THE LETTSOMIAN LECTURES

BEING

PRACTICAL OBSERVATIONS ON CANCER OF THE BREAST.

[WITH SPECIAL ILLUSTRATIONS.]

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LECTURE II.

SOME POPULAR ERRORS IN DIAGNOSIS.

THERE are some delusions about cancer of the breast to which almost the entire public still give credit, and, I regret to say, not a few medical men. They are partly the result of textbook statements not properly explained and partly the result of popular tradition. They are difficult to eradicate, because there is just that small amount of truth in them which makes it possible to argue about them. But they are very deadly and dangerous delusions, because they cause loss of time, and, as we have just been seeing, that is destructive of the only chance of complete cure—namely, early operation. I would reckon among them errors about heredity, about pain, about cachexia, and about nipple retraction.

Error about Heredity.—This question we have already discussed and need not further refer to, except to repeat that the absence of any cancerous taint among relatives is to a woman a very strong inducement to say nothing about any suspicious growth she may feel in her breast, because she comforts herself with the idea that it cannot be cancer, as such a thing was never known in her family.

Error about Pain.—This error is a most serious one. A few internal cancers—such as those of the liver and lungs—are sometimes almost painless in their whole course; but the termination of all external cancers, at all events, is invariably accompanied by severe suffering. These dreadful cases appeal so distressingly to the minds of women that they always associate pain and cancer. But unfortunately there are no neoplasms which produce less pain in their early stages than cancer. As the female mind, then, invariably associates the presence of pain with cancer, so its absence means to the patient that there is no cancer. If she has no pain in the lump and never heard of the disease among her relatives she is very unwilling to tell the doctor what she has in her breast. This remarkable absence of early pain is regarded as all the more of good omen by reason of the fact that, in a large proportion of cases, the patient discovers the lump in her breast by accident. Men do not as a rule wash their breasts very much, but women do, and certainly the most frequent way in which the patient tells the story of the discovery of her enemy is that it occurred as she passed her hand over her breast while washing. So far from regarding pain as a sign of cancer, when a patient comes to tell me that she has detected something abnormal in her breast and that it is very painful, I am always glad to express my pleasure at hearing this statement, inasmuch as the disease is then probably not malignant. Pain in certain cases is by no means an evil.

Error about Cachexia.—The error about cachexia is chiefly made by doctors. Often, after examining a patient with some medical friend, I have been struck by his remarking "Well, but look at her ruddy colour and healthy aspect. There is no cancerous cachexia there!" Like pain, we have here an old superstition, a deeply rooted, popular belief to the effect that a patient who has cancer must have a pallid, emaciated, haggard appearance. When foetid discharge and agonising pain, and sleepless nights and mental distress, and absorption of septic products have done their work, then it is true that the unfortunate patient does present the appearance of a cachexia, but certainly not at the beginning of her disease. We have already noted that the victims of cancer are usually well-nourished persons, often with a fine healthy colour in their cheeks. Many a time I have pointed out to students in the out-patient room some jolly-looking, ruddy-faced man, with hair just turning grey, a big comforter up to his nose, and a tuft of cotton wadding sticking out of one ear,

and have said, "That man has cancer of the tongue." In cancer of the external parts cachexia is practically of no aid diagnostically, because in its early stages there is none, while in the later stages the growth is apparent. But I admit that in certain forms of intestinal and other internal cancers, where the disease is long latent the fact that the patient has lost his ruddy colour and become pale and waxy, that his aspect is pinched, and that he has lost flesh and shrunk in his clothes—in short, the existence of cachexia—is an important point.

Nipple Retraction and Skin Adhesion.—Any error with regard to these can only be made by the doctor and not by the patient. Perhaps the majority of textbooks have hitherto somewhat misled the student on these points. It has been given out too broadly that retraction of the nipple is a sign of carcinoma, while the statement has not been sufficiently qualified by clearly indicating to the tiro that the sign is only of the least value when the disease happens to be situated immediately beneath the nipple. If the tumour has its site at any distance from the central point then retraction naturally does not occur. To persons thoroughly conversant with the matter it seems strange that it should be necessary to point out to anyone that the central point of the mamma can only be interfered with by disease that underlies that central point. As an actual fact, however, I know that the mere presence or absence of nipple retraction, without reference at all to the position of the cancerous mass, is too often appealed to by young practitioners. But if the absence of nipple retraction is no diagnostic sign in cases where the disease is situated away from the centre of the gland, on the other hand it is practically pathognomonic when it lies beneath it.

Adhesion of the skin, as we all know, is a very grave indication of a sublying cancer. It does not occur with any other tumour except an inflammatory swelling of the nature of an abscess. But there is a different appearance between the skin in the two cases. In the inflammatory adhesion the skin is fairly smooth over the abscess, or whatever of an inflammatory nature underlies it. But over a carcinoma, if you try to pinch the skin up between the finger and thumb, immediately a number of fine points appear, which are the hair follicles caught and tucked down by the cancer. It is exactly like the leather of a saddle, inasmuch that I have always demonstrated it to students under the name of "pigskin." I regard this "pigskin" appearance as almost certainly indicative of sub-jacent carcinoma.

WHAT ARE THE CONDITIONS WHICH MOST CLOSELY SIMULATE MAMMARY CANCER?

