

## Original Articles.

THE MODERN TREATMENT OF MALIGNANT DISEASE.<sup>1</sup>

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It seems as if in the present march of surgery, with the changes which are going on so rapidly, that it might be of interest, even to gentlemen as conversant as you are with the progress of medicine and surgery, to go over the ground which the title of the paper indicates to see if there are not some new points which may be worthy of your consideration.

I do not think it is worth while to go into the question of the etiology of cancer. As to its parasitic origin that is still a *terra incognita*. We know at present practically little or nothing about it, but I think the experience of surgeons as they deal more and more with the problem of the treatment of malignant disease leads them to conclude that cancer is originally a localized disease, and not, as Sir James Paget and other writers and pathologists of his period have endeavored to show, a constitutional affection. Experience with the lip, and the success with which we are able to eradicate disease in that particular spot, owing to its accessibility, owing to the possibility of getting a wide margin with the knife around the disease, and experience with cancer on the surface of the body, brings with it the inevitable conclusion that we can effect a cure; provided we can get far enough away from the original focus, and it is in disease in those localities only where the complications, the anatomical structure is such that we cannot do this, that we have concluded that the disease is incurable. Cancer then need not be considered incurable in itself, but incurable from its surroundings. I think there will be few who will oppose this position.

In going over the modern operative treatment of malignant disease it would be a great omission not to say something about anatomical structures, and the anatomy of cancer is practically the anatomy of the lymphatic system. The old works on the lymphatic system, like Mascagni's, give such complicated injections of the lymphatics that the student comes to the conclusion practically that everything is lymphatic, just as everything is capillary, and no distinct picture is left consequently on the mind of the distribution of the lymphatics in particular organs; and yet when we begin to study from the point of view of disease, I think the fact is borne in upon us very strongly that certain localities have certain marked peculiarities in the distribution of the lymphatic stream, and that a competent knowledge of those peculiarities gives us a guiding principle in the surgical treatment of a particular organ. It is another illustration of the fact that morbid anatomy is one of the best ways of studying normal anatomy, that the injections made by diseased tissues show us the natural pathways in the system even better than some of the most elaborated artificial injections.

I shall not go into the anatomical part of this subject except in considering the treatment of the disease in certain particular localities; I shall speak briefly of it then.

There are, as you know, two varieties of malignant growths, sarcoma and carcinoma; and although the

older anatomists used to teach us that sarcoma was distributed principally through the blood-vessels while cancer was distributed through the lymphatics, I do not think the surgeon of experience can coincide with that view. The more he sees of sarcoma the more he is prepared to hunt out and seek for infected lymphatic glands, and I think that it would be hard for him to accept the view that sarcoma is not disseminated through the lymphatic system as well as carcinoma.

There is one thing that we are struck with in reading over the literature of the operative treatment of of malignant disease, and that is that enterprising surgeons, whose example perhaps the more conservative of us might not wish to imitate on all occasions, frequently arrive at surprising results. They are forever using the knife, and sometimes they succeed in accomplishing what others despair in doing. The history of surgery teems with such examples.

In sarcoma we know the disease is for a certain length of time, perhaps for a greater length of time than in carcinoma, localized; that it will recur locally several times before we begin to find metastasis to distant organs. Mott operated fifteen times over a space of twenty years on a case of sarcoma, and the patient was finally cured; at all events the patient lived twenty-three years. Gross operated twenty-three times on a case of sarcoma during a space of four years. Dennis mentions a case of carcinoma in which over 300 carcinomatous nodules were removed separately from a single patient, who was alive at the time of reporting the case.

