An Address ON THE IMPORTANT EARLY SYMPTOMS IN DISEASES OF THE BREAST.*

BY
SIR G. LENTHAL CHEATLE, K.C.B. F.R.C.S.,
SURGEON TO KING'S COLLEGE HOSPITAL.

BEFORE considering the clinical side of diseases of the breast it is necessary to recognize certain elementary anatomical arrangements. Each gland possesses from fifteen to twenty ducts, which have innumerable branches ending in acini. The ducts and acini are lined from within outwards by (1) epithelium, (2) a single layer of unstriated muscle fibres, (3) a delicate fibrillous tissue containing scattered cells of myxomatous appearance, (4) the elastica which surrounds the ducts and not as a rule the acini, (5) the pericanalicular and periacinous connective tissue. These tissues compose the breast structure, and are embedded in supporting connective tissue. Any of these five tissues may, either singly or in combination, undergo diffuse or local hyperplasia quite apart from any similar change that may occur in the supporting connective tissue.

If the breast be thin and the affected ducts and acini superficial any hyperplasia in these structures would give rise to true nodularity of the breast. If this nodularity be true (a false nodularity I will explain later) we are dealing with a problem of "hyperplasia," and must not use the meaningless misleading term (for only a term it is) "chronic mastitis." This term conveys no meaning, because true nodularity of the breast is caused by many diverse forms of hyperplasia. Nodularity may be due to an epithelial hyperplasia in its earliest stage of carcinoma, and all chance of saving life may be lost by simply regarding it as a "chronic mastitis." All forms of true nodularity of the breast must be looked on from the point of view of hyperplasia. From this point of view there are three thoughts in my mind. The first is that the tissues concerned in hyperplasia cannot all be in the same biological state throughout the whole breast during the whole of a patient's life, and even when normal they cannot all be able to respond equally and at the same time to a stimulus of hyperplasia. For hyperplasia to occur in a tissue it must be in a biological state that renders it capable of responding by growth to a hyperplastic stimulus. The second thought is this: the stimulus that is capable of inducing hyperplasia may not always be the same stimulus, nor applied in the same degree. Even when the stimulus is acting on tissues in different biological states, hyperplasia may result in some of the tissues and not in others. Again, it is conceivable that two or more kinds of hyperplastic stimuli may be applied at the same time, and may induce hyperplasia in two or more different kinds of responsive tissues.

The third thought is that none of the forms of hyperplasia are induced by a stimulus, and that hyperplasia may be caused by the inhibition of some controlling factor of growth. The inhibition may be systemic or localized in action for all that is known. All that can be said is that there are indications which may be regarded as pointing to the presence of an inhibiting factor. We know that there are different kinds of irritants which are followed by hyperplasia. For instance, the mechanical irritation of the spawn of a frog by means of a very delicate stilette will induce the development of a fatherless frog capable of

reproducing its species. Bacteria can induce hyperplasia. The products of staphylococci induce hyperplasia in the bone marrow, causing leucocytosis, and where they are applied locally they begin even within a few hours to induce hyperplasia of the connective tissues in the vicinity of the main lesion. Tubercle bacilli induce hyperplasia of the endothelium. Gonococci can induce epithelial growth—warts for instance. There can be no doubt that the products of staphylococci come in contact with endothelial cells as well as with those of connective tissue, but they do not cause the enormous hyperplasia of endothelial cells that is so typical of the effects of the local action of tubercle bacilli. The contrary may be said of tubercle bacilli. Their products must come in contact with fibrous connective tissue cells, but they induce a much more hyperplastic effect upon the endothelial cells. The same differentiation exists between gonococci and the relation of their products to epithelium. These are examples of different kinds of irritation either selecting tissues or being selected by the biological states of tissues which undergo hyperplasia. To sum up all these different forms of hyperplasia under the term of "chronic inflammation" or "chronic mastitis" completely hides the enormous problems that are involved in hyperplasia. Therefore, in attempting to make a diagnosis of a nodularity or a tumour in the breast the prevailing notion should be an attempt to discover which is the particular tissue undergoing hyperplasia.

