An Address

ON

SOME POINTS CONCERNING TUBERCLE, SYPHILIS AND MALIGNANT DISEASE.*

BY

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GENTLEMEN,—I highly appreciate the honour of being asked to address you, and have selected for my subject three of the most common and most interesting of surgical diseases—tubercle, syphilis, and malignant disease. It has been helpful to me, and I trust it may be to you, to consider them together.

For two of them—syphilis and tubercle—the responsible organism has been discovered. It is still being searched for in respect to cancer and sarcoma.

All of these diseases commence locally, and spread mainly by the lymphatics. The primary lesion in each may either take the form of an ulcer or that of a tumour. Thus, in cancer of the tongue, ulcer is common while tumour is rare; in the breast, ulcer is rare (Paget's disease), while tumour is common.

In tubercle, the primary lesion is frequently so trifling as to pass unobserved.

In syphilis, it may be so insignificant as to attract no attention.

In malignant disease, it is usually a most important feature.

In each, many of the conditions described as characteristic of the disease are the result of septic infection of the primary focus. This may be a serious complication in all of them.

The skin and genito-urinary organs are the favourite sites in all. Syphilis remains localized for so short a time that the generalized manifestations of it have rarely, if ever, been prevented by the earliest excision of the primary lesion. In malignant disease early excision of the primary lesion alone offers a chance. In tubercle it does not often fail.

The importance of the primary focus in all these diseases is not yet sufficiently recognized. If the primary focus in cancer is removed, secondary growths will, in a certain percentage of cases, disappear. This has occurred in chorion-epithelioma, when, after hysterectomy, a secondary growth in the lung gave no further trouble. It is also proved by the results of old-fashioned operations for cancer, in which only the primary growth was excised, for it is now accepted knowledge that, in the great majority of these cases, the nearest lymphatic glands are early infected.

GLANDS.

All of them infect and cause enlargement of the lymphatic glands. These seem to offer little or no resistance to the diffusion of syphilis, considerable resistance to the dissemination of tubercle, and for a long time they stop the advance of malignant disease.

Therefore, syphilis is always disseminated, tubercle frequently, malignant disease rarely.

Syphilis confers complete immunity, tubercle partial immunity, malignant disease probably no immunity at all.

The glandular enlargement in syphilis is general, in tubercle limited, and in malignant disease localized. Following syphilitic infection, all the local glands swell and feel like almonds. Shortly after all the glands in the body participate. Syphilitic glands never suppurate. Following tuberculous infection the local lymphatic glands swell one at a time, feel like a string of small potatoes, tend to form large tumours, and frequently suppurate. Following cancerous infection, the local glands enlarge (those nearest the point of infection first), they grow into hard fixed tumours, and seldom suppurate except in the neck.

Dissemination always occurs before three months in

syphilis, and on the skin it appears usually as a roseolous eruption. The dissemination of tubercle is rare, and occurs chiefly in the viscera of the head, chest, and abdomen. General dissemination of cancer is rarer still. When it occurs in the skin all over the body the eruption, on superficial examination, may be mistaken for that of syphilis. On the other hand, dissemination of sarcoma is to be expected, and when it attacks the lungs and pleura the symptoms and signs of tuberculous disease are closely simulated.

ULCERS.

It is generally possible to offer a correct diagnosis as to whether an ulcer is due to tubercle, or to cancer, or to syphilis. The age, appearance, and sex of the patient, the history of how the condition commenced, and its site are of an importance next to the physical signs.

Tubercle is most common in the young, syphilis in the middle-aged, and cancer in the old.

Tuberculous subjects look thin and anaemic or fat and pasty (delicate); the syphilitic look "dry," with a muddy anaemia, and the cancerous florid and robust.

Tubercle and cancer affect both sexes equally, syphilis mainly the male.

A tuberculous ulcer usually commences as a small sore, which has gradually destroyed its site (destruction in excess of growth); the cancerous ulcer, as an irritable crack around which a tumour has developed (growth in excess of destruction); the syphilitic ulcer, as a tumour which has broken down (an ulcerating tumour).

Tubercle and cancer choose sites furnished with the best vascular supply, syphilis with the worst.

Mistakes will become less frequent with improved diagnosis, but are sometimes, as yet, unavoidable.

I have excised an ulcer of the lower lip, and along with it the enlarged submaxillary and submental glands, of an elderly man, for "epithelioma." Microscopical examination of the growth and of the glands proved tubercle.

