exhibited in peritoneal and pleural effusions. Fortunately, however, while excluded from the air, fibro-serum seldom manifests any tendency to coagulate, thus remaining as susceptible to the action of the absorbents as the more simple effusion.*

Lymph, another of the exudates of an engorged vessel, finds its most practical expression when viewed as the agent of nutrition; it is that pabulum in which reside the elements of life, and is in a state of constant relation with every part of the organism. Only as the result of over-pressure or engorgement, however, is it likely to be found in excess in any one part; but when so found it compels a tumefaction, measured by the undue amount present.

Between lymph and the vitalizing principle—the *vis vitæ*—there exists a marked affinity, so that circumstances must be adverse indeed where exuded lymph does not tend to organization. Corpuscular lymph, as a kind is sometimes termed, is a physiological misnomer,—difference lies in perversion, not in character: thus, while lymph exuded by a vigorous system tends always to immediate organization, exuded in a specifically diseased person, or

* Fibro-serum is the liquor-sanguinis of Babington, the plasma of Schultz, the mucago, or mucilage, of Harvey.

in one deficient in the vital element, the recognition of cause for degeneration is sufficient explanation of the variety considered. Corpuscular lymph is protoplasm the grade of organization of which fails to rise to a proper development. A common admixture of the two varieties is evidence enough of oneness.

Lymph tumors have associated with them a threefold sequelæ: the contents are absorbed; or they organize; or they degenerate and are gotten clear of in suppuration: or the three conditions may coexist, part of the lymph being absorbed, part being thrown off, and a portion affiliating itself with the surrounding parts.

2. HYPERTROPHIC TUMORS.—Hypertrophy is an expression of unbalanced nutrition,—a part developing in excess of its fellow-parts. Hypertrophic tumors differ from all others by conformity with regions with which they are associated. So marked and characteristic is this that it is only through comparison with neighboring parts that such enlargement is to be measured. Hypertrophy may ensue from the opposite conditions of excessive supply or of diminished waste. The enlarged biceps muscle of a blacksmith, and the gastrocnemii of the ballet-dancer, are illustrations of hypertrophy from super-nutrition. Enlarged glands from tuberculosis are not unjustly to be instanced as illustrations of the second condition.*

3. TUMORS WHICH RESULT FROM INTERFERENCE WITH FUNCTION.—The appreciation of this class of tumors, of which there are a great number, is commonly without confusion or difficulty. It is, of course, required that the observer draw his inferences from the data of anatomical and physiological knowledge. The deficient spinal canal gives the protruding meninges,—the fluid of the subarachnoidean space filling the fluctuating cyst. Obstructed sebaceous ducts yield wens. Relaxed veins afford varices. Occlusion of the antral foramen compels engorgement of that cavity. An umbilicus, unclosed, or its boundaries attenuated, hernia follows. A tooth out of the dental arch, yet developing within the structure of the bone, odontocoele exists. So of all this class of tumors, similar simple and single signification is found.

Histological Distinctions.—A classification of tumors, employed by writers generally, is founded on histological anatomy. The philosophy of such classification finds condemnation in changes constantly occurring. These namings are good, bad, and confusing, in the phases of neoplasms, and in the fact that the clinical history of the conditions demonstrates expressions to be phenomenal, just as, though in more marked degree, the expressions of vascular perversion which we denominate inflammation are phenomenal. Histological definitions are not, however, without great usefulness and interest.

Tumors, as histologically classified, are as follows:

* The meaning of serofulous induration lies in stasis of tissue metamorphosis, the direct cause being lymphatic obstruction. Lymphangitis and tuberculosis are identical.

Cystoma.....	Cystic.	Adenoma.....	Glandular.
Enchondroma.....	Cartilaginous.	Angeioma.....	Vascular.
Fibroma.....	Fibrous.	Sarcoma.....	Fleshy.
Lipoma.....	Fatty.	Neuroma.....	Nerve-like.
Osteoma.....	Osseous.	Hygroma.....	Water-like.
Dentinoma.....	Dentinal.	Steatoma.....	Lard-like.
Hæmatoma.....	Blood.	Myeloma.....	Marrow-like.
Encephaloma.....	Brain-like.	Meliceroma.....	Honey-like.
Scirrhomia.....	Marble-like.	Atheroma.....	Gruel-like.
Melanoma.....	Like black pigment.	Chloroma.....	Like green pigment.
Myxoma.....	Mucus-like.		