For a moment I will digress in order to explain what

I mean by "false nodularity of the breast." The fat covering the breast of a young girl is perfectly smooth. As age increases the size and weight of the breasts increase and the breasts become more pendulous. These states are accentuated by lactation. The ligamenta suspensoria of Sir Astley Cooper intersect the fat between the breast and the true skin. As age advances, and especially after lactation, these ligaments become more dense, and their terminal branches as they reach the skin enclose lobules of fat which are separated from each other. When the surface of such a breast is palpated it gives rise to a sensation of

FIG. 1.—A tracing made from the microscopical sections of a whole breast that was removed from a woman who had borne and suckled children. A is the nipple; B subcutaneous fat intersected by branching thickened ligamenta suspensoria of Sir Astley Cooper; C is a fibro-adenoma which could not be felt through the dense layer of fat, and appeared to be the periphery of the breast. The gland was removed for carcinoma elsewhere in this breast.

diffuse nodularity of the underlying gland, which in these circumstances cannot be felt at all. A description of nodularity of the breast cannot be taken as a trustworthy observation of fact if there be fat in this state between the gland and the skin. A vast number of breasts are in this state. (See Fig. 1.) When any kind of pain (referred or otherwise) is experienced in them "chronic mastitis" is at once diagnosed. Nodularity of an underlying breast can only be observed on palpation of a thin breast. Sometimes the breast of a thin person may be covered by a thick layer of fat. Hence the state of adiposity of an individual is not so important as the relation of fat to the breast under observation.

I pass on to describe symptoms that render it essential for a correct diagnosis to be made at once. I shall not describe a tumour which is adherent to the skin, and associated with enlarged lymphatic glands in the axilla. The clinical diagnosis of carcinoma can be made almost with certainty upon these signs, and the state indicates that the carcinoma has extended a great deal too far to be safe. So the symptoms to which I will allude do not include these. The signs and symptoms of early disease of the breast are limited to a few important ones, and when it is considered that early carcinoma or papillomata can be present in a breast without causing any clinical sign whatever, then the consideration makes the presence of even one definite clinical sign of fateful importance. The signs to which I would particularly draw attention are:

1. (a) Nodularity localized to one part of a breast, or one part of a breast where nodularity is more marked than at any other part; (b) a lump in the breast, and when

* Delivered at the opening of the post-graduate course at the Prince of Wales Hospital, 1926.

neither (a) nor (b) exhibits adherence to skin nor enlarged lymphatic glands in the axilla.

2. It is difficult for women, who are so accustomed to pain, to associate it with pathological lesions in their breasts. They do not regard pain in their breasts as being so important as when it occurs elsewhere. At puberty they experience mammary pain, which is repeated throughout the term of their menstrual periods. Any irregularity of the pelvic visceral organs induces pain in the breast. Various emotions may give rise to it. Thus throughout life a certain amount of pain in the breasts is so common that many women regard it as a normal experience. The fact makes difficult an attempt to elicit pain as part of the history of a pathological lesion. In the report issued by the Ministry of Health, Dr. Lane-Clayton and Professor Major Greenwood, after studying many histories of carcinoma of the breast, made a special point of stating that pain was a late symptom. If ordinary histories of patients can be trusted, the conclusion of this report is true. It is rare for a patient to state spontaneously that she had noticed any particular pain before she felt the lump in the breast. On the other hand, if a history be carefully taken and a special point be made of asking the patient to try and remember when she noticed a pain in the breast to which she was not accustomed, she will often say, "Oh, well, I did notice a little stabbing pain, but I did not take any notice of it." That is a common experience of mine, and I believe pain of this lancinating, stabbing character is often the earliest symptom of carcinoma of the breast, and the want of knowledge and appreciation of its importance on the part of the patient allows this important sign to be lost. The earliest carcinoma of the breast which I have excised was removed from a patient whose only complaint was a stabbing pain situated in one part of the breast. I could feel no lump or nodularity. I told her frankly that I could not find a cause for the pain, but that as there was about half an inch of fat between my fingers and the site of pain I could not be sure there was no cause. I said to her that her life might depend on whether a cause existed or not, and that I could not be sure about the matter until I had removed that portion of the breast and had examined it microscopically. This was done, and on microscopical examination we discovered a small focus of carcinoma which was already beginning to spread into the fat surrounding the periphery of the gland. Since that case I have always regarded the presence of a lancinating pain situated in one part of a breast as a very important symptom, whether there is or is not a lump or nodularity to be felt.