I excised the tongue of a stout, florid man, between 50 and 60, for an "epithelioma," which proved to be tubercle. He was quite well ten years later.

I excised the uterus of a patient for "carcinoma of the cervix." This was also a case of tuberculous disease.

To the infirmary clinics, chancres of the lip or tongue are usually sent as "epitheliomata." I treated one girl of 26 and a man of 28 with mercury and iodide, for a "chancre of the lip." They both died of cancer of the lip and neck respectively within one year.

I have observed cases of "cancer of the cervix uteri" cured by a course of iodide and mercury. They were syphilitic sores, and either had, or developed later, signs typical of syphilis.

A large number of "cancers" of the face have been cured by mercury and iodide; and as large a number of cancers of the tongue and of the penis have had their chance of cure lost through delay in operating whilst the same means were being "fairly tried."

TUMOURS.

The chronic inflammatory swellings produced by tubercle and syphilis have not infrequently been mistaken for malignant disease, and vice versa.

Many bowel "tumours," due to tubercle, especially at the caecum, have been excised under the belief that they were malignant.

I operated on a case of "cancer of the pylorus," and found the disease too far advanced for anything but the palliative operation of gastro-enterostomy. To confirm the diagnosis I removed a gland. It only contained tubercle. The microscopical diagnosis was confirmed by the permanent recovery of the patient and the disappearance of the tumour.

A middle-aged woman had "cancer of the liver and ascites, with hard lumps in the omentum, and jaundice." Examination revealed typical tertiary syphilitic ulceration over the left shoulder. Mercury and iodide cured her.

A man, aged 38, had three attacks of acute intestinal obstruction in eighteen months. After the last of these I opened his abdomen, and found a "fixed inoperable malignant growth" in his sigmoid flexure. His doctor, who was present at the operation, mentioned that he had treated him for syphilis seven years before. Since a mercurial course he has had no further attack, and fifteen

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years after is well. Fortunately I refrained from making a permanent colostomy opening, because I thought it would be soon enough for that when the obstruction recurred.

A middle-aged man had an "aneurysm of the thoracic aorta eroding his sternum." The "aneurysm" disappeared after six weeks of mercury and iodide.

I excised a large thyroid for "malignant growth" from a woman of middle age. The microscope revealed tubercle.

In another case I made a diagnosis of a malignant thyroid and offered a hopeless prognosis. Six months afterwards an abscess opened and the pus was tuberculous. The patient was alive three years later.

A stout, healthy-looking lady was operated upon by one of my colleagues at my request for a "typical scirrhus of the breast." A macroscopic section confirmed the diagnosis. The pathologist and ourselves required more than one series of microscopic sections to satisfy us that we were all wrong. The "tumour" was tubercle.

A "tumour" of a bone may be due to either.

I once saw a leg amputated at the hip-joint for "sarcoma" at the lower end of the femur. This was a syphilitic gumma.

A patient had his leg amputated at the upper part of the thigh for a "sarcoma" of the lower end. Sixteen months later a "secondary growth" appeared in the upper end of the humerus of the opposite side. This was cured with iodide and mercury, and the patient is alive and well fifteen years later.

A patient was advised amputation at the hip for a "sarcoma" of the upper end of the femur. The advice was not accepted. Twelve months later a tuberculous abscess was opened, and recovery followed.

A patient was operated on for "tubercle" of the upper end of the humerus. Profuse haemorrhage followed the incision, and a fungating malignant growth appeared through it a few days later.

Even a skilled pathologist with his microscope may make mistakes.

A man of 35 had his right testicle removed for a "round-celled sarcoma." Nine months later he "developed a secondary growth in his brain." This serious brain lesion disappeared after a course of mercury and iodide.

Nearly twenty years later he is well.

I was once asked to look down a microscope and offer a diagnosis. I felt no doubt that the section of skin revealed bore a typical epithelioma. It was a nodule of leprosy, and a favourite "catch."

A young married man had his left testicle excised for "tubercle." The diagnosis was confirmed by the microscope (no tubercle bacilli were found). One year later his right testicle swelled as the other had done, and he resented the proposal that it also should be removed. Mercury and iodide quickly cured him.

HODGKIN'S DISEASE (LYMPHADENOMA).

This condition, as yet ill understood, sometimes resembles tubercle, sometimes sarcoma, in its clinical course. The enlarged glands, which are characteristic of it, may remain for long unchanged, then slowly soften, redden on the surface, break down, discharge a curdy matter, and finally heal. The patient with this form of the disease may live for several years. In the second type the glands become glued together and fixed; internal growths develop quickly, and the patient dies, with dissemination throughout the viscera.