Chronic Mastitis.—To recount one's own mistakes is the most telling way of communicating information to others. I know that I have several times confounded a piece of chronic inflammatory induration with carcinoma. I can recall very clearly three cases. Curiously enough the three patients were all married women between 35 and 40 years of age, comparatively spare in form, and childless—a kind of person, by the way, who has always seemed to me more prone to chronic mammary induration than the stout plethoric woman who has had a big family. When the condition becomes pronounced the whole breast comes to resemble a hard flat cake. You can lift it off the pectoral muscle in a mass. Here and there throughout it are points of extra hardness, like knobs or bosses. One of these, bigger than its fellows, is the suspicious object. The question comes to be, Is that hard knob simply a bit of extra-hard chronically indurated tissue, or is it a piece of malignant disease? In point of mere hardness there is nothing to choose between either condition. Feeling alone gives very little help, while the difficulty is increased by the fact that throughout the rest of the breast are points which are only a little less in size and a shade less hard than the one which has given rise to suspicion. It is very difficult to give any precise rules by which to recognise a bit of indurated mastitis from a bit of carcinoma. Experience alone helps. But it may be noticed that in mastitis skin adhesion is very rare and so is glandular enlargement. The adhesion, if it exists, is not of the "pigskin" type, while, when axillary glands are to be detected, as they are in thin women, they are so hard in cancer that this feature alone distinguishes them.

Small Chronic Abscess.—Probably the thing which is next

most commonly mistaken for cancer is a small, deep collection of pus, surrounded by a zone of inflammatory thickening. Not many years ago I saw a surgeon whip out a breast for a supposed scirrhus. When the breast was cut up in the lavatory, before being handed round to the students, the tumour was found to be a small abscess with a condensed mass of inflamed tissue around it. At the first blush one would think this mistake a very unlikely one to happen, but it is not so. The deep seated, ill-defined, hard, inflammatory mass, surrounding so small a quantity of pus that fluctuation cannot be detected in it, has a marvellous resemblance to a piece of carcinomatous tissue. Moreover, the delusion is heightened by the fact that there is often a little adhesion between the skin and the swelling beneath, but as we have just seen, it is not of the genuine "pigskin" order.

A Small Fibro-adenoma.—A condition very like the hard point in a case of chronic mastitis, to which allusion has just been made, is produced by a small fibro-adenoma. I recollect a very nervous woman coming into hospital with what I believed to be a tumour of this kind. She was extremely timid, and only after considerable pressure consented to have the growth out, and that on the express understanding that nothing more was to be done; but when we came to the growth it was found to be scirrhus, although the signs of a fibro-adenoma had been so marked that I had been at some pains to point them out to the students as very characteristic of that form of tumour. I removed it freely. The patient was told what had been found, and was begged to return and report herself from time to time. This, however, she never did, being a most foolish and nervous creature, and we saw nothing of her for a considerable period, until she came back again with the whole breast a hopeless mass of cancer. In point of hardness a small fibro-adenoma scarcely differs from a scirrhus, but the great diagnostic point is the absence of the "pigskin" and the total want of all glandular enlargement.

A Small, very Tight, Simple Cyst.—I learnt to correct this first from seeing a surgeon of great experience proceed to cut out a breast for cancer. He gave his reasons for thinking that the tumour was malignant, but said that, as the growth was only small, he would cut into it before removing the breast in order to make assurance doubly sure. He did so. A tablespoonful of brownish fluid escaped and the tumour disappeared. I once afterwards did the same thing before a crowd of students, even though perfectly aware of the liability of mistaking a very tense cyst for a scirrhus mass. Many years elapsed, and I did not fall into the trap again until a few months ago, when I diagnosed a very deep-seated tight cyst as a malignant growth. If the cyst is near the surface of the mamma the difficulty is not great, but, if it is deep down, its margins become obscured. The diagnostic features are that the tumour is round, smooth, sharply-defined—unless it is very deep—and freely movable, while there is never any skin adhesion or glandular enlargement by any chance.

I was very pleased to notice that Mr. Marmaduke Sheild, in his excellent work on *Cancer of the Breast*, says with regard to the diagnosis of carcinoma from cysts and abscesses: "It is in these cases that the most disastrous errors are made in matters of diagnosis of mammary disease. It will be well at the outset to point out that if any surgeon thinks he is clever enough to certainly distinguish between solid tumours and some of the more peculiar abscesses or cysts found in the breast without exploratory incision, he will sooner or later make an egregious error."

In connection with the diagnosis of mammary tumours there are one or two points of practice which, if employed as a matter of routine, might save an operator from occasionally falling into an error of what may be termed a public character.

1. *I never remove a breast without first cutting into the tumour* so soon as the patient is anaesthetised, and on sundry occasions I have been extremely glad that I did so. I acknowledge to constant mistakes, being aware that omniscience is the exclusive property of very young men.

2. *I frequently use a small exploring trocar and cannula for diagnosis.* I know that this practice has been much condemned. I was taught that it was very dangerous, but I found by practical experiment that it was nothing of the sort. It was held that it inflamed the tumour and accelerated its

growth; and so, if the tumour were inoperable, it did damage to the patient. This view was quite true, because surgeons formerly put large and dirty trocars into the interior of solid tumours, and inoculated them with septic material. If an exploring trocar and cannula with a metal handle be used, which can be boiled and then passed through a spirit tube, no harm whatever will result. On the contrary, many dubious questions can often be settled at the cost of a most trifling amount of suffering, and to the enormous mental relief of the patient.

