Extracts from Lectures CLINICAL AND SYSTEMATIC.

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I.—ON INNOCENT AND MALIGNANT TUMOURS.

I now propose to make a few observations upon the distinctions between innocent and malignant growths.

Sufficient evidence has been adduced to prove that, in some of the cases where cancer has been said to have been cured, the disease was not a cancerous, but an innocent growth; one which might have been safely left alone, or treated in a much milder mode than the curer adopted, and with greater success.

It is undoubtedly true that, in some few cases of alleged cancer, medical men have expressed an opinion that a tumour was cancerous, yet it has been removed, and has not returned. But, in all probability, such cases should be explained by an error of diagnosis. Some assistance towards lessening the number of such cases may be obtained by bearing in mind certain leading distinctions between cancerous and other tumours. These distinctions may be shortly summed up in the following tables. I have arranged them in two series. The first are the signs which may be observed before the removal of the tumour, or without any puncture or other interference with it; the second are those which can only be known after anatomical examination of the structure of the growth.

Table I.—Before Operation.

MALIGNANT OR CANCEROUS TUMOURS.	INNOCENT TUMOURS.
1. Are often multiple, occurring simultaneously in different tissues or organs.	1. Are usually single, or found in one tissue or organ only.
2. Are generally very painful.	2. Seldom very painful.
3. Usually grow fast.	3. Usually of slow growth.
4. When near skin or mucous membrane, usually implicate them, and interfere with their movement.	4. Skin and mucous membrane usually move freely over them.
5. Undergo spontaneous change or decay.	5. Rarely degenerate.
6. Cause hard swelling of neighbouring glands.	6. Glands rarely affected; any swelling is not hard.
7. When bare, there is rapid formation of morbid vegetations, and fetid corroding discharge.	7. No such vegetations, nor discharge.
8. Are often surrounded by smaller growths of the same nature.	8. No such smaller growths.
9. Are preceded or accompanied by a peculiar hexia.	9. General health may be perfect.

Table II.—After Operation.

MALIGNANT OR CANCEROUS TUMOURS.	INNOCENT TUMOURS.
1. The cellular elements often differ both in form and arrangements from those which constitute normal structures. (Heterologous.)	1. The cellular elements always resemble normal structures either in their embryonic or perfect form. (Homologous.)
2. The elements are combined in great variety.	2. The elements are as uniform as those of normal structures.
3. Adjoining tissues are infiltrated or destroyed by the diffusion of the new structure.	3. Neighbouring parts are compressed or displaced; not otherwise altered.
4. Usually return after extirpation, in the same or in some other part.	4. Do not return in the same or in any other part, if completely removed.

The following remarks upon each of the above characters of the two classes of tumours should be borne in mind.

1. Several innocent growths may be multiple; for example, warts, encysted tumours, enchondroma, fatty tumours and fibroids. Hence this character is only distinctive of malignancy when other characters of innocent growths are wanting, or when several different tissues or organs are simultaneously affected; for instance, breast and uterus, breast and lung, testicle and liver, are very seldom simultaneously attacked by innocent growths.

2. Malignant tumours are usually painful at some stage of their growth. The pain is often almost unbearable, especially at night. It arises spontaneously, or is excited by motion or pressure. There are but few exceptions to this rule, although encephaloid, melanosis, and colloid, sometimes attain a large size before there is much pain. The character and degree of pain vary—(a) with the tissue or part affected, (b) the nervous supply, and (c) the tension of surrounding fasciæ. Innocent tumours are seldom painful; and if pain be induced in them by pressure, it is seldom durable, unless the tumour is a neuroma, or is in close connection with a nerve.

3. Although malignant tumours, as a rule, grow faster than others, yet there are many exceptions to this rule. For instance, epithelioma may go on for ten or twenty years before any extensive destruction of tissue is effected; while innocent cystic or cystosarcomatous tumour of the ovary may attain a very large size in one or two years.

4. The rule that malignant growths adhere to the skin or mucous membrane which covers them, while innocent growths (even of large size) admit of the skin or mucous membrane being freely moved or folded on them, is only open to exception when a strong fascia or a serous membrane intervenes between the tumour and the skin. For instance, soft cancer of the testicle may attain a large size while the skin of the scrotum remains freely moveable.

5. At some stage of their growth or development, malignant tumours soften and break up. This occurs without any injury or inflammation, as a simple process of decay which takes place early in some textures, late in others. This is a totally different change from the decay of an innocent polypus when its pedicle is compressed or twisted, and from the superficial ulceration of a fatty tumour when rubbed by clothing or otherwise irritated.

6. The swelling of the glands to which lymphatics pass from a malignant tumour may be sympathetic only, or is the hardness of infiltration. In the latter case there is pain, more or less persistent, and increased on pressure, while the swollen gland is very

hard. It has become the seat of malignant deposit, and after the removal of the original tumour, the same disease will progress in the gland if not removed. The softer the malignant tumour, the sooner are neighbouring glands hardened. Hard cancer may exist for a long time without any affection of lymphatics or glands; but as soon as softening commences, the fluid passes along the lymphatics and the glands suffer. The merely sympathetic enlargement of glands in the neighbourhood of a malignant tumour—an enlargement which may disappear after the removal of the tumour—occurs without hardness or much sensibility; while the glandular swellings which accompany suppuration or the inflammation of innocent growths are more acute, are not hard, and yield readily to treatment, or cease with the inflammation which was the exciting cause.

