Contribution to the study of non-cancerous tumours of the breast / by Charles Monod ; translated from the Archives gén. de médecine, January, 1875, by Charles Cullingworth ; to which is appended an account of an ovarian cyst in an infant newly born, by Charles J. Cullingworth.

CONTRIBUTION

TO THE STUDY OF

NON-CANCEROUS TUMOURS OF THE BREAST.

BY

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Translated from the *Archives gén. de Médecine*, January, 1875,

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TO WHICH IS APPENDED AN ACCOUNT OF AN

OVARIAN CYST IN AN INFANT NEWLY BORN.

By CHARLES J. CULLINGWORTH.

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CONTRIBUTION

TO THE STUDY OF

NON-CANCEROUS TUMOURS OF THE BREAST.

NOTWITHSTANDING the large number of publications upon tumours of the breast, the study of their anatomy remains to a great extent obscure and difficult. Yet there are some points in their history about which there can no longer be a possible doubt. Such at least is the impression left on our mind by the microscopical examination of a considerable number of specimens, which we have made during the past two years, at the histological laboratory of the College of France.

It is not our intention to offer here a complete study of the question. We shall limit ourselves to the indication, in few words, of the conclusions to which the examination of our preparations has led us.

Our attention has been chiefly directed to breast-tumours, called *benign* or *non-cancerous*. We shall principally apply ourselves to the elucidation of their general characters, after having briefly sketched those of cancerous tumours rightly so-called. This will necessarily bring us to deal with the question, always disputed, of the frequency and even the existence of adenomata of the breast.

The anatomical diagnosis of true cancer of the breast is seldom beset with any difficulty. It appears most frequently, in fact, with characters precisely like those which it bears in every other region of the body : a fibrous framework, forming

alveoli, in which are enclosed cells of variable form and size. Further, and upon this point we are wishful to insist, the constituent elements of the mammary gland, its *acini* and excretory ducts, disappear before the development of the cancerous tissue.

Nevertheless, in certain cases, where the entire breast is not yet invaded by the pathological product, gland-tissue can be met with intact at the borders of the tumour. With fortunate and sufficiently extensive sections, one may perceive, in fact, at one end of the preparation, cancerous tissue, recognisable by the characters enumerated above; at the other, some gland lobules of normal size and appearance. The neighbouring tissue, and this more and more as the seat of complete degeneration is approached, presents traces of a manifest alteration, in which the first stage is an abundant cell-proliferation. Cell-elements appear on the field in increasing number and size. Here and there they form little groups, and are located between the bundles of connective tissue, which seem to open out for their reception. Here evidently is seen the first stage of the alveolar formation of the cancer. These rudimentary alveoli may sometimes only contain one or two large cells.*

The lesion continuing its march of invasion, the cells continually increase in number and size, and the spaces which they occupy enlarge in proportion, and become more and more numerous. Little by little also the gland-lobules, hitherto intact, disappear, obliterated as it were by the march of the pathological process.

Thus the point is arrived at by degrees where the alveolar tissue of the cancer alone exists; the glandular tissue has entirely disappeared.

Quite different is the physiognomy of the non-cancerous tumours of the breast. Here the gland-tissue persists, altered in form it is true, but yet always recognisable by means of the regular epithelial coat which lines the enlarged gland-spaces.

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* D'Espine, "Arch. de Physiologie," 2me Sér. t. i. p. 177, 1874.

This persistence of the gland-tissue explains the confusion into which many authors have been led, and the numerous cases described under the title of adenomata of the breast. We shall endeavour to show that the characteristics of these tumours must be sought for, not in the glandular element, always more or less perverted, but in the intermediate tissue; and that the exact analysis of that tissue alone permits us to define their nature with precision.

We are aware that this mode of meeting the question before us is not new, and has been already partially set forth in previous publications. Recent discussions, however, having shown that it was far from being sufficiently known and popularized, we have thought that it might perhaps be useful to take advantage of our personal researches, in order to bring it once more into prominence.