3. *I always examine a breast tumour in three positions.* In examining (say) the left breast in the first position, the surgeon should stand behind the patient, with his left arm passed beneath her left armpit, and his right arm over her right shoulder. The surgeon should be steady on his feet, and the patient should be asked to press back against him. He can thus regulate the pressure he is putting on with his hands to a nicety, and make the best possible use of his sense of touch. When the breast is examined from the front, the surgeon puts a certain amount of pressure on it, and the patient yields from it, and so the judgment of weight, so essential to determining the nature of a soft body, is lost. In the second position the patient should be seated in a firm chair, and the surgeon should examine the breast from the front. In the third position the patient should be on her back on a sofa. Now in each of these positions the surgeon will acquire a new appreciation of the tumour, but the first is by far the most effective, for in it he will avoid the mistake, so liable to be made in the other two (especially the third) of crumpling up a mass of sound tissue, so that it comes to feel just like a tumour. All things under the chin, down the neck, in the breasts, and in the groins should be examined by the surgeon standing behind the patient. In examining a hernia, for instance, the surgeon, having first restored the bowel, can, by standing behind the patient, constitute himself an animated truss, and can determine the exact spot where the truss head will best control descent, and also judge the down-pull caused by coughing, so as to estimate the power required for the truss spring. Students are not nearly enough impressed with the great value of this method of examination. It was Paget who first showed me the necessity of examining a breast in all three positions.

EXPLANATION OF THE ILLUSTRATIONS. (See Special Plate.)

Fig. 1 represents chronic interstitial mastitis affecting a lobule. The lighter part with the dark areas in it is the lobule; *a* shows tubes and acini of a lobule filled with proliferating cells, but they are being compressed by the growth of a young, fine intralobular connective tissue (*b*); *c* is the older interlobular connective tissue of the breast, also much hypertrophied ($\times 50$).

Fig. 2 shows an advanced hypertrophy of the connective tissue, so that the glandular tissue is almost squeezed out of existence; *a*, atrophied gland tube and acini; *b*, large duct partially filled with cells, with an empty one close by; *c*, hypertrophied connective tissue ($\times 50$).

Fig. 3 at upper part shows ducts and acini dilated owing to the compression by connective tissue at other parts. These produce the innumerable small cysts found in chronic mastitis. *a*, dilated ducts and acini; *b*, hypertrophied connective tissue; *c*, mass of acini, with others close by, so dilated by proliferating epithelium as to press against each other and practically become fused. This lower part might become dangerous some day ($\times 50$).

Fig. 4 shows mastitis degenerating rather towards cancer than towards cirrhosis. *a*, old interlobular connective tissue considerably hypertrophied. The centre of the figure is occupied by the greater part of a lobule. There is no great overgrowth of young, interacinous, connective tissue. At *b* the acini are still separate, although filled with proliferating epithelium; *c* shows a large mass of cells formed by acini, which have swelled out under cell pressure, have met and then fused. The white holes from which cells have dropped evidence the sites of the former acini. Cells still well limited ($\times 50$).

Fig. 5, mastitis becoming cancerous. *a*, connective tissue; *b*, a lobule with acini filled with proliferating epithelium, of which some have dropped out. Not much interacinous connective tissue; *c*, masses of cells composed of fused acini, still well defined; *d*, cells from such a similar large mass bursting into the connective tissue and becoming cancerous at *e* ($\times 50$).

Fig. 6, mastitis become cancerous. *a*, large fused mass of acini, with two neighbouring ones: central cells have degenerated and some have fallen out; *b*, cells escaping from this mass into surrounding connective tissue; *c*, a large mass of these escaped cells; *d*, true cancer, irregular cell masses now running in all directions through the connective tissue strata ($\times 50$).

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

ACUTE MANIA AFTER OPERATIONS ON THE BREAST.

A matter which is worthy of some little attention is the occurrence of acute mania after operations on the breast. That this occasionally comes on after any kind of operation is true, but there are some after which it is more common than after others. It seems to be only comparatively recently that it has been taken distinct notice of. Dr. S. Rutherford Macphail, of the Derby County Lunatic Asylum, has written in the BRITISH MEDICAL JOURNAL of September 23rd, 1899, p. 781, a short but eminently useful and practical statistical account of lunacy after surgical operations, from which I have extracted the following figures:

His own experience of the malady embraces 900 admissions of all kinds to his asylum, of which 40 were post-operative, namely, 13 males and 27 females. Of the 27 women no fewer than 15 had been the subject of gynaecological operations, and of the remaining 12 5 had been subjected to ophthalmic operations. Of the 13 male cases, 4 were after ophthalmic proceedings, and the rest after general operations of all kinds. All who have written about the subject apparently agree that the vast preponderance of cases occurs after gynaecological and ophthalmic operations. Dr. J. Christian Simpson, in his work on *Cerebral Symptoms relating to Surgical Disease*, speaks of a record of 185 cases by Sears of which 50 were gynaecological, 62 ophthalmic, 45 general surgical, and 10 after excision of the mamma. Rianan out of 186 cases had 65 gynaecological and 35 ophthalmic. But, as showing how statistics often come utterly to grief, Dr. Denis (Montpellier *Thesis*, 1889) reckons that out of all cases of operation 2.5 occurred in each 100. Dr. Simpson, however, proceeding to examine the records of operations of all kinds done in Professor Annandale's clinic from 1882 to 1894, found that out of 5,500 he could only find 11 cases of mental derangement, being about 2 per 1,000—a very different thing from Denis's figures.

