localised matting; but it was not till after death that by continued unravelling the true state of affairs became apparent.

In the second case, it is difficult to understand what led to the removal of the obstruction. It is possible, but unlikely, that some accidental touch during the operation may have done all that was necessary; but I incline rather to the belief that the relief was afforded in the same way as it is sometimes by an enterotomy. I think that the very careful feeding after the operation, assisted possibly by the vomiting, so reduced the distension above the obstruction and prevented its reaccumulation that the natural passage was restored, and that the action of the belladonna, with the subsequent careful diet, were sufficient to keep it open.

Huddersfield.

WHAT CONSTITUTES MALIGNANCY?¹

By HERBERT SNOW, M.D. LOND.,
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THOUGH we are by no means yet in a position to solve the great mystery which surrounds this question, it appears to me that by discarding some useless lumber in the shape of pathological over-refinements, and by taking as general a view as possible of the whole subject, we may yet do much to narrow the problem, and to place ourselves face to face with it in its simplest form, shorn of all irrelevant matter—surely a by no means inconsiderable advantage towards its successful solution.

Taking first for our consideration the large class of malignant diseases denominated "alveolar carcinoma," with its principal subdivisions—scirrhus and encephaloid,—we are told that this is due to the proliferation of glandular epithelium in the meshes of a fibrous stroma, such stroma being firmly organised and most abundant in scirrhus, and comparatively scanty in encephaloid. Here the character of this stroma, and the emphasis laid upon it in pathological instruction, seem to me to obscure from our mental vision the essential and vital characteristics of the new growth. Some authorities consider it merely the original connective tissue of the part; others an entirely new formation; the most recent make an equally balanced compromise between the two. But I think that the prevailing impression in the medical mind is that this alveolar stroma is altogether a neoplasm, a characteristic and typical feature of the cancerous tumours. Let us now examine the correctness of this view, taking scirrhus as the most typical form of alveolar carcinoma and the female breast as its most ordinary seat. If we take a thin section from the normal breast, we see the bands of white fibrous tissue variously interlaced, so as to form irregular meshes; at intervals the acini of the gland lined by epithelium; here and there collections of adipose tissue. When the organ becomes affected by scirrhus, we find the epithelial cells of the acinus transgressing their boundaries, depositing themselves in the interstices of the normal connective tissue wherever they can gain a foothold, here proliferating abundantly and stretching the developing fibres, till in time these become atrophied or absorbed. In the last stage, as a rule, the cells greatly predominate; we then encounter only friable cell-masses, many of which have undergone caseous or fatty degeneration, with but a mere skeleton of the original fibrous tissues remaining.² On examining a section of the scirrhused breast, we notice an acinar or alveolar distribution of the cell-masses, corresponding precisely to the normal arrangement of the fibrous bands, and in no way differing from it. When the section is through a plane parallel to the fibres, we find the cells apparently arranged in long thin rolls; when transverse, the cells appear grouped in larger or smaller irregularly roundish or oval clusters. Here and there some of the original acini of the gland remain, adding to the alveolar appearance.

But in order to find the most typical alveoli and the representation of scirrhus cancer most commonly given in pathological manuals, we must study the development of

the cancer cells in fatty tissue. We here see these cells travelling from the affected part along the fibres of the reticulum; they locate themselves at the angles formed by the crossing of the different fibres and proliferate, crumpling up before them the fat-cell which each mesh contains. When the process is complete, the place of the fat-cell is wholly occupied by the malignant cells, and the original fibres of the reticulum remaining unaltered, the appearance presented under the microscope is that of large roundish acini. Throughout all this we utterly fail to find any development of new fibrous tissue. It cannot be denied that there may occasionally take place (as in other conditions of chronic irritative inflammation) some hypertrophic increase of fibrous tissue in the vicinity of a cancerous tumour; the skin of a cancerous breast often seems thickened, even to a long distance from the seat of disease. But this phenomenon is by no means constant, is of an accidental nature, and has nothing whatever to do with the alveolar characteristics of the neoplasm. The most careful examination of numerous cases has entirely failed to indicate to me that there is any increase of fibrous tissue whatever in ordinary cases of scirrhus, whether hypertrophic or of new formation. The gist of the whole process of development in scirrhus cancer of the breast appears simply to be that the cells of the acini, under the influence of some law at present very mysterious to us, proliferate abnormally, diffuse themselves through the adjoining tissues by the agency of lymph currents (probably also by their own amoeboid movements), and grow vigorously wherever they can find room; but that their distribution depends strictly on the anatomical structure of the part, and proceeds on lines previously laid down.