Non-cancerous tumours of the breast, clinically very different from each other, present certain common anatomical characters which allow of their being brought together, and show, on the other hand, important differences which justify the recognition of a certain number of varieties amongst them. Their physical characters are very variable, and in no way help to place them in distinct categories. It will be sufficient to remember in fact, that they include the largest and the smallest breast-tumours; that their consistence, which generally reaches neither the softness of encephaloid, nor the hardness of scirrhus, may for the rest vary considerably; that their form is still less characteristic. Nevertheless, to the unaided eye, they all present one character in common, which has not escaped careful observers.

The fundamental tissue of the tumour, even when it appears at first dense and of homogeneous structure, is traversed by numerous clefts and furrows: some scarcely appreciable by the unaided eye; others quite visible and admitting a probe easily; others again, still more considerable, may open out into actual cavities of a cystic appearance, and of an elongated or rounded form. It is usually easy to make out that these cavities communicate with each other here and there; others, on the contrary, appear completely isolated. The largest often contain in their interior a mamillated

projection, in form like a mushroom, which seems to be developed at the expense of one of their walls. This projection itself presents a pinked or furrowed (*déchiquetée*) surface ; it is subdivided into a great number of lobes, and smaller and smaller lobules, which give it a cauliflower aspect. The tissue of which it is composed, appears on section of the same nature as the rest of the tumour. Frequently, however, it is of softer consistence, and may even, according to the variety to which it belongs, be in process of softening.

We shall see presently that this papillary appearance, which only reveals itself to the unaided eye when these vegetations have acquired a large size, is found under the microscope throughout the whole of the tumour, in different stages of development, from the simple upraising of the cyst-wall to the completely formed papilla.

It is fully proved at this day that these hollow spaces, whose existence had not been overlooked by those occupied with the study of breast-tumours, are no other than the gland-cavities of the breast, abnormally developed and altered in form by the pathological tissue which has arisen in the gland. They have been described by M. Ranvier, under the name of *kystes lacunaires*, to distinguish them from true cysts, such as may be met with in tumours of the breast.

All these cavities present a perfectly smooth surface, which recalls in every particular the appearance of an epithelial surface. It is easy, indeed, to show that they are really covered by epithelium. For this purpose it is sufficient, if the tumour has been recently removed, to let fall into the cavity of one of these cysts a solution of nitrate of silver 3 parts to the 1000 ; when permeation has occurred, a thin fragment of the cyst-wall is placed under the microscope, the section being parallel to the surface. An epithelial layer is at once recognised, in all respects similar to that which the wall of a normal gland duct would furnish under similar circumstances. This epithelium is found also on examination of thin sections under the microscope, made after hardening. These are the results furnished by this

second mode of study, which we must now describe. We have no need to insist in this place upon the inadequacy of preparations obtained by the scraping of specimens in the recent state, or the crushing of small fragments torn from the surface of the tumour. By this means epithelial cells are easily obtained from the gland-ducts, often grouped indeed in a manner which gives a true cast of the culs-de-sac ; and one is thereby led quite naturally to make an anatomical diagnosis of a glandular tumour or adenoma. The elements of the intermediate tissue between the culs de-sac most frequently in fact are overlooked by that mode of examination ; either because being very firmly placed in the situation they occupy, they are less easy to remove by scraping ; or because being less characteristic in form, they attract less attention.

An examination of the liquid collected by means of scraping (and particularly that obtained from a fragment which has been in Müller's solution for twenty-four hours) is not without its use. Only in that way can the elements of the tumour be observed in a state of isolation, and accurate ideas be gained with regard to their form and size.