7. When a malignant growth is exposed to the air by the removal or giving way of its coverings, the surface becomes covered with morbid vegetations, which either die nearly as soon as they spring up, or form protruding masses. In either case a very irritating sanious fetid pus is formed in abundance, which corrodes any unprotected part upon which it is allowed to remain or flow over. Nothing like such vegetations are seen in any innocent tumour, with the exception of some in the mouth, which are kept in a state of irritation by the warmth and moisture, the constant passage of food and air, the perpetual motion of the tongue, or the irritation of a rough tooth.

8. The formation of several smaller tumours around a large one of the same character is often quite characteristic, and is sometimes the first or only undeniable proof of malignancy.

9. The cachexia which accompanies malignant growths may be primary or secondary. In some cases the tumour is only the outward and visible sign of a constitutional disease, or of an altered state of the blood, either inherited or acquired. In such cases the physiognomy is altered before the tumour appears, or the change takes place simultaneously with the appearance of the tumour. In other cases the constitutional contamination is secondary—the blood is altered by the absorption or entrance into the blood-vessels of the fluid portions or products of the tumour. Here the local disease—epithelioma, for example—may exist for several years before the general health is sufficiently affected for disease to become apparent in the physiognomy.

Passing now to the distinctions enumerated in the second table, it must be observed, that as these structural characteristics can only be discovered by anatomical, microscopical, and chemical examination after the tumour has been removed—or by watching the results of removal—they are of comparatively little practical importance. They are useful in proving the accuracy or error of diagnosis, and in prognosis; but the surgeon has to determine the question of removal on other grounds, many of which have been already stated. I shall, therefore, refer you to standard works for an account of the anatomical, microscopical, and chemical characters of the different varieties of cancer, only remarking with regard to these characters, that the form, arrangement and combination of the cellular elements (as stated in the first and second propositions of the second table), are so different in the two classes of tumours, that there is seldom much difficulty in distinguishing those of an innocent from those of a malignant nature by the structure alone.

With regard to the value of infiltration of healthy structure as a sign of malignancy, it must be remembered that, while no innocent tumour commences as a morbid infiltration amongst natural structures, yet

the converse does not hold, for we cannot say that a tumour is innocent because it is distinctly circumscribed.

Lastly, with respect to the return of tumours after extirpation, either at the same spot or at a distance, it should be remarked, that some innocent tumours of the cellular tissue increase very rapidly after removal, if only a small piece be left behind; but that innocent tumours very seldom return, if completely removed. If a swelled gland in the neighbourhood of a tumour of doubtful character has been removed, and the swelling has been only sympathetic or inflammatory, the gland is found to be merely infiltrated with fluid blastema not arrived at a stage of new organisation. The microscope detects none of the structural elements of new growths. But when the swollen gland is hardened by cancerous infiltration, and is removed with the tumour—or when the process goes on in neighbouring glands after the removal of the tumour—then the gland on examination is found to resemble in structure, and to have the same malignant tendencies, as the original tumour.

These remarks upon innocent and malignant tumours, should be accompanied by some suggestion that in the present state of science the practical surgeon requires a more exact classification of tumours than is afforded by this simple division into two classes. While preparing some such classification for the pupils at the Grosvenor Place School, I met with Dr. Billroth's paper on tumours (*Deutsche Klinik*, 1859), and I give it here as the best I have seen. It has the great advantage of being prepared principally with a view to prognosis—or to the different degrees or modes in which different tumours are apt to spread or return—while those names are retained which are most useful to the surgeon, and those are eliminated which are chiefly interesting to the histologist.

I. INNOCENT TUMOURS. Those which very seldom return after extirpation, but sometimes extend in great numbers over the whole surface of the body. 1. *Simple Cysts*, *a*, with serous fluid; *b*, with mucous contents; *c*, with soft, fatty contents; *d*, with blood. 2. *Fatty Tumours*. 3. *Fibrous Tumours*. *a*, Soft fibrous tumours; *b*, Hard fibrous tumours. 4. *Simple Cartilaginous Tumours*. 5. *Exostoses*. *a*, Spongy exostoses; *b*, Ivory exostoses. 6. *Vascular Tumours*. *a*, Erectile Tumours; *b*, Cavernous vascular tumours. 7. *Horny Eccrescences*.

II. SARCOMAS. Tumours which often return locally, but seldom extend to internal organs. 1. *Glandular (adenoid) Tumours*. 2. *Colloid Tumours*. *a*, Homogeneous colloid sarcoma; *b*, Areolar colloid tumours. 3. *Cystoid and Cysto-sarcomas*. 4. *Hard Sarcomas*. 5. *Soft Sarcomas*. 6. *Soft Papillary Tumours*.

III. CARCINOMATOUS TUMOURS. Tumours which always return locally, then in the nearest lymphatic glands, and lastly extend to internal organs. 1. *Carcinoma*. 2. *Canceroid, or Epithelioma*. 3. *Scirrhus*.

IV. MEDULLARY AND MELANOTIC TUMOURS. Tumours which generally rapidly return locally, and soon extend to internal organs. 1. *Encephaloid*. 2. *Melanotic Tumours*.

AN ARTIFICIAL LEECH. M. Damoiseau has recently called attention to a monstrous (artificial) leech—*Térabelle*—which he has invented. It seems to have many advantages over the old-fashioned pneumatic cupping apparatus. The author is able to draw, with one glass, fifteen drachms of blood in a minute, and the blood does not immediately form a clot which plugs the vessels, as with the cupping-glass. Blood-letting is so much out of fashion in England that probably no one will take any notice of this invention, and yet it seems to offer advantages which are deserving of attention.