We find a great difference in the malignancy of malignant disease according to the locality in which it is situated. This is perhaps not so true of sarcoma as it is of carcinoma; in carcinoma we have certainly a wide range in the degree of malignancy. In sarcoma we do have a distinct range, although perhaps not so great a one. We see, for instance, a difference according as the disease is situated on the outside or the inside of a bone; the subperiosteal sarcomas appear more malignant than the central sarcomas, and certain varieties of central sarcoma are comparatively benign. In 17 cases of subperiosteal sarcoma Gross reported eighty-two per cent. of cures; and it certainly is a very encouraging result that in any form of malignant disease we should have over 80 per cent. of cures. In 34 cases of central sarcoma only 62 per cent. were cures. That seems as if in the subperiosteal the percentage of cures was better than in the central; but in 22 cases of myeloid disease, giant-cell sarcoma, there were 17 cures and only five cases of recurrence. Sarcoma will often remain a very long time localized in an organ like the breast; on the other hand, on the extremities it seems more intimately associated with the lymphatic system and spreads with greater rapidity. Sarcoma on the foot is, as a rule, an extremely malignant form of disease, and it is necessary to go a long distance to the adjacent cluster of glands in the popliteal space and to amputate in the thigh in cases of sarcoma at so distant a point as the foot. We must be on the lookout in all such cases for the lymphatic glands, either in the popliteal space or in the groin. In the case of a sarcomatous ulcer between the toes which I removed, the disease not covering a space larger than the thumb-nail, there was a recurrence of the disease in the inguinal glands a year later, and death from metastasis in the viscera a few months after the discovery of the nodule in the groin; so that an extremely

<sup>1</sup> Read at a regular meeting of the Suffolk District Medical Society, November 14, 1896.

trivial and small focus of disease will lead to death in a shorter time perhaps than some of the most formidable growths that we see in the clinics.

Sarcoma, therefore, is a treacherous disease, and although in a certain percentage of cases we may get cures, and the percentage sometimes is a very encouraging one, there are plenty of inoperable cases where we seem to despair of effecting anything like cure. We have a ray of hope, however, in the toxin treatment; and the method adopted by Coley, which is, as you are aware, a combination of the toxins of erysipelas and the bacillus prodigiosus, occasionally brings about a favorable result. Coley's papers are published yearly, and each year a few successful cases are added to the list. In conversing with him last winter I saw some very favorable reports sent to him by physicians from distant parts of the country. I have one case which seems well worth describing.<sup>2</sup> At an examination made by myself about two weeks ago the hardness and induration of the neck had entirely disappeared and it seemed evident we had here a case temporarily cured by the Coley method of treatment. It seems to me an encouraging case because at first the prognosis was very unfavorable.

We come now to the treatment of cancer. I have alluded to cancer of the lip as being one of the most easily treated forms of cancer, but you all know how often the disease recurs even after the usual operation by the V-shaped incision. There has been a tendency of late years not to give ether in cases of cancer of the lip, and to operate upon them in the out-patient departments by injecting cocaine. I think this is a move in an entirely wrong direction. Any of you who have had the misfortune to watch such a disease to its painful termination know the horrors of it, and that we should dismiss the operation in such an off-hand way is to me not in accordance with the principles of modern surgery. Therefore, I think that we want to treat cancer of the lip as we ought to treat cancers in all regions; and this is the general bent of my remarks, that we should attack not only the original focus of the disease, but all possible sources of infection, if it is possible to reach them. In the early stages of cancer it is, of course, as a rule, possible to reach the adjacent infected glands, and so with cancer of the lip. I believe it is important not to content ourselves merely with the V-shaped incision, but that we ought to imagine the original focus working its way from the point of origin through a lymphatic vessel and being temporarily arrested in the network of a lymphatic gland, and we ought to base our operation on that idea. Consequently, we ought to remove in cancer of the lip such a mass as you see in this picture. There is the lip with the long V-shape incision continued under the chin and along the region of the submaxillary gland. It is easier to take the gland out than to try to leave it, and with the gland you may take some possible pin-point nodule of infected lymph structure; we should adopt the same principle as is now generally accepted in the treatment of cancer of the breast. I perform this operation now in every case that comes to me for treatment, and the resources of antisepsis are such that such an operation heals rapidly and the patient really is unconscious of having any more of an operation than after the old method.