But in order to form a complete anatomical diagnosis, the analysis must be carried further ; it is not in reality the observation of the isolated elements of a tissue, but of their mutual arrangement, which will permit us to come to definite conclusions as to its nature. The examination of thin sections, taken from a mass suitably hardened, and coloured in the ordinary way, ought then always to follow that of the tumour in its recent state. After colouring similar preparations with the picro-carminate of ammonia, an arrangement at once strikes us which recalls and explains what had been noticed during the examination of the tumour with the unaided eye. We see at the first glance, with a low power, that the pathological tissue is traversed by numerous cavities or empty spaces, bordered by wavy lines of a deep red colour, contrasting by their staining with the surrounding parts. With a higher power it is easy to note that these deeply-coloured lines, which form the borders of the hollow spaces in the tumour, are composed of prismatic

epithelial cells, in regular rows and in a single layer. These hollows and epithelial surfaces evidently correspond to the more or less altered glandular structure of the breast. It is indeed possible to perceive by the side of hollow spaces of considerable diameter, where it is difficult to recognise the proper structure of the transformed gland, true gland-tubes which have preserved their normal texture and appearance, presenting themselves in the form of longer or shorter ducts, without any appreciable cavity, owing to the exact apposition of their opposite walls, and dividing several times at one end, recalling in short the aspect of a glandular canal leading to a vesicle (*acinus*). At other times the tube-walls are separated from each other ; they then appear elevated by more or less numerous *papillæ*, as if the surrounding tissue were trying to force its way into their cavity.

Lastly, these glandular spaces have, further on, become quite unrecognisable ; partly on account of the enormous dilatation they have undergone, and partly on account of the existence in their interior of projections of gradually increasing size. The presence of the epithelium above described is the only point in common which unites them together, and allows these diverse forms of the same lesion to be approximated.

Between these three every intermediate degree may be observed, differing one from another only in the greater or less dilatation of the cavities, or the more or less considerable budding of the walls. This appearance, with differences of detail, may be found in tumours which, as we shall show immediately, are yet of an entirely different nature. Nevertheless, one may say in a general way, that the more rapid the development of the tumour has been, or the more remote the examination from its commencement, the fewer gland-tubes of nearly normal aspect will one find, the more considerable, on the contrary, will be the hollow spaces and the budding of the walls.

Finally—and this is the point upon which we are chiefly wishful to insist—it follows from these facts that, as we have indicated above, it is not in the glandular element that the distinctive characters of the different tumours of the

breast ought to be looked for. These distinguishing characters can only be found in the stroma intervening between the gland-vesicles and the dilated excretory ducts, in the tissue which constitutes the walls of the hollow spaces, or the buds which project into their interior. This tissue, in the preparations that we have examined, has appeared sometimes with the characters of fibrous tissue, either completely formed or more frequently young, and abundantly supplied with cell elements; sometimes presenting in every particular the characteristics of sarcomata and myxomata when developed in any other part of the body.

We shall not insist upon the histological differences which separate these three varieties of pathological tissues. In certain cases some difficulty may be experienced in distinguishing them one from another; in tracing, for example, a well-marked line of demarcation between fibrous tissue in course of development and true sarcomatous tissue; besides, mixed forms will occur, in which there will be a mixture, often in unequal proportions, of sarcomatous and myxomatous places. The study of these questions belongs to the anatomical diagnosis of tumours in general.

The important point, if our way of understanding the mode of constitution of the tumours under consideration is correct, is that, each one presenting a common point of structure—the alteration of the gland-ducts, and each offering, on the contrary, a distinctive character—the mode of constitution of their stroma, it is evidently according to the nature of this last that they must be distinguished, and consequently named. In one word, they must be considered as *fibromata*, *sarcomata*, or *myxomata* of the breast, and not as more or less altered *adenomata*.