3. A spontaneous intermittent discharge of blood from a nipple. By a spontaneous discharge of blood I mean a discharge not caused by trauma. A spontaneous discharge of blood from a nipple may be due to duct carcinoma, to carcinoma arising deep in the breasts in terminal ducts and acini, but also to papillomata, and very frequently the discharge occurs (from these causes) when neither lump nor nodularity can be felt. Occasionally a papilloma in one ampulla may be the only tumour in the breast. On the other hand, a duct may contain hundreds of them situated throughout the whole of its course. Again, two or more papillomata may exist not in an ampulla at all, but in deeper parts of the breast. There is no clinical information to guide us as to whether there is only one papilloma in an ampulla, or whether there are multiple papillomata in the breast. Papillomata in a duct are as dangerous as in the large intestine; they are often associated with carcinoma.

4. Spontaneous discharge of serum from the nipple may be caused by the same diseases that induce haemorrhage from the nipple, and should be regarded with the same degree of seriousness.

5. A gradually retracting nipple.

When any one of these signs exists it should be taken as a signal of danger. A lump or nodularity should be widely excised and microscopically examined. The same treatment should be applied to a part in which there is a local focus of pain. The whole breast should be excised as for carcinoma when there is spontaneous discharge of blood or serum from the nipple. Lives are being lost by disregarding the importance of these early signs.

All these surgeons who think they are giving important educational information to the public have made a great point of advising women to consult their doctors directly they notice a lump in their breast. Let us consider what are the implications of that advice so sincerely given. It implies that the patient is securing treatment early in the disease, whereas really when a lump appears in carcinoma the disease is well advanced, and is already threatening the patient's life, possibly beyond all hope of a cure. A woman with that advice in her mind may feel a pain, see a discharge of blood or serum from her nipple, think that these are unimportant because she can feel no lump, and that therefore it is unnecessary to consult a doctor. The attempt to educate the public to become acute clinical observers is very praiseworthy, and if I were deeply impressed with its advisability I would make a great point of telling women that it is more essential that we should see their breasts before any lump has appeared. We want to see their breasts if they have either local nodularity or lancinating pain in one spot, or a discharge of blood, or a discharge of serum from the nipples. In any event we have no chance of obtaining better results after the operation for carcinoma of the breast unless we are able to attack the disease in an earlier state than we do at present.

An Address

ON

ACROMEGALY FROM A SURGICAL STANDPOINT.

BY

HARVEY CUSHING,

PROFESSOR OF SURGERY, THE HARVARD MEDICAL SCHOOL.

(With Special Plate.)

PART II.

D. HYPERPITUITARISM.

THE only clinical evidence we have of pituitary overactivity is overgrowth. That this overgrowth is due to excess, rather than to perversion of glandular function as was long thought possible, has now been conclusively shown, not only by Evans's experiments, but by Smith's demonstration that homoplastic transplants will restore the normal curve of growth to rats which have been dwarfed by hypophysectomy.

As with clinical hypopituitarism, so with clinical hyperpituitarism, it is convenient to divide the cases into two main categories—those in which the disorder has set in during pre-adolescence, and those in which it has begun to manifest itself in adult life. The former results in gigantism, the latter in acromegaly. So far as is known, both of these states are invariably associated with a hyperplasia or, more commonly, with an actual adenoma of the chromophilic elements.

1. The Chromophile Adenomas Originating in Pre-adolescence (Gigantism).

It has come to be generally assumed that the difference between gigantism and acromegaly is merely one of difference in the age of onset. Accordingly, though giants and acromegals differ to an extraordinary degree outwardly, this is held to be largely a matter of the skeletal response to the growth hormone; inwardly the consequences of the hyperpituitarism are much the same in the two maladies. Both are accompanied by visceral splanchnomegaly and by a hyperplasia, often with adenomatosis of the thyroid and parathyroid glands and adrenal cortex.

To be sure, these are clinico-pathological assumptions for which as yet there is no experimental proof. So far gigantism has only been reproduced in the rat, and since the interruption of oestrus serves as an indicator of the activity of the prepared extract, the female rat has commonly been used. Moreover, the rat is an animal whose epiphyses never close, so that its capacity for growth in length is unaltered throughout life. One would assume, therefore, that parenteral injections of anterior lobe extract would accelerate a rat's growth at any time of life, and