Cancer of the skin possesses a wide range of malignancy. The higher up we go in the body the less

malignant it is; about the temples, face and nose, above the line of the mouth we have a comparatively innocent area. On the lower lip, on the backs of the hands, on the scrotum, the genitalia we have perhaps a very much more marked type of malignant disease. About the feet, the lower extremities, we often have a mild type growing very slowly, particularly in scars and at the openings of old sinuses. Amputation of the epidermoid forms of cancer not infrequently is followed by a permanent cure. We know how successful is early and radical treatment of cancers about the face. Such cases often come, as the surgeon would have them come, at the early stage when merely a wart or nodule or slightly broken-down papilla exists and I think the temptation of the surgeon at this time is not to do his duty, but to burn them with a feeble form of caustic. Nothing, it seems to me, has a more deleterious action on the nature of such a growth than an unsuccessful attempt to destroy it by cautery, which stimulates the growth from a comparatively benign form into a much more malignant variety. A free incision around these growths, with suture, gives you healing by first intention, a scar which disappears entirely within a year and almost inevitably a permanent cure, whereas attempts to treat with nitrate of silver or with the galvano-cautery or with acids are uncertain and may have to be repeated, and they are sure to leave much more of a scar.

Cancer on the lip, back of the hand, glans penis and of the vulva are forms of cancer which should be classified together as being of about the same type of malignancy. Cancer of the vulva and glans penis I think are both forms capable of cure if taken early, but I think there is a disposition on the part of many surgeons to regard cancerous ulcer of the vulva as a very malignant type, and I have known such cases to go untreated until the whole region became a yawning chasm of broken-down and sloughing tissue. I have seen the disease staved off and life prolonged, and I think in a number of cases permanent cure effected, by free and early excision of cancer of the vulva and cancer of the glans penis. When we come to the body of the penis then we have a much more formidable disease, and I believe there that a very much more radical operation than mere amputation should be performed. Pearce Gould has recommended splitting the scrotum, dissecting the crura and following up this by a careful dissection of one or the other groin. I think at least an operation of that magnitude should be performed if any operation is undertaken, otherwise we shall have a history lasting perhaps a number of years of gradual recurrences, and finally death from metastasis to the internal organs.

In cancer of the breast and cancer of the uterus we have perhaps as interesting examples of the infection of the lymphatic system as of any other, and they are more particularly interesting to us because they are the two most common types of cancer. I have therefore put some diagrams here for the purpose of illustrating the dissemination of cancer of the breast and also of the uterus. This is a picture taken from Sappey. You will see that the main lymph trunks spring from the lower hemisphere of the breast and from the outer hemisphere and less from the upper and inner. It is consequently along those vessels chiefly that spreading of the disease takes place. A bunch of glands just beyond the margin of the pectoralis major is usually the first to be infected after the disease

<sup>1</sup> See page 588 of the Journal.

leaves the breast. We have in the axilla generally three clusters of glands, one beneath the pectoralis major, another near the apex of the axilla and one towards the brachial aspect of the axillary space. The pectoral pleiad is the one first affected and after that the infraclavicular nodes, and following the blood-vessels we get finally the supraclavicular region. It is not only in that direction that infection spreads, but off towards the inner side along the sternal border of the breast, and if we look at the inside of the thorax we see a rich anastomosis of lymphatics coming from the outside beneath the pectoralis major and uniting in a chain of lymphatics which run with the internal mammary artery along that side of the anterior mediastinum; so that occasionally when the primary nodule is situated on the inner half instead of the outer half of the breast we may have infection of these glands. Even progressive surgeons have frequently overlooked one of the commonest sources of fatal infection in disease of the breast and that is the pectoral region, and while making a deep and bold dissection beneath and above the clavicle, they fail to take away enough of the integuments.