Nevertheless it does not seem to us to follow from the facts we are here stating, that the notion of a concomitant glandular hypertrophy must be altogether discarded. Increase in the number of the *acini* is possible, and even probable If on the one hand, indeed, the small proportion of the glandular element of the breast in that of a young woman. who has had no children, and especially of one who has not suckled, be taken into account; and, on the other hand, the

large number of dilated and altered *acini* met with in little fibrous tumours of the breast, developed under the same circumstances—one is compelled to admit that a process of hypertrophy in the gland itself has accompanied the formation of the neoplastic tissue in the intervening stroma. But, to repeat it once more, it is not in that alteration that the characteristic of the lesion must be looked for, because it is found with analogous characters in tumours of different kinds. In support of this view an argument may be adduced, already put forth by MM. Cornil et Ranvier in their "Manuel d'Histologie pathologique," and drawn from the examination of tumours of this kind, returning after removal. The new tumour no longer contains gland-tissue; an evident proof that, in the primitive tumour, the glandular hypertrophy constituted a simply accessory element.

To sum up, if it is sought to give an account of the mode of general development of these tumours, it may be granted that there is formed in the interlobular tissue, following the same mechanism as in the connective or fibrous tissue in any other part of the body, a neoplastic tissue, which assumes, according to the case, the characters of a fibroma, a sarcoma, or a myxoma. At the same time, and probably on account of the irritation in the neighbourhood, the *acini* of the gland hypertrophy, increase in number and size; they are, so to speak, thrust into prominence (*étalés*) and altered in form by the processes set agoing around them. The cavities limited by their walls constitute perfectly available spaces, where the newly-formed tissue tends to develop at ease in the form of buds and *papillæ* which project more and more into their interior. In this respect these tumours may be compared with those which develop in other cavities of the economy, and which generally show also a tendency to assume this budding and papillary form. We know, indeed, the frequency of papillary growths in the bladder, in the rectum, in the mucous membrane of the mouth, tongue, larynx, &c. Here too the anatomical form is similar in every case, as is indicated by the generic term *polypi*, under which the greater part of these cases have long been confounded. A more exact examination has since proved that, in cases of that

kind, we may have to deal with tumours essentially different the one from the other.

Non-cancerous tumours of the breast generally present themselves under two leading forms. In the one, the tumour, generally small, is traversed by the narrow clefts we have described, but of true cystic cavities it presents few or none: in that case it turns out generally a fibroma of the breast, but occasionally also a sarcoma. This last fact explains the recurrence of tumours apparently benign, their growth becoming suddenly rapid, or yet again their supposed cancerous transformation. In a second form, cystic dilatations, often of considerable diameter, predominate (cysto-sarcomata); the tumour is usually large, it is accompanied sooner or later with ulceration, or rather perforation of the skin, through which a fleshy-looking granulation appears. These two forms are referable however to one fundamental type; they constitute a natural group of tumours, which, for the anatomist and the clinical worker (*clinicien*), deserve to be separated from cancer. Attentive observation of the stroma will also permit their being divided into a certain number of varieties, important to be distinguished from the double point of view of anatomical diagnosis and exact prognosis.

We have only had in view, in these observations, the *papillary* forms of the non-cancerous tumours of the breast, which are the most frequent. We know that they may assume another form, that of fibromata, sarcomata, and myxomata *en masse*. We have had no opportunity of observing them, and in regard to them we confine ourselves to this simple mention.

It will not be uninteresting to recall briefly the different phases through which the history of the variety of breast-tumours we are describing has passed. Sir Astley Cooper, first of all,* relying only upon observation of patients and examination of specimens with the unaided eye, knew how to distinguish from cancer of the breast certain tumours whose anatomical and clinical characters deserved the quali-

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* Cooper, A., "Illustrations of the Diseases of the Breast." Part I. London 1829. P. 20 *et seq.*

fying epithet of benign. He divided them into two classes: the first, which he denominated *hydatid disease of the breast*, comprised the diverse varieties of cystic disease of the breast. The second constituted in his view the type of a benign tumour—it is the *chronic mammary tumour;* it is generally developed between the ages of seventeen and thirty, its principal anatomical character is a multiplicity of lobules separated by clefts and depressions; this arrangement persisting whatever size the tumour may acquire.

