SARCOMA OF FEMALE MAMMA.

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In my two previous articles I have shown that marked swelling of the female breast may be caused by a special variety of fibroadenoma and by the so-called hypertrophy. The third cause of excessive swelling is sarcoma, of which the following is an illustrative and typical case. The patient, an unmarried woman of 50, was admitted into my ward at the Western Infirmary on 15th April 1903, complaining of swelling of the right mamma. Her occupation was that of a cook, and the history she gave was that 6 months before, that is in October 1902, she let a round of beef fall on her right breast. It gave her a severe blow, but she thought nothing of it until a month afterwards, when she noticed a small hard lump about the size "of the head of a hat-pin" in the upper and inner quadrant of the right breast. This lump gradually increased in size, and in 2 months it had become as big as a penny coin. This was in January 1903, only 3 months after the accident. From January onwards until the date of her admission the breast increased in size with tremendous rapidity. At the end of January she consulted a medical man, who did not take a serious view of her case, and nothing further was done until 7th April, when she got further advice. The medical man whom she consulted called in a surgeon, who tapped the upper part of the tumour, drawing off a breakfast-cup full of dark brown slimy fluid. She was advised to go to hospital, and a few days subsequently she was admitted to my ward.

On her admission the right mamma had attained very considerable dimensions, as is shown in Fig. 1. The breast stood out from the chest wall and occupied the whole of the right side of the thorax anteriorly, extending beyond the pectoral fold towards the axilla. It was movable on the thoracic wall, and to the touch it had a firm but elastic feel. No glandular implication in the axilla could be detected. From the clinical history of the case and the very rapid growth of the tumour I had no doubt it was a sarcoma of the mamma, and in view of the patient's general health being good I advised its removal. This was done on 23rd April. A microscopic examination of the tumour showed it to be made up of small irregularly-shaped cells, with relatively large deeply-staining nuclei. They were seen to be arranged in irregular ill-defined areas, and in many cases a well-marked blood-
vessel could be seen forming the centre of each of these areas (see Fig. 3). Around these vessels the cells were closely packed, and from the constant presence of the blood-vessels and the concentric arrangement of the cells around them, it seemed in every way probable that the latter had taken their origin from cells in the coat of the vessels.

At the operation every effort was made to have the removal of the growth as complete as possible. The pectoral muscle was taken away with it and the axilla cleared out. The patient was in no way collapsed by the operation, and she made a very satisfactory recovery, but before long there were indications of a local recurrence of the growth. I did not consider further operative measures advisable, and she left the hospital on 10th July with unmistakable signs of tumour reappearance in the vicinity of the scar. These recurrent nodules grew rapidly and her health began to suffer. She was admitted to the Cancer Hospital in September 1903, and the extent to which the disease had reappeared is seen in Fig. 2, which was a photograph taken soon after her admission. The after-progress of the case was marked by a good deal of pain, and patient died on 5th December, worn out by suffering and weakened by the discharge from the tumour masses which eventually ulcerated. At the post-mortem no metastases were found in the internal organs, but the growth had penetrated the chest wall, causing collapse of the right lung. The liver was enlarged and had undergone fatty degeneration.

Although the female breast contains a good deal of connective tissue as one of its elements, the experience of all surgeons is that sarcomata do not occur in the mamma as frequently as carcinomata. Collected statistics indicate their relative frequency. In his Copenhagen clinique Poulsen found that of 335 tumours of the female breast only 33 were sarcomata, of which 14 were cysto-sarcomata. So in Bergmann’s clinique, Gebele reported on 359 mammary tumours, 34 of which were sarcomata. When we remember, as was pointed out in my paper on “Fibro-Adenoma of the Breast,” that the term sarcoma has been used in rather too wide a sense so as to include many benign tumours, it may be taken as a clinical fact that true sarcomata of the mamma are comparatively rare.

The case just recorded exemplifies very typically the clinical characters of the sarcomata. They commence as firm and movable nodules in the mamma, but they enlarge quickly and soften, without, however, involving the lymphatic glands, which only
become affected in the later stages of the growths. Pain, too, is not a leading symptom of these tumours, nor is retraction of the nipple, but adhesion to the overlying skin is a constant accompaniment of them. Gross has pointed out that in a fair number of them there has been a discharge from the nipple, and he holds very strongly that age has no effect upon their malignity, and that they do not grow more rapidly in the young than in the old. That true sarcomata must be regarded as malignant, there can be no doubt. Not only do they manifest powers of local infiltration and of burrowing, that are indicative of that characteristic, but they show local recurrences and internal metastases, that are the two distinguishing features of malignancy. Probably their extensions are mainly through the blood-vessels, but the tendency varies with the different forms of sarcoma. Speaking generally, sarcomata may appear at any period of life. In the case of the mamma they are usually confined to one breast and rarely involve both mamme.