FIBROSIS.

Natural cure occurs in all of these diseases. It is the rule in syphilis, the exception in tubercle, and very rare in cancer. In all of them the cure of the local lesions is the result of fibrosis.

The tendency to break down is characteristic of the acute type of tubercle, syphilis, and malignant disease; and to fibrose is characteristic of the chronic variety.

The natural tendency of fibrous tissue to contraction accounts for the fact that stricture of the tubular viscera may be the result of tubercle, of syphilis, or of cancer.

In all, the newly developed fibrous tissue may grow so luxuriantly as to form a tumour, chiefly fibromatous. Keloid of the skin, and many internal growths, are of this nature, and in each of them the chief clinical characteristics are slow development and long duration, with

periods of quiescence (fibrosis or sclerosis in excess) and exacerbation (infection in excess).

In the prognosis of cases of cancer everything depends upon the amount of existing fibrosis. The ill-defined diffuse growths, so active as to simulate inflammatory swellings, offer the worst prognosis. The firmer, more defined growths, resembling simple tumours in their physical characteristics, are the most favourable in prognosis.

A growth rich in cells and without much fibrous tissue will rapidly disseminate and kill.

I have known a patient die of breast cancer within three months of its appearance. On the other hand, one patient under my care lived for twenty-five years after two operations for breast cancer, both of which failed to remove the growth and were followed by an inoperable recurrence. Death resulted from extension of the cancer to the pleura and lung. From time to time I had the opportunity of watching the great fight between cancer and fibrosis, and though complete healing never occurred the supremacy of the external fibrous tissue was maintained till the end. This was at the expense of much discomfort to the patient, for the right side of her chest was tightly bound and contracted by thick, large patches of scar tissue.

Many cases of atrophic scirrhus cancer of the breast have lived for years without much discomfort, and have frequently in the end died through bone infection. They owe their benign course to fibrous tissue formation. Some of them assume a more malignant course after operation, and in view of what has been said the explanation is obvious.

Cancer of the colon may be one of the most malignant or one of the most benign of malignant growths.

If it takes the form of a tumouring ulcer without stricture its course is malignant; if, on the other hand, stricture (that is, fibrosis) is the predominating feature a better prognosis can be offered.

Tuberculous glandular tumours of long standing are chiefly composed of fibrous tissue.

A patient of mine carried about a testicle the size of a cocoanut for twenty years, before it troubled him sufficiently to require removal. It was syphilitic, but consisted chiefly of fibrous tissue.

BONES.

For bone sarcomata the rule corresponds exactly with that discussed above. Their malignancy may be gauged by the amount of osseous tissue in relation to them.

The least malignant (myelomata) have an even, rounded shape, and may not destroy life for many years. They are enveloped in a well defined bony capsule, which may expand indefinitely with their growth. If they burst through this capsule they infiltrate the surrounding tissues, grow rapidly, and declare their malignancy.

The most malignant of malignant tumours are the so-called periosteal sarcomata of growing bones. They spring from the bone, and their favourite site is in the neighbourhood of the most active epiphyses (upper end of humerus, lower end of radius, lower end of femur, upper end of tibia). Their growth is so rapid that they assume an irregular lobulated form, and any resistant structure met with, such as tendon, blood vessel, or nerve, leaves its mark on their surface, because, in their hurry to get big, they follow the path of least resistance. Their victims die within the year, usually from growths in the lung, and whether the most radical operation is or is not done.

In the intermediate group of bone sarcomata—those of neither very slow nor very rapid growth—the degree of malignancy may be estimated by the amount and density (shown by *x* rays) of the osseous tissue connected with them. Some of them, after years of slow growth, suddenly develop their malignant tendency, owing to the fact that the tumour cells have overpowered their osseous inhibitor.

Like the pyogenic infections, those of tubercle, cancer, and syphilis can be imprisoned by fibrous tissue and bony deposits for long periods of time.

SEPTIC INFECTION.

The evil influence of septic infection on tubercle, malignant disease and syphilis is insufficiently recognized. Each may have a relatively benign course till sepsis is superadded. An uncomplicated tuberculous abscess never

causes constitutional disturbance or death, but when septic infection has gained an entrance to it both frequently follow.

The uncomplicated primary "sore" of syphilis is not a sore at all, but a hard, dry, raised, painless lump.