The division of A. Cooper, based upon numerous observations, may, in its leading features, be preserved even at this day. Amongst non-cancerous tumours of the breast, some are chiefly remarkable for the large number of cysts which occupy them; others, approaching nearer in their aspect to the normal gland tissue, are only traversed by elongated cavities, many of which may elude a superficial examination. Astley Cooper did not see the relation which existed between these two groups of tumours, in appearance so different. Indeed, it could not be made out with the insufficient resources for the examination of tumours which were then at his disposal. The intervention of the microscope did not at first seem as if it would throw much light on the question. Yet it allowed Müller* to establish upon a definite basis the group of cysto-sarcomata. The hydatid disease of the breast of Astley Cooper comprised three varieties: simple cysts, compound cysts, and parasitic or hydatid cysts properly so-called. These last might be set aside on account of their extreme rarity; their altogether special characters evidently formed them into a distinct class. J. Müller brought together the two first varieties of Astley Cooper, and referred them to the same origin, by pointing out that simple cysts properly so-called were very rare, and that more frequently in cases of that kind we were dealing with cysts formed in a neoplastic tissue, cavities tunnelled in a sarcoma. These cysts too might be simple or compound, as had been admitted before him, or might assume a third form,

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* Müller, J., "Ueber den feineren Bau und die Formen der krankhaften Geschwülste." P. 56. Berlin, 1838.

which he carefully described, and denominated *cysto-sarcoma phyllodes ;* it was characterized by projections and numerous vegetations which pierced through into the cavities of the tumour.

Müller confirmed then the theory, already broached by Astley Cooper, that tumours, quite distinct from cancer, may be developed in the breast, composed of a special neoplastic tissue, equally distinct, too, from simple hypertrophy of the breast either partial or complete. The mistake of this writer was in not inquiring as to what part the gland might take in the constitution of the tumour, particularly in not seeing the relation which existed between the normal cavities of the former and the cystic cavities of the latter. He left quite unnoticed the tumours described by Astley Cooper as chronic mammary tumours, which might perhaps have enabled him to recognise this relationship.

In France, Lebert, Velpeau, Robin, and Broca fell into the opposite error. Searching under the microscope for characteristic elements in the pathological tissues that they examined, and finding in this group of breast tumours, evidently non-cancerous, only normal gland-elements, connective tissue, culs-de-sac, and epithelial cells—they were led to look upon these products only as more or less considerable modifications of the normal gland without true neoplasm. The names they gave to these tumours clearly indicate the idea they entertained as to their nature—partial hypertrophy of the breast (Lebert), adenoid tumours (Velpeau), adenomata (Broca). The views of these observers are too well known in France for it to be necessary to expound them at length. They will be found, moreover, very clearly and faithfully set forth by M. Broca in the article " Adénome," in the *Dictionnaire encyclopédique.* What they may be reproached with is, that they did not sufficiently take account of the modifications undergone by the intervesicular (*interacinaire*) tissue of the gland. That study would have enabled them to distinguish amongst the group of tumours, similar in appearance, which they united under the name of adenomata, varieties corresponding to the teachings of the bedside : they were not long, in fact, in noticing that in these reputedly benign

tumours, the prognosis was far from being always the same. Their merit is to have brought into prominence the important point which had escaped Müller, the recognition of the relation which existed between the pathological product and the normal gland, and especially between the cavities of the tumour and the normal hollow spaces of the breast. Lebert did not even go far enough in that direction. The closed cysts of that writer, since called by M. Broca glandular cysts, were the only ones formed, according to him, by the dilatation of the normal cavities of the gland. He did not recognise the same origin for those cysts which he named *lacuneux*, and which, he held, were tunnelled out in the fibrous framework of the breast.