I will pause here a moment to make one or two further remarks respecting the relationship of the white fibrous tissue to scirrhus, which we have just been considering; because I believe that many or most people look upon the characteristic hardness of a scirrhus tumour as due to the superabundance of such tissue in and around it, and perhaps at the first glance will not be able otherwise to account for the very marked induration which we almost always find. The fallacy of such an idea will, however, be obvious when we consider that a tumour composed wholly of white fibrous tissue has no such feature; still more so when we remember the soft pulpy character (in ordinary situations) of the growth we term "round-celled sarcoma" (which in abdominal organs I have seen not a whit more solid to the touch than condensed milk), and then reflect that this material, when enveloped by a rigidly resisting capsule, as in the case of the testicle, feels to us of stony hardness. A still more striking example is afforded by lympho-sarcomatous tumours, which, usually not particularly remarkable for their hardness to the touch, when growing under dense fascia in the lower part of the neck are commonly mistaken at first for an exostosis, then for osteoid cancer. The truth is, that the sensation to our hand of hardness occasioned ordinarily by scirrhus, and extraordinarily by the tumours just mentioned, results from the tension of cell-masses growing under or among the meshes of resisting non-elastic tissue. A similar explanation will account for the puckering of the skin, for the retraction of the nipple, and general tendency to shrinking and contraction in the adjoining tissues, most marked in the case of scirrhus, though by no means confined to this; the growing cell-masses haul on the fibres, somewhat in the same way as a sailor hauls on a rope.³

Next as to encephaloid cancer. We hear little of this nowadays. There is a fashion in pathology, as in most things else; and the present custom is to designate tumours which would formerly have been classed under this heading as "round-celled sarcoma." I venture to think that this is a great mistake; and that the latter term, implying as it does a connective tissue origin, is employed far too frequently at the present day. In the case of the female breast, I cannot but assign an *epithelial* origin to the tumours commonly termed "sarcoma," together with a certain degree of alveolar structure proportionate to the stage of the tumour and to the amount of fibrous tissue still remaining; and I therefore prefer for these the old and unfashionable term

¹ This paper constitutes part of a lecture introductory to the course delivered by the staff of the Cancer Hospital from January to March, 1886.

² This description, of course, does not refer to those exceptional chronic atrophic cases in which the fibrous tissue is not eroded; though even here I should hesitate to call it hypertrophied.

³ A familiar example of the enormous energy exerted by proliferating cell-masses—often in themselves soft, pulpy, and friable—must occur to all who have noticed the power with which colonies of young fungi elevate heavy slabs or stones overlying their bed; and we know how the algae, growing on the lees of wine which has issued from a small leak in a cask, may eventually lift the whole cask up many inches.

"encephaloid."⁴ These growths on section often remind one of pomegranate, the soft pulpy cell-masses being contained in coarse meshes of the connective tissue of the part, and their vascularity adds to the general resemblance. On inspecting a thin section of one of these, the brown bands of fibrous tissue will be seen in contrast with the dark-blue cell-masses. Under the microscope we find cells of pretty much the same character as the former; as a rule they are not quite so large or so well defined, but their growth appears to be far more exuberant. Instead of little detached knots of cells inserting themselves, as it were, painfully and with difficulty into the connective tissue meshes, we find huge masses; these are still contained in alveoli, only that the latter are now very large and coarse. The cell-masses at first keep within the bounds of the normal acinus of the gland—soon, however, transgressing this; they are evidently the results of proliferation of the epithelium appertaining to that acinus, and show no indications of any connective tissue origin.

The question now arises: If these two forms of cancer (scirrhus and encephaloid) both arise from the acinar epithelium, how is it that they are clinically so distinct—so that in the one case we find a tumour of stony hardness, in the other a growth comparatively soft, perhaps even fluctuating? The former is characterised by puckering and contraction, the latter by prominence and distension. I think we may find a plausible explanation of these peculiarities in the state of the white fibrous tissue of the individual patient. Those who have occasion to operate frequently on the female breast must have noticed, when proceeding to scoop out the contents of the axilla, the marked difference in the consistence of the normal tissues here situated—a difference by no means referable solely to age, but in great measure also plainly depending on natural habit of body: so that in one woman you may clean out the cavity with great ease; in another, not markedly distinguished from the former in age or general appearance, the fibrous tissues are exceedingly tough, and have to be divided by the knife or scissors. I would, then, refer the clinical and other differences between scirrhus and encephaloid cancer, as these affect the female breast, simply to differences in the resisting power of the white fibrous tissue in the individual who happens to suffer from the one or the other. In scirrhus, as a rule, the malignant cells force their way with difficulty, only gradually eroding their fibrous envelopes; in encephaloid, the cells prey, if I may so speak, on the surrounding fibrous tissue from the first, and there is no resistance, no pressure, no increase of tension, no feeling of hardness to the touch. I do not see how else to account for the facts, but I cannot venture, however, to offer the above hypothesis as more than provisional.

(To be concluded.)

EPITHELIAL CANCER OF THE TONGUE LIP, AND UTERUS.