In my experience I can only remember among general cases one male who became maniacal after operation. He had a large sarcoma removed from just below the axilla, and after about a week he became maniacal, and continued so for three weeks, after which he recovered and remained well for some years. There was nothing wrong with the wound here. One female died from acute mania after excision of an epitheliomatous ulcer of the rectum. But amongst my cases of removal of the breast I find eight in which acute mania supervened. Of these, two were maiden ladies between 50 and 60 years of age, and were women of excellent intellect and highly cultivated—both great readers. One of them was rather melancholic than maniacal, becoming so about a week after the operation, and remaining so for several weeks before the condition completely wore off. The wound united by primary union all through, and there was no rise of temperature. The other began to be queer in a few days after the operation, and for more than a fortnight talked very amusing and sometimes clever nonsense. In her case the wound broke completely down and suppurated profusely, because she was never still when awake; but it was never septic, and there was no rise of temperature, while the patient never became weak or looked ill. Both of these ladies are sound mentally as ever, one nine years after the operation and the other two years and a-half. The next two cases occurred in hospital. Nothing especially went amiss with the wounds. One patient recovered completely, but the other never quite regained her mental condition, and ultimately died in a lunatic asylum.

Next I note four cases which all proved fatal, and I will add to them the female mentioned above, who died after the removal of a cancer from the rectum. Let us call them A., B., C., D., and E.; E. being the rectum case. To begin with, they were all private patients and in excellent circumstances. A.'s wound never became aseptic, but she became melancholic and died on the thirteenth day after operation. Her own mother and sister died from cancer, and she was the second wife of a gentleman whose sister and first wife died of cancer also. These depressing circumstances no doubt seriously affected the patient. Case B.'s symptoms appeared on the fifth day. I only saw her once after the operation, as she lived in another town, but her doctor sent me a very full report of her case. She exhibited extreme likes and dislikes, and one nurse had to be sent away because she would not tolerate her presence. Then she became violent and talked and kicked

about incessantly. She jumped out of bed if not constantly watched, and once made her way into an adjoining room before she could be stopped. Curiously enough she allowed her wound to be dressed, and would even help in the process. At death it was practically healed. Her doctor had only attended her a very short time, but he subsequently learnt that she was a mysterious old widow who had married unhappily a second time and lived away from her husband under an assumed name. When well she had attacks of mental derangement, and there was insanity in her family. When her effects were being routed out a great quantity of spirit bottles were found secreted about the house, which showed that she was probably a secret drinker also. Cases C., D., and E. were practically maniacal before they were operated upon. One was married and the other two were widows. They were all between 50 and 55, and were all noted as being flighty, singular persons, and very vain even when in good health. When they learnt that they were the victims of cancer their terror became indescribable. It was most distressing to have anything to do with them and the interviews and consultations were very painful. On the day of operation it was noticed that they were all supernaturally calm and composed. Doubtless this involved a great mental effort. In the course of a few days the wounds all broke down and suppurated profusely (although not in any way malodorous), while the temperature was high. They all talked, shouted, shuffled about unceasingly, and kept wanting to get out of bed. One (rectum case) did escape from bed, and got on to the landing of the staircase. At times they would be quite collected and rational, and speak sensibly for a short period. They all took nourishment fairly. Now as the wounds suppurated, and as the temperature was high, one must admit that septic infection was present, and helped to cause their deaths; and it may reasonably be argued that the delirium was simply the delirium of septicæmia. But this was not the case. It began too soon after the operation, and before the wounds began to break down and suppurate. Moreover, in former days I have unfortunately seen too many persons die of erysipelas and septic wounds, and in my experience they have never been violent and furious. They lay quietly muttering and moving uneasily; but they did not get out of bed, and run out on to the landing and into the next room. They had not the strength for that. To conclude this point, cases of post-operative mania have been often referred to the use of carbolic acid and iodoform. There seems no proof of this. Such toxic effects as may have occurred in this way have been transient in their duration, and have passed off at once on their ceasing to be used.

CHRONIC MAMMARY INDURATION: CHRONIC INTERSTITIAL MASTITIS.

I would now like, gentlemen, to dwell with you for a while upon a subject of immense importance in connection with mammary cancer: I allude to chronic inflammatory induration or chronic interstitial mastitis. Billroth termed it chronic cirrhosing mastitis. There are sundry forms of this described. One is known as diffuse chronic mastitis. It is described as coming on with tenderness and swelling, without febrile symptoms, while the affected part becomes tumid and painful. The whole gland and even the overlying nipple may become involved. The affected skin has the appearance of being adherent, thickened, and rough looking (*peau d'orange*). Then, the inflammatory process subsiding, a cirrhosis takes place, the breast diminishes in size, and the nipple and skin are drawn in. The contraction being irregular, the breast becomes eventually a mere shrivelled, nodular structure. The axillary glands may also enlarge, and there may be a watery discharge from the nipple. Now I must confess that in all my experience I have never seen anything like this; anything, I mean, so definite in its course and so startling in its results. So that surely such marked cases of chronic mastitis must be rare. Doubtless they occur, for the disease is described and the shrivelled organ figured by Billroth, but I think this form need not enter into our calculations. The most common form with which we are all acquainted is what pathologists call the "periductal" form—the *maladie noueuse* or plexiform fibroma of the French. Surgeons here call it chronic interstitial mastitis. It seems to be simply a very slow and painless variety of the preceding form,

where the inflammatory process, confining itself strictly to the neighbourhood of the glandular tissue proper, results in a fibrous sclerosis. Bits of the gland may be affected or the entire organ. In the latter case the breast feels like a hard pancake, which you can lift up from the subjacent great pectoral muscle. All through it are scattered hard masses from the size of a pea up to that of a broad bean. Besides these larger pieces there are little minute nodules distributed all through the gland. The microscope shows these to be small cysts, structures produced in all tubular glands under cirrhotic conditions. Sometimes only a portion of the gland is affected, while the rest is healthy and soft, but I see no reason for elevating such cases into a special class.