We have seen above that in fresh specimens, examined immediately after removal, it was possible to show that these clefts or *lacunæ* were themselves derived from the gland-ducts.

Busch,* in Germany, had already established the reality of that fact by simple examination with the unaided eye. In a specimen that he had, he was able to pass a fine stylet into one of the lactiferous ducts in the neighbourhood of the nipple, and to reach the cystic spaces, large and small, of the tumour. By the same means Baur† has since arrived at the same conclusion.

We pass by the writings of Birkett,‡ Paget,§ Mettenheimer,‖ Schuh,¶ Rokitansky,** and Reinhardt,†† who did not materially advance the subject, and come immediately to those authors who, with regard to the anatomical diagnosis and hence also to the prognosis, attach more importance to

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* Busch, W., "Chirurgische Beobachtungen." Berlin, 1854. Pp. 84, 85.

† Baur, Reichert's und Du Bois-Reymond's "Archiv." Berlin, 1862. P. 169.

‡ Birkett, J., "Diseases of the Breast." London, 1850.

§ Paget, Sir J., "Lectures on Surgical Pathology." Third Edition. By W. Turner. London, 1870.

‖ Mettenheimer, "Beschreib. eines Cystosarcoma phyllodes." Müller's "Archiv," 1850.

¶ Schuh, F., "Erkenntniss der Pseudoplasmen." Wien, 1851. "Pathologie und Therapie der Pseudoplasmen." Wien, 1854.

** Rokitansky, C., "Lehrbuch der pathologische Anatomie." Dritte Auflage. Wien, 1861. Bd. iii. p. 527 *et seq.*; and "Wien. Sitzungs-Berichte," 1851.

†† Reinhardt, "Pathologisch-anatomische Untersuchungen." Berlin, 1852.

the study of the intervesicular tissue than to the alteration in form of the glandular portion of the breast properly so-called.

A first trace of the necessity of that distinction is found in a communication made to the Société anatomique by M. Verneuil, at a time when Lebert's views were yet in full favour. Giving the result of the microscopical examination of a tumour, he said,* "In the portions of the tumour which preserved a glandular appearance, the form of culs-de-sac is maintained, while the elements of the walls are altered and have been replaced by those of the fibro-plastic tissue. This remark is important with regard to the erroneous prognosis to which the purely glandular appearance of the tumour would have given rise; concerning himself only with the form, the surgeon might have fancied that he had only to do with a hypertrophic tumour, while in reality he was dealing with a fibro-plastic tumour, more liable to return." The indication there was correct and useful to be remembered, and it called for new investigations.

Billroth, first of all, in his well-known memoir,† gave us a collective account of non-cancerous breast-tumours from sundry remarkable points of view. The alterations in the gland-ducts are there laid down in all their details; according to him they are but accessory lesions, simple alterations in form, consecutive to the development of neoplastic products in the intermediate tissue; the dilatation and lengthening of these ducts explain the formation of the cysts and clefts which traverse these tumours. Billroth did not the less give them, on account of their external resemblance to the gland, the name of adenoid sarcomata, to distinguish, he said, this variety of sarcomata from sarcomata spoken of as fibrous, gelatinous, encephaloid, and medullary. Here, at any rate, was a mistake in words. Indeed, if these last forms of sarcomata constitute distinct varieties, the sarcomatous tissue in

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* Verneuil, "Bulletin Soc. anat.," 1858, p. 329.

† Billroth, T., "Untersuchungen über den feineren Bau und die Entwicklung der Brustdrüsen-Geschwülste." Virchow's "Archiv," Bd. xviii. Berlin, 1860. P. 51 *et seq.*

each of them has its special characters, resulting from modifications undergone in its intimate structure. The qualifying adjective, adenoid, has quite a different meaning ; it simply recalls the seat of the development of the neoplasm, and does not at all point out any special character of the pathological tissue properly so-called. The divers species, indeed, of sarcoma in general may be met with in sarcoma of the breast ; the distinction, such at least as Billroth meant, is then illusory.