As already mentioned, sarcomata may be solid or they may be cystic, but microscopically they also differ. The three chief varieties are—(1) Round-celled, (2) spindle-celled, and (3) giant-celled. I shall have something to say on this point subsequently, for of late years attention has been a good deal directed to a form of mammary tumour that has been designated as alveolar sarcoma or angio-sarcoma, but that would probably be better named endothelial sarcoma. Meanwhile, as to the relative frequency of the above three varieties, Gross reports that of 176 sarcomata of the mamma the percentage was as follows:—(1) Round-cell, 27 per cent.; (2) spindle-cell, 68 per cent.; and (3) giant-cell, 5 per cent. Further, of these 176 cases no less than 50 per cent. showed signs of cystic degeneration. Another opinion that Gross’s inquiries led him to hold was that these different varieties of sarcoma are associated with different periods of female life. According to him, the spindle-cell and cystic sarcomata occur more frequently in women from 20 to 40 years of age, that is during the chief years of menstrual life, while the round and giant cell are found after 40, when the physiological function of the breast has ceased. The diagnosis of a mammary sarcoma in its early stages, when it is felt as a small firm mass in the breast, is almost an impossibility clinically by the surgeon, unless there is adopted the best and most prudent course, and that is to cut down on the nodule, remove it, and submit it to the microscope. If this is not done, careful watch should be kept on the case and any rapid develop-
ment of it, or apparent implication of the skin, should rouse suspicion as to the true nature of the growth.

As regards treatment, once a tumour of the breast has been shown to be a sarcoma the sooner the mamma is removed in its entirety, with the subjacent pectoral muscles, the better. This holds good for all varieties of sarcoma. All overlying adherent skin should be taken away, and it is probably best to clear out the glandular contents of the axilla whether the glands are palpably enlarged or not. It is fair to say that some surgeons think this procedure is only necessary in exceptional cases. In the case of a small cystosarcoma it has been advocated that its removal with some of the surrounding tissue is sufficient, but it is not an advisable course. For permanency of cure, excision of the whole breast is safest in every sarcoma, whether it be cystic or not, and whether it be small or large. It is not prudent to follow in the case of a sarcoma a line of treatment that might be quite safe with a small fibro-adenoma. In cases of unoperable mammary sarcoma the use of Coley's Fluid has been advocated. Composed of the streptococcus of erysipelas, with the bacillus prodigiosus added, its use is based on the fact that malignant tumours frequently decrease after erysipelas. As yet it cannot be said that any real cure by Coley's Fluid has been effected, but without question improvement has been observed in a number of cases. It has a powerful constitutional effect, and half a minim of the fluid should be the maximum dose at first.

The prognosis after removal of a mammary sarcoma must always be a guarded one, although statistics seem to give more favourable results in excisions of the breast for sarcoma than for carcinoma. Thus, Horner's figures show 76.9 per cent. free of recurrences after 2 years, and ultimately 61.5 per cent. of total recoveries, but their statistical value depends entirely on whether or not the cases were all true sarcomatous tumours. The spindle-celled variety of tumour is undoubtedly the least malignant. Probably the most important element in prognosis is the rate at which the tumour has grown before operation—the more rapid that has been, the more unfavourable. In fact, clinical experience teaches that the malignancy of some sarcomata exceeds that of the carcinomata, and that early invasion of the axillary glands is an unfavourable feature.

In stating, as I did, at the commencement of my paper, that the case I am putting on record is a typical one of mammary sarcoma, I should perhaps have qualified that remark to some
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extent. It certainly is so as regards its clinical history. Its alleged traumatic origin, its insignificant size at first, its rapid increase, its infiltration of adjacent tissues, its extensive local recurrence, its ulceration, and its fatal termination, all make up a well-recognised picture. On the other hand, in the matter of its structure it does not conform to any of the ordinary varieties of sarcoma. It reveals microscopically (see Fig. 3) a very characteristic arrangement of the cells clustering round the blood-vessels in a way that is unusual and that has led to the view that the existence of a group of sarcomatous tumours, over and above the ordinary varieties generally recognised, must be admitted. Schmidt has made a special study of 11 of these cases and he has assigned to them very definite characteristics. The patients were over 50, more than half were married; 2 had a history of traumatism and 2 of previous mastitis. The tumours were seated primarily in the periphery, were usually single, and were sometimes small and sometimes large. They were adherent to the skin, the axillary glands were enlarged though not diseased, and they showed rapid local recurrences. He holds that these growths originate from the endothelial cells of the peri-vascular spaces, a fact which suggested to him the name of peritheliomata or endothelial sarcoma. Others have preferred to call them alveolar sarcoma or angeio-sarcoma, but both these terms fail to express the exact nature of the structural origin of the tumours, whereas the expressions peritheliomata and endothelial sarcoma do. In connection with this matter of nomenclature, it must be remembered that there are two distinct views as to the origin of the blood-vessels in such tumours. Some regard them as furnished by the local tissues they have invaded and replaced. Others, like Creighton, favour the opinion that the embryonic connective cells themselves originate the blood-vessels and blood-corpuscles as a pathological process, just as they are known to do in foetal life physiologically. In other words, as Bryant puts it, the vessel-forming functions of the connective tissues of the mesoblast in embryonic life have been reawakened after their normal period of activity has long passed away, with the result that there has been developed a sarcomatous tumour of a sanguineous type. As to which of these views is right it is not easy to be dogmatic, but to tumours formed according to this latter theory the term perithelioma is best applied, while the expression endothelial sarcoma is more applicable to the view that they have sprung from the endothelium of the peri-vascular spaces of the pre-existing blood-vessels.