Thus, then, if a chronic mastitis continue to progress by developing more and more connective tissue, then what happens is the production of a cirrhosis with pressure destruction of the glandular tissue, with the formation of small cysts, and finally with completed shrinkage of the whole breast, this process being accompanied by the formation of nodules almost approaching the characters of small fibroid tumours. If this be the bent of the mastitic change it is a happy thing for the patient, for no malignant state supervenes; but, as we shall see, the mastitis may progress by a more dangerous method—namely, by the immense proliferation of intra-glandular epithelium, which some day will burst its bonds and erupt into the surrounding connective tissue. This is cancer.

The disease is essentially one of the climacteric period, and in my experience seems to be as common in single as in married women. I have not been able to detect any connection between it and acute puerperal abscess, and, as bearing upon the production of cancer by injury, I cannot remember patients making definite allegations that chronic mastitis arose from blows or traumatism of any kind. On the other hand, as I mentioned at my last lecture, the statement of patients concerning the direct connection of their cancerous growths with injury, and the presence afterwards of slight pain or uneasiness at the point thereof, have appeared to me to be worthy of more serious consideration than has been given them, and should not be dismissed at once as mere silly tales.

The principles of treatment of chronic mastitis by pressure, gentle friction, and the use of local remedies, such as used to be called "discutients," seems to be reasonable. I have a routine practice, which is distinctly serviceable, and which I imagine most practical surgeons employ also with variations. The patient is directed to bathe the breast for five minutes morning and evening with very hot water applied by means of a big cone-shaped sponge. Then there is rubbed into it mercurial ointment one week and liniment of potassium iodide with soap the next, the inunction being done with the greatest gentleness. After a while this treatment is apt to make the skin of the breast very tender and produce crops of painful little pustules. It should then be entirely left off, and soft zinc ointment smeared on until the skin irritation has subsided. Stays must be abandoned, and the breast covered with a layer of cotton wadding. Pressure is applied by means of a broad elastic webbing bandage. The first turn is brought round under the armpits and fastened with a safety pin, and then the patient can pull on the remaining turns as they go down over the mamma as tightly as she can bear, fixing it at the short ribs with another pin. The patient may take a moderate dose of potassium iodide morning and evening, unless it proves very disagreeable to her; but, after all, it is without doubt in the local treatment that confidence is to be placed. Of course I know that mercury and potassium iodide are very old-fashioned remedies; but I still have belief in them and in their efficiency as "discutients" of chronic, inflammatory indurations. But probably these simple views will not find favour with the practitioner of to-day, for whom a new drug has to be provided once a week from the pill and capsule blast furnaces of America and Germany.

Only a generation ago the universal teaching was that an innocent or non-malignant tumour remained so always, and never changed its character, while a cancerous or malignant one was so from its very earliest inception, and never could be anything else. Surgeons have been compelled slowly to work themselves round to quite the opposite belief. It would almost seem with our present knowledge that, with the excep-

tion of simple cysts and pure fibromata or myomata, there is no neoplasm, however innocent in its commencement, which may not in time—perhaps after very many years—degenerate into malignancy. I have seen on two occasions even that most simple of all tumours—the lipoma—followed by what is called fat sarcoma, requiring two or three operations of most extensive character for its extirpation. Now, the degeneration of chronic interstitial mastitis into cancer is, of course, perfectly familiar to all operating surgeons. But I very much doubt if this knowledge is as thoroughly diffused throughout the profession as it ought to be, or rather, I should say, that I question whether medical men at large attach to it the immense importance which the matter deserves.