The fundamental idea in Billroth's essay was nevertheless correct. It is quite as applicable to fibromata and myxomata, as to sarcomata of the breast. M. Ranvier long since upheld that opinion in sundry communications of the Société anatomique, and summarized by him in his "Manuel d'Histologie pathologique."* He it was who, more than any other in France, raised his voice against the old conception of adenomata of the breast, such as was held by Lebert, and the writers who succeeded him. His argument rested chiefly on the three following points :—the constant multiplication of glandular epithelial cells, with dilatation of the excretory ducts and acini, and various modifications of their contents, each time that a newly-formed product arises in the stroma of any gland, a fact which explains the considerable part which the gland appears to play in the structure of the tumour ; the absence, in tumours which have recurred, of hypertrophic glandular portions which in the original tumour passed for the characteristic alterations, and which established unanswerably that we must seek further, to wit, in the intervesicular tissue, for the elements of the anatomical diagnosis of these tumours ; lastly, the exact definition of true adenoma, which necessarily led to a mind open to the recognition of its extreme rarity.

Virchow, at the same time, in Germany, came by a different route to analogous conclusions. Thus, in his treatise on tumours, as in the work of MM. Cornil and Ranvier, it is no longer a question of adenoid tumours or adeno-sarcomata

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* Cornil, G., et Ranvier, L., "Manuel d'Histologie pathologique," 1re partie. Paris, 1869. P. 94.

of the breast, but only of sarcomata, fibromata, myxomata of the breast, whose investigation only comprises one special branch of the investigation of sarcomata, fibromata, and myxomata in general.

We shall notice, in conclusion, two publications devoted to this subject, both of quite recent date.

The first is an inaugural thesis at Zürich, in 1871. The author, M. v. Wyss,* furnishes an interesting and very complete study of non-cancerous tumours of the breast; relying upon some personal observations, he sets forth the whole anatomical and clinical history. For the rest he adopts altogether the views previously announced by Billroth and Virchow.

M. Cadiat,† in a very elaborate memoir, looks at the subject from quite a different stand-point. Accepting the views of Velpeau, Lebert, and Robin, he sets himself to prove their truth by new arguments, into the *minutiæ* of which we cannot enter.

We shall content ourselves with producing the leading conclusions of the author; it will be seen to what extent they differ from our own. According to him, indeed, "Adenoma with multiple forms is the most common breast-tumour . . . it begets the cystic tumour, whence are derived the cysto-sarcoma, and even the tumour called sarcoma. . . . Almost every tumour of the breast is composed of a mixture of a glandular element with a fibro-plastic element. This glandular element, which always precedes the other in development, and which is always found with all its varieties in the very midst of the fibro-plastic tissue which surrounds and invades it, may be regarded as the fundamental element of mammary tumours; it may be said that it is that which is their characteristic. They are then essentially glandular."

We have set forth, in the foregoing pages, the reasons which hinder us from adopting that view.

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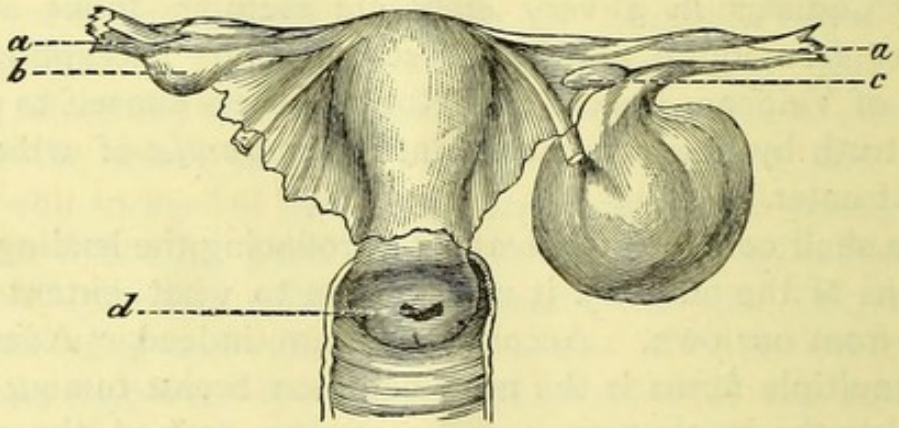
* Wyss, H. v., "Beitrag zur Kenntniss der Brustdrüsen Geschwülste." Diss. Zürich, 1871.