BY JOHN CLAY, M.D.,

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It is now six years since I first communicated to THE LANCET (March, 1880) some observations, with illustrative cases, on the use of Chian Turpentine in the Treatment of Cancer. Much outspoken, not to say hostile, criticism of the remedy characterised the discussion which resulted from that communication. I have not troubled myself to enter upon this controversy, nor, with the space at my disposal, can I now venture to do so. I have been content to steadily pursue the treatment in the course of my own practice, and with such excellent results as to justify me in adhering to the statements I made in the paper above referred to. As the test of experience is the most conclusive reply that can be made to the criticisms and objections offered to my method of treatment, I now submit such evidence, in the form of brief notes on three cases of cancer, in different positions, each treated by Chian turpentine. I offer these, not as isolated examples, but as types of a number of successes obtained by similar treatment in cases alike as to their character and

their situation. In the name of suffering humanity, I ask the medical profession to consider these cases without prejudice, and in the hope that the narration of them may lead to a more extensive and resolute trial of a remedy the high value of which I have tested and proved in my own practice.

CASE 1. *Epithelioma of the Tongue*.—On March 30th, 1885, I saw, in consultation with Mr. Bury of New Barnet, Mr. M— of Shrewsbury, aged fifty-nine years, a gentleman retired from business. The medical gentleman in charge of the case informed me that the patient was suffering from epithelioma of the tongue, and that he had consulted two of the highest authorities in London, who had confirmed his diagnosis, and had pronounced the case to be unsuitable for operation. It was reported to me that one of the consultants confidentially expressed the opinion that the disease would probably prove fatal within two months. The disease was first noticed about four months previous to the above-named date. It commenced with soreness on the right side, at the junction of the root of the tongue with the floor of the mouth. There was some ulceration at this part, which was attributed to the irritation of a decayed tooth. The tooth was extracted, but the soreness and ulceration were not relieved, but gradually increased. The patient has never had syphilis. He has had caustics applied occasionally, and had taken sedatives to ease the pain. On examination, I found, in the situation above mentioned, an ulceration about the size of a sixpence, with a hardened and everted edge on the tongue side of it. There was a row of raised shot-like epithelial growths (not in a state of ulceration) proceeding from the ulcer on the lateral border of the tongue, and running forwards towards the tip for about three-quarters of an inch. The tissues around the ulceration and growths were thickened and hard from cancerous infiltration. There was an enlarged submaxillary gland about the size of a pullet's egg. The movements of the tongue were limited and painful. The patient was well nourished, but depressed and anxious. I gave an unfavourable prognosis, but thought it was a case in which Chian turpentine ought to be perseveringly tried, as that seemed to be the only alternative left to him. He was ordered the following mixture: eight ounces of Chian turpentine (Southall's) and two drachms of resorcin, two teaspoonfuls three times daily; and to have the ulcer and growths slightly painted on alternate days, respectively with chromic acid solution (ten grains to the ounce) and solution of perchloride of mercury (one grain to the ounce). On April 16th, 1885, Mr. Bury wrote to me thus: "There is no arrest of the glandular enlargement, which, if anything, is somewhat more marked. The ulcer in the tongue about as before. I presume we must not lose all heart because the remedies do not seem to have arrested the disease; possibly sufficient time has not elapsed since the commencement of the use of the medicines." On June 30th he again wrote to me, and in reference to this point stated that "about a week after your reply to me the enlargement of the glands began to disperse, and in about three weeks it was entirely gone. The ulcer of the tongue is, I believe, quite healed." I mention these facts, as it is a too common error on the part of medical men to imagine that the remedy is useless because its effects are not apparent in a few days. I did not see the patient again until July 10th, 1885, when I was surprised to find him looking so well. As I had heard nothing of him I feared that he had succumbed to the disease. On examination I found the enlarged gland had disappeared; the tongue could be moved freely and without pain; on the right side it looked and felt quite normal, as though it had never been affected. On the left side of the neck, however, I discovered an enlarged gland, and on the lateral border of the tongue on the same side I found an epithelial growth of the size of a hazel-nut in a sloughing condition. The remedies were ordered to be continued as before. I saw the patient about a month afterwards. The newly discovered growth had all but disappeared, and a month later I found the parts free from disease. The medicine was directed to be taken in diminished doses, and the local applications to be discontinued. I saw him in December of the same year, when he was quite well and proposed spending some weeks on the Continent. I quote the following remarks on the case from a letter from Mr. Bury, the medical gentleman already referred to: "You will be greatly pleased with the success of your remedies, which have restored to life, one may truly say, under God's blessing, one doomed to die in the course of a few months."

⁴ If carefully looked for, a typical scirrhus appearance may nearly always be found at some part of the section of these tumours, a point tending strongly to indicate an identical origin.