A little while ago I said I thought that attention might now be diverted from the devising of new operations for mammary cancer, for I believed that for the present they had in the majority of cases reached the limit of real use, and that the whole energies of surgical teachers should be thrown into the propagation of the gospel of early diagnosis; for there is no more difficult case in the range of breast surgery than to know what to do with a breast, obviously, the subject of chronic mastitis, in which, among several very hard points, there are one or two which are of such special hardness that it is impossible to tell whether they have degenerated into cancer or not. My own practice is that if the preponderance—the distinct preponderance—of evidence makes for nothing worse than chronic mastitis, pure and simple, naturally the treatment above referred to should be at once put in practice, but even then the patient should be seen at regular intervals until all hardness is quite gone, for I have repeatedly seen the breast clear up from all induration—to the great delight of the patient—except at one spot, and there the cancerous limit has been reached and overpassed. When, on the other hand, the balance of probability is that the cancerous limit is being reached, even when to the touch no absolute certainty thereof is communicated, I have for many years practised and taught that removal of the breast is a justifiable proceeding. The way I have done it is by making a semilunar incision along the lower border of the mamma, dissecting up the skin and nipple and laying them down again after the gland is removed, provided there is no sign that palpable carcinoma exists. How is this to be known? By cutting through any suspicious mass or nodule after raising the skin. I am quite sure that the section which an experienced surgeon makes with a knife through a fresh piece of carcinoma will enable him to give a far more decided and certain opinion than anything the microscopist can give. Not for a minute that I would speak disparagingly of the value of microscopic examination. When it coincides with the naked-eye view of the clinician so much the better, but when they differ, I hold that the history of the tumour and the look and feel of the fresh section constitute the most trustworthy guide. An error may always be made by taking a microscopic section from a limited portion of the tumour, where the process of growth is not actively going on. Moreover, there are inflammatory conditions of organs which so simulate in appearance certain malignant states that the ablest microscopist will admit himself unable to give a positive opinion about them. But the colour, the resistance to the touch, and the feel to the knife of a fresh mammary tumour section, however small that tumour may be, are the most certain guides of all as to its nature. With regard to the retention of the nipple and areola, it must be remembered that they are to a woman the signs and symbols of the mammary gland, which is a distinguishing feature of her sex. There are many women whose breasts when past middle life are so small and shrunken, that but for the nipple and areola it would hardly be known that any breasts existed at all. I have an "impression" that chronic mastitis is more common in small breasts than in big ones, but it may well be said that this may arise simply from the disease being more easily detected in a small breast than in a big one. Still, having made a very great many naked-eye sections of cancerous breasts, the apparently sound gland tissue (away from the cancer) in a big, fat breast has rarely the tough hardness characteristic of a piece of chronically inflamed material. Referring again to the nipple and areola, if these be left to the patient she does not think so much of the loss of the gland itself. A man, similarly, will be quite content with a very wooden nutmeg kind of testicle, which is certainly

useless functionally, if only he be allowed to retain it in his scrotum as the badge of his sex. Assure the patient that her breast will not be materially disfigured, and she will generally consent to anything to get rid of the haunting dread of that terror of her life—mammary cancer. But what if there should be more than mere mastitis? When the skin is being raised any suspicious point or points should be cut into, and if any one of these looks cancerous, then skin and nipple as well as the breast can be swept away too, and the axilla cleared out, just as for an ordinary well-recognised case. About a month ago this very case happened to myself. Yet the patient's first shock of disappointment, when she learnt what had been done, was soon relieved by her satisfaction at feeling that she had been relieved of her enemy.

It is many years ago since I first proposed to the surgical profession that in every case of cancer, where the breast was removed in the hope of ultimate freedom from disease, the axillary glands should be removed as a necessary part of the operation. My argument was that it was impossible to tell whether they were involved or not, particularly in well-nourished persons. That argument has eventually prevailed over much opposition. And now to-day I would desire to impress upon the profession that it is a right and proper thing in many cases to remove breasts, the subjects of chronic mastitis, even before cancer has been definitely diagnosed in them. The question—and a reasonable one—at once arises, To what excesses may a doctrine like this not lead? What absurd and unnecessary surgery at the hands of the "enterprising surgeon" may not arise from this? Nay, may it not be a direct incitement to certain of the more needy class of surgeons to do operations for the sake of fees? I admit these possibilities, and yet I have such confidence in the good judgment and probity of the English surgeon, beyond all other surgeons in the world, that I believe the evil that may occur in this way will be far outweighed by the saving of life effected by the removal of nascent cancers. We know how absurdly overdone the removal of the appendix has been in some countries until it became positively the subject of public merriment; and yet, with all this abuse, many lives have been saved by it, while the operation is meantime quietly finding its proper level and sphere of usefulness.

I have seen several cases of chronic mastitis in men, and, curiously enough, they have all been in private practice; one of the things that, I think, produces it in them is the rubbing of braces and brace buckles, and these, of course, must be at once removed and a belt worn. The course of treatment above mentioned seems to be perfectly successful. One case of this nature occurred in the person of a healthy young gentleman, who was going abroad to a distant part of South America, where he would be far from surgical assistance, and that of a very poor order. Some few months before his departure he developed a chronic mastitis, but did not take any notice of it, as he had no pain from it. But very shortly before he was about to leave the swelling increased somewhat, and he became very much alarmed in case anything dangerous should occur to him abroad in his out-of-the-way location. I told him there was no time for any treatment, and that the gland, which was a mere rudimentary and useless affair, could be removed with the certainty of a cure in a week. The removal was done by the semilunar incision, preserving the skin, areola, and nipple, so that no disfigurement resulted, and he went away feeling quite happy in his mind.

At this stage the question naturally arises: If the transition from chronic interstitial mastitis into cancer is a thing whose occurrence is admitted by all surgeons, can we guess in what proportion it occurs? Here it seems as if statistics were of no avail whatever. What attempts have been hitherto made have lost weight by reason of the fact that they have included all kinds of mastitic trouble. Now, my contention is that the mastitis out of which, or in which carcinoma develops is of one kind, and of one kind only—namely, the chronic interstitial mastitis, which arises spontaneously about the middle period of life, and has nothing to do with any previous inflammatory condition. Putting aside infantile and adolescent mammary abscess, the only other acute inflammatory condition which arises in the breast of moment is milk abscess. It occurs in women during the active child-bearing period between 18 and 35. When opened, drained, and cured, all traces of inflammatory indura-

tion disappear in their sites. I have seen breasts the subjects of "rabbit-warren" milk abscesses, which I have literally cut in pieces, which have healed so remarkably that the scars of them have been no great disfigurement, while the breast tissue has been as supple and soft as if nothing had been wrong with it. Again, in examining all kinds of female breasts for all sorts of trouble, I have found the scars of incisions few and far between and of a very simple nature. Mr. Bryant, in *Diseases of the Breast*, says: "My own statistics tell me that out of my 360 cases of women who had borne children mastitis had occurred at some antecedent period in 80, but it is almost impossible to make out that the cancerous tumour originated at the seat of scar or induration. The tumour in the majority of cases appeared many years after the mastitis, in one case thirty years."