I have here a picture which shows how infection of the skin takes place, how disease originating in the mammary gland comes up through the suspensory ligaments, little bands of fibrous tissue connected with the columnæ adiposæ, which I described some time ago. It is through these little ligamentous connections that the lymphatic vessels come to the surface and infection takes place through them, and transforms a case of cancer of the mammary gland into a specimen of *cancer en cuirasse*. I have a diagram to show the line of incision I make now. I prolong the upper incision down to the pectoralis muscle, detaching the sternal portion of the muscle and tilting this whole mass over outwards, hinging it on this lower incision, dividing the pectoral at its humeral insertion, dividing the clavicular portion by a vertical incision, cutting across the pectoralis minor and dissecting the axillary vessels and finally dividing the mass on the outer edge and taking away the whole disease in one mass, axilla and breast at the same time, as is indicated in that diagram. That is, in a nutshell, the operation first described in detail by Halsted. By careful consideration of hemostasis, avoiding sepsis, we can safely perform an operation like this which takes from one to two hours. This method, however, involves leaving the wound open and first intention cannot therefore be obtained. I have attempted to do this operation and at the same time obtain union by first intention. This I accomplished by taking flaps from below.

I will close by saying a few words in a suggestive way about hysterectomy for cancer. I hoped to show you a specimen of cancer of the uterus involving the ureters, the patient having gone seventeen days without passing more than four or five drachms of urine and dying with marked uremic symptoms. The disease involved the bladder, ureters, and all the surrounding parts in that neighborhood. The drawing on this side gives an idea of the lymphatics of the uterus, the glands lying near the iliac vessels and the extensive communications with distant portions of the body through the broad ligaments. Under those circumstances it seems as if the operation for vaginal hysterectomy for cancer ought to be put on a par with Whitehead's operation for cancer of the tongue; that is to open the mouth, seize the tongue with a pair of forceps and

with a pair of scissors cut out the tongue. Now we know that, as in the old operation for cancer of the breast, such a method leaves out the strategic point of the disease. The glands in the upper triangle of the neck are left untouched, and so the glands in the parametrium are left untouched by the ordinary operation for vaginal hysterectomy, such as we see here where the broad ligaments in the inner edges are seized by the clamps or by the ligature. By such an operation as that we really leave behind a most important region of infection. Now this diagram which I copied from the *Johns Hopkins Bulletin* shows how in an abdominal hysterectomy we may seek to carry out a rational operation for the cleaning out of all infected cancerous districts in the case of cancer in the uterus. This diagram gives you the lines of the incision through the peritoneum, exposing the infected glands lying in clusters upon the iliac vessels at the brim of the pelvis.

It would seem as if no operation for the removal of cancer of the uterus would be worth considering which did not contemplate a careful dissection of that region.

### SERO-THERAPY.<sup>1</sup>

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In the few years since its inception serum-therapy has been directed against a large number of diseases, including such as rabies, snake-bite, cholera, bubonic plague, typhoid fever and pneumonia.

Those best deserving our attention in this connection are four: diphtheria, tetanus, tuberculosis and streptococcus infection, and to these conditions the present paper will be limited, the consideration of them all being necessarily brief and incomplete.

In the first of these sufficient experience has now been accumulated to warrant a fairly definite opinion as to its value. In view of the extended discussion which this part of the subject has received, I shall not dwell upon it, but shall merely call attention to two facts of importance: first, the report of the American Pediatric Society, issued the past summer. This report embodied the experience of 615 physicians with the remedy in private practice; and of these more than 600 expressed themselves as strongly convinced of its value. The general mortality under its use was about the same as had been reported in hospital cases, namely, twelve per cent., and the surprising fact was brought out that of 1,256 laryngeal cases so treated one-half recovered without operation, while of 533 cases that came to intubation the mortality was only 25 per cent.

A second point worthy of note in this connection is the complete collapse of the plaintiff's case in the attacks made upon sero-therapy by its most conspicuous opponent, Dr. Winters of New York. The statements of this writer as applying to the Willard Parker Hospital of New York had been refuted by Park and others, and his more recent views regarding the methods and results of the treatment in Berlin have been completely disproved by Baginsky, who, as the director of the hospital whose methods Winters has assumed to describe, says that "all his conclusions are incorrect, and are based on such faulty observations as to amount almost to misrepresentations."

<sup>1</sup> Read before the Suffolk District Medical Society, November 14, 1896.