Most of the pain, the odour, and the discharge of cancer are due to superadded sepsis. One of the conditions in which they are all pronounced is cancer of the uterine cervix. I have had opportunities for observing elderly spinsters with this disease. In all, the only early symptom was haemorrhage. Before the growth had caused serious disturbance it had in each instance invaded the bladder, was infiltrating the surrounding structures, and had become inoperable.

CHRONIC LYMPHATIC OEDEMA.

Amongst other causes of chronic lymphatic oedema of the extremities tubercle, syphilis, and cancer have to be remembered.

COMBINATIONS.

That of syphilis and tubercle is a deadly combination. I have seen cases in which tubercle attacked the lungs of a victim of secondary syphilis. In each instance the tubercle rapidly advanced to a fatal issue.

The most disastrous form of "scrofula" is a combination of congenital syphilis and tubercle.

Cancer and syphilis are very firm allies, and syphilis often provides a suitable site for the lodgement of cancer. If a person over 60 years of age contracts syphilis his death from cancer may be anticipated.

Tubercle and cancer favour the same sort of soil. Persons who have recovered from tubercle in their youth are exceptionally liable to cancer in their later years. It is more than a coincidence that both occur in families with a history of some members having attained to an extraordinarily long life.

THE ROENTGEN RAY APPEARANCES OF THORACIC ANEURYSM.*

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THORACIC aneurysm is a condition in which a Roentgen-ray examination is of the greatest value, for there are few cases in which such an examination does not clear up the diagnosis beyond possibility of doubt. In the normal thorax, viewed from the front or back, the normal aortic arch is usually entirely concealed by the shadow of the vertebral column. In a fair proportion of normal cases,

Fig. 1.—Diagrams of the aortic arch in the right anterior oblique view. 1, Normal arch. 2, Generally dilated arch. 3, Fusiform arch. c, Front of vertebral column. d, Diaphragm. Immediately in front of c is the posterior mediastinal clear space.

however, it forms a slight bulge to the left of the vertebral column below the clavicle. Thus, we must not fall into the error of taking a mere bulge to the left of the spine above the cardiac shadow as evidence of the presence of an aneurysm. It is necessary to supplement the view obtained in this plane by a view in the plane of the aortic arch itself. For this purpose the patient is placed vertically on a revolving seat in such a manner that he can be revolved upon his vertical axis between the x-ray tube and the fluorescent screen.

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It will be remembered that the direction of the course of the aortic arch from its origin is backwards and to the left. Hence we are able to obtain a view in the actual plane of the aortic arch by revolving the patient so as to bring the right shoulder forward. The exact angle to which he should be revolved in individual cases is determined by the appearance on the fluorescent screen. In this, the right anterior oblique view, the appearance of the normal aortic arch and of the aneurysmal arch is illustrated by the diagram (Fig. 1), which shows the appearance of the aortic arch in relation to the posterior mediastinum and to the vertebral column.

In both the normal and the generally dilated arch the sides of the aortic shadow are parallel, a line A drawn horizontally across the upper part of the shadow being equal in length to a horizontal line B across the base, where the aortic shadow and the shadow of the auricle meet. In the generally dilated arch, however, both A and B are greater in length than in the normal arch, and it is not uncommon to find them double the length of the

Fig. 2.—Large saccular aneurysm of the ascending portion of the aortic arch. The transverse portion of the arch is displaced to the left.

normal arch. In the fusiform arch the upper line A is longer than the line B at the base of the arch. A saccular aneurysm is merely an exaggeration of the fusiform arch.

The only form of aneurysm which is not revealed with certainty by either the anterior or the oblique examination is a small aneurysm confined to the concavity of the arch. I have no personal experience of this form except in association with general dilatation of the arch. If the symptoms, for example, those of pressure upon the recurrent laryngeal nerve, are too great in any particular case to be explained by moderate general dilatation of the arch, the fact should be borne in mind that there may be a localized saccular aneurysm in the concavity of the arch. In the case of a large saccular aneurysm of the aortic arch there can rarely be any doubt from the anterior view alone as to the diagnosis. When the saccular aneurysm affects the ascending portion of the arch, the transverse arch is usually displaced to the left by the pressure of the aneurysm, and is seen to the left of the vertebral column (Fig. 2).

In an aneurysm which involves the whole of the aortic arch it is usual to find the long axis of the heart far more oblique than usual. In explanation of this it should be remembered that a generally dilated arch is also elongated