I cannot therefore agree to the statement, copied from one book to another, that acute milk abscesses leave behind them permanent indurations which degenerate into carcinoma, or that the scars made for their relief are similarly dangerous. Chronic interstitial mastitis of the menopause—*voilà l'ennemi!* My friend and colleague, Mr. Paul, has long studied this question, and has an unrivalled collection of specimens illustrating it. It is from his stores that the most beautiful of the specimens which I shall show you to-night have come, and I hope that he will lay before the profession some day the results of this histological work. I would wish publicly to thank him for his courtesy, and also my friend Dr. Buchanan (whose work on the *Cancer Parasite* will come into my next lecture) for the trouble he has taken in arranging and preparing the lantern demonstration for to-night. Mr. Paul, like myself, while unable to fix a percentage, believes most firmly that a much larger number of cases of chronic interstitial mastitis are allowed to drift into cancer than is commonly believed.

The suggestion has been made and carried into practice by not a few surgeons that, where there is a doubt about the nature of a hard piece of chronic mastitis, the patient should be anaesthetised, and a piece of the tumour removed and subjected to microscopical examination. I have done this twice, but it does not seem a satisfactory proceeding, although theoretically it appears a very sensible thing to do. The truth is that what the patient dreads is chloroform and an operation of any kind. If the microscopist declares in due time that the disease is malignant, then another chloroforming and another operation have to be faced. To everyone, and more especially to a woman, it is the prospect of a surgical proceeding that terrifies, and, however much we may tell our patient that the removal of a small piece of her breast for examination is a mere trifle, to her it does not appear in that light, for she is no judge of the comparative severity of operations. In my first case I felt practically sure that the lump was cancerous, but the relatives were in doubt, and would not allow removal until satisfied by the microscope that it was so. As the microscope did pronounce it cancerous, the breast was duly removed, and the patient had all the anxiety of the exploratory operation for nothing. In the second case the microscopic sections were so dubious in character that they were practically of no help, and the diagnosis by the hand was just as good. It does not seem as if the exploratory examination will become popular. The best way is to tell the patient and her friends the true state of the case and the sources of doubt, and to ask permission to proceed as you think fit on the strength of a naked-eye section made under an anaesthetic.

It is universally admitted that the essential feature of carcinoma consists in the escape of epithelium from the interior of the alveoli into the surrounding connective tissue and its subsequent proliferation there, this cancerous epithelium differing but slightly from the normal variety. It is clear that the ultimate reason for its proliferation must always be incomprehensible to us, involving as it does the principles of life and growth. Gland epithelium is always growing and always perishing, and always being eaten up or discharged. So long as the balance between growth and waste is even there is health; when growth exceeds waste there is neoplastic disease. Apparently as soon as the epithelial cells escape from their normal habitat and get into the spaces that exist between the connective tissue fibres they increase at a great rate. Why? This is the crux of the whole question. Some hold that the irritation produced by

parasitic bodies excites the growth of epithelium in ultimate alveoli or tubules, and carries on the excitement when the epithelium has burst its bounds and escaped into the cellular tissue.

In the *Journal of Pathology* (August, 1899) is detailed a very remarkable experiment by Dr. Lack: His view is that there is no necessity for such a view as a parasite, and that carcinoma is simply the result of the entrance of the normal epithelium of the body by some means—probably traumatic—into the lymphatic spaces and its continued growth therein. The peritoneum of a rabbit was opened, the ovaries cut open, and the milky juice from the cut surfaces allowed to diffuse through the peritoneal cavity. An opinion was received from Professor McFadyen that the rabbit never developed cancer spontaneously in his experience. Thus normal epithelium cells from a healthy animal were introduced into its own lymphatics. The rabbit remained well for nearly a year, after which it became thin and weak and suffered from dyspnoea. It was killed at the end of fourteen months. White, hard, round nodules were found in the mesentery. Great masses of tumour-like tissue were found all about the thorax and abdomen, so that the spleen, kidneys, and one or two other organs, were alone found to be normal. Sections showed "the typical structure of a columnar-celled carcinoma." Alluding to the fact that malignant disease of the peritoneum has been known to follow the removal of ovarian tumours, the fluid of which contains free epithelium, Dr. Lack does not admit the explanation that these tumours were necessarily malignant.

Presently came a counterblast from Mr. Shattock, who showed to the Pathological Society of London¹ a rabbit whose uteri were full of cancer, while the peritoneum contained growths also, this animal not having been the subject of any experiment. Why might this not have been the case with Dr. Lack's rabbit? He notes also that after the rupture of an ovarian dermoid multiple cysts may form in the peritoneum, but these are simple circumscribed cysts and not malignant growths, such as should arise were Lack's hypothesis of the mechanical origin of carcinoma in the displacement of normal epithelium into a lymph space or lymph cavity correct. In this condition we must leave the matter for the moment, acknowledging the almost startling nature of Lack's experiment, but feeling that we cannot trust to a solitary example.