No conflict exists, however, between the two manners of classification, as a single moment's reflection will show. An angeioma may be homologous or heterologous. A hæmatoma may be benign or malignant. It will serve the purpose of a study to analyze, in illustration, some of the terms.

We say, for example, of a certain tumor, that it is a cystoma. Using this descriptive expression, we imply by it a cystiform character of the growth spoken of,—this, and nothing more. The tumor may readily enough be what we have called homologous; for should it be in a jaw-bone, and should we make examination, we might remark the absence of certain teeth from the arch affected, and, on chiselling off the vault of the enlargement, might find the lost teeth as an explanation of the growth: the cyst would be a self-explaining odontocèle.

Again, examining a maxillary cyst, we find no teeth absent from the arch; none of these organs diseased, no anything of local signification that has in it the semblance of explanation; accurate inspection, founded on a thorough knowledge of the parts, reveals no cause why a cyst should have developed in such a place and at such a time. Here the most experienced surgeon has but a single resource. He must act on the premise that the condition is an expression of constitutional meaning. In his investigation he passes to examination of vices possessed of a history. Discovering still nothing, he has left him but assumption of the condition of cancer. Certainly he has been able to secure nothing outside of such assumption. If he treat not his case as cancer he is without data for treating it as anything else.

Take a third condition of cyst,—a cyst in the substance of the lip. Is this a self-explaining condition, or does it express a vice?

In the substance of the lip are secreting glands of three characters, mucous, sebaceous, and sudoriparous; each of these, for the purpose of clinical study, may be described as a secreting cyst-like body with a patulous tube running from it to a free surface, through which tube is constantly being discharged the fluid formed in the cyst. Suppose now any one of these tubes to be accidentally occluded, we find ourselves led at once to an apprehension of a diagnosis. Should a labial cyst be mucous in its character, it will be a soft, more or less elastic tumor, will be situated upon the oral aspect of the lip, and if explored by the needle will yield the characteristic discharge. Should it, on the contrary, be of a sebaceous nature, it will be related with the external

tissue, will roll loosely under the touch, and if explored will exhibit cheese-like contents. The sudoriparous cyst is, of course, of very rare occurrence; if existing, it would also lie in the external tissue, and would be found to have much more elastic walls than either of the others. A cyst is sometimes found in the lip dependent on dental abscess. A case is at the present time under treatment by the author where such a cyst was of eleven years' standing; during all that period the tumor has not been of less size than an ordinary shellbark-nut. The sac was found very thick, and the surface ulcerated. A treatment which consisted simply in the extraction of two dead teeth, has resulted in the entire disappearance of it.*

We pass to other of these synonymes. Let us take the terms scirrhomia, myxoma, encephaloma, myeloma: these are names given to tumors because of peculiarities in structure. The clinical placing of them, however, is the practical matter. Whatever name the histologist employs for the designation of a tumor, whatever may be the histogeny of a growth, if no local nor common vice explanatory of presence exists, its place is with cancer. Here only may it be placed as treatment is concerned. It is to be cut away or let alone. That is the sum of its treatment.

Scirrhomia is a term employed to designate solidity, hardness; the cancer vice. Influenced by the associations of a part in which it is found, by its own character, or by some peculiarity or idiosyncrasy of the individual, it exhibits itself as a hard nodule; remove this nodule, and not unlikely the return of the disease—particularly if appearing in another locality—is in the form of a brain-like substance,—encephaloma; or that might come, which, cut into, would exude a mucus-like substance, and we might call it a myxoma; or perhaps a section would exhibit marrow-like contents,—myeloma; or there might be a cyst with gruel-like contents,—atheroma. Or, diffused throughout the substance of any of these differently appearing conditions, there might be a black coloring-matter,—then we might express the tumor as a melanoma; should the pigment be of a green shade, we would call it chloroma; or should we designate the growth for the first time, on seeing it in a state of fungous proliferation, we should call it a hæmatoma. Yet, with all these various significations, we would mean, in truth, but a single thing; and to clinically classify any or all of these phases we would need but a basal term,—that is, taking it for granted that the tumor was without local or common vice explanation.

In such exposition of names, which are seen to be simply expressive of types,—synonymes we may with all propriety call them,—any confusion must certainly be found dispelled. These various terms, as employed in writing, are, however, as has been suggested, of great assistance in expression; it is only necessary to bear in mind that their meaning and relation are adjectival.

* The hydatid, being a cyst of parasitic origin, is not introduced. Such a cyst, being an accident, as it were, can be conformed to no rule. Diagnosis is through aspiration.