Let us see, then, if it be possible to trace the gradual development of a piece of carcinoma in a chronic interstitial mastitis. The earliest change probably consists in the appearance of quantities of leucocytes, which constitute a round-celled infiltration distributed in the neighbourhood of the ultimate lobules. The single-layer epithelial lining of the tubules and acini which compose the ultimate lobules then begins to proliferate and grow into the interior of these cavities; at the same time there is a production of a new and very delicate connective tissue which surrounds the tubules and acini of each ultimate lobule. The normal connective tissue outside of that also increases largely in bulk; by reason of all which things many tubules are so squeezed and strangulated that, their distal portions being cut off, there is no exit for their contents, and they, therefore, become distended and form the innumerable little closed cysts which are found all through the cirrhotic breast of chronic mastitis. Matters may remain thus for long enough, the breast shrivelling more or less. This is the cirrhotic change already alluded to; but another change may occur. The growth of the epithelial cells in the tubules and alveoli may go on to such an extent that they become completely blocked up, and appear as black areas on microscopic section. The fine interacinous connective tissue does not increase much in this case, but the ducts and acini, becoming more and more distended, eventually meet and fuse into each other, so that in place of a number of small black areas, we now see large ones, still giving slight evidences of the agglomerated acini of which they are composed. These masses of cells, however, are still held together by the surrounding interlobular tissue and by the limiting membranes of the original ducts and acini; but finally even these give way, and the cells pour out into the strata of the connective tissue. They creep along between the bundles of connective tissue, following the tracks of what are probably the very earliest commencements of the lymphatic system, rapidly reproducing themselves by the process of

karyokinesis. They are now cancer cells, although between them and the original epithelial cells lining the tubules and alveoli there is not a great difference. There is certainly nothing absolutely distinctive. The normal glandular epithelial cell is of very regular shape and size, and has one well-marked nucleus, being an orderly growing cell. The cancerous epithelial cell varies a good deal in size and shape, being a young rapidly-growing erratic cell. There is some difference in the way in which certain stains affect with more or less intensity the cytoplasm of the two kinds of cells, but this is not improbably due to the difference in their age. Mr. Plimmer notices that in all actively growing cancers there is a zone of round-celled infiltration at the margin of the tumour where growth is most intense, and this zone does not exist in simple tumours. Near the more central parts of the tumour these round cells are converted into large mononuclear cells, and later on into fibrous tissue, which surrounds the cancer cells. This stroma next causes a degeneration of the cancer cells, a digestive or phagocytic process. As time goes on the stroma hardens and serves the function of protection against invasion, so that the centre of a carcinoma is the hardest and most fibrous, and thus comes to pass the fact also that the harder the tumour—in other words, the more fibrous tissue there is in it—the less is the chance either of generalisation or recurrence. So, too, we arrive at the explanation of the atrophic cancer, where the cells have been really all devoured by the connective tissue.

In the *Transactions* of the Pathological Society of London is a very interesting paper by Mr. Cecil F. Beadles, which has not been accorded the prominence it deserves. It is on Certain Histological Changes found in Association with Glandular Carcinoma. He examined microscopically nearly 100 breasts removed for primary carcinoma. He came to the conclusion that breasts in which such tumours are found are never in what may be called a normal state. It is often possible to make out with the finger small hard nodules situated at a distance from the tumour, and having no apparent connection with it. Sometimes, however, only slight thickenings can be felt in some parts of the breast. The acini show proliferative and other changes in the epithelium, and there are to be noticed also changes in the stroma, which comes to resemble that seen in some rapidly-growing scirrhous tumours in which connective tissue cells with their elongated nuclei run parallel around the acinus, having between them what appear to be small uniform cells with round nuclei. The changes are both of the nature of chronic interstitial mastitis, and, in the case especially of the thickenings and small nodules, of a condition intermediate between simple adenoma and carcinoma extremely suggestive of commencing malignant disease.

Mr. Beadles is of opinion that these changes in the apparently sound breast tissue are not produced by infection from the existing carcinoma, but are most likely due to the same causes which started the tumour. Clinically, and quite apart from all microscopic examination, this is the opinion I have always held myself. In plain language, it means that there is a precancerous state of the whole breast, which, however, only blazes up into full-grown cancer at one or two points. It was this view which made me utterly disbelieve in the removal of the tumour alone, and which prompted me many years ago to press vigorously upon the attention of the medical profession the advisability of free removal of the entire breast and with that the clearing out of the axilla.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL. JANUARY 20th, 1900, p. 136.

THE NEW ITALIAN HOSPITAL.—The new buildings of the Italian Hospital, Queen Square, Bloomsbury, were formally opened on March 14th by the Italian Ambassador, Baron de Renzis Montagnaro. His Excellency made a speech in which he said the building they were opening would be called the Italian Hospital, but if Italians were willing to devote themselves to its direction or assistance the hospital would be open to all without distinction of nationality. On the façade of the building would be inscribed: "Charity knows no restriction of country." Subsequently the Ambassador read a letter from the King of Italy, recognising the beneficent action of the founder, the late Signor Ortelli, and presented to his widow, Mrs. Ortelli, a gold medal sent by His Majesty, to commemorate the opening of the new hospital.