† Cadiat, 'Du développement des tumeurs cystiques du sein.' "Journ. de l'Anatomie et de la Physiologie." Par C. Robin. No. 2, 1874. Paris. P. 183.

OVARIAN CYST IN AN INFANT NEWLY BORN.

ON the 24th January, 1874, I was called upon to make a post-mortem examination of the body of a newly-born female child, whose mother was a domestic servant, and was to be taken into custody on a charge of concealment of birth.



OVARIAN CYST IN AN INFANT NEWLY BORN.

a a. Fallopian tubes. *b*. Right ovary.
c. Left ovary, with cyst attached. (The cyst is turned downwards in the drawing to display the ovary.)
d. Os uteri.

The body was that of a well-nourished infant, at or near the full term. There were no marks of violence. The cord had been torn across at a distance of about an inch from its termination in the child's body, and at the line of junction with the body there was another rent partially detaching it. The lungs had not been fully inflated, but portions floated freely on water; and as delivery was accomplished without assistance, and the child received into a pot de chambre and left there without any tendance, it is probable that the cause of death was suffocation. The post-mortem examination, however, proved to be of considerable scientific, if not of very great forensic interest. On examining the interior

of the abdomen, I noticed a cyst in the left iliac region, which led me to remove the genital apparatus entire, and hand it over for minute investigation to my friend Dr. Julius Dreschfeld, assistant-physician to the Manchester Royal Infirmary, whose elaborate and careful report I have the privilege of appending :—

Report by Dr. Dreschfeld.—"The parts submitted to me for examination consisted of the sexual organs of a newly-born female child, and appeared healthy and normal, except the left ovary, which only measured 4 mm. in length, and appeared as an appendage to a cystic growth, of the size of a large cherry, springing from the internal border of that ovary. The length of the anterior surface of the uterus was 24 mm., its cavity measured 20 mm., and the fundus had a width of 12 mm. The length of the right Fallopian tube was 20 mm., and that of the left 21. The right ovary measured 14 mm., and had a width of 3 mm., while the left ovary was only 4 mm. long, From the junction of the upper with the inner border of the left ovary sprang the cystic growth before mentioned, measuring 48 mm. in circumference taken in a vertical plane, and 40 mm. in circumference in the horizontal plane. The cyst was unilocular, of a globular form, of smooth exterior, and semi-transparent. It was connected with the left ovary and broad ligament by a somewhat flattened base, measuring 6 mm., passing thence through a somewhat narrower neck into the general body of the cyst. It was covered in its entirety by peritoneum, and blood-vessels were seen passing along its walls.

"With the view of disturbing the parts as little as possible, a few drops of the contents were drawn off by a subcutaneous injection syringe and examined. The drops thus removed consisted of a thin, reddish, serum-like fluid, of slightly alkaline reaction, not coagulable spontaneously, but coagulating on the application of heat. The microscopical examination revealed the presence of a quantity of granular matter, free nuclei, lymphoid cells with granular contents and large nuclei, and a large number of cylinder-cells with a somewhat pointed base. Some of these cylindrical cells contained granular matter, in some places semi-transparent

and in others dark. They all contained a well-formed large nucleus, lying mostly near their broad free border. A thin section of the left ovary showed it to be of normal structure, containing in its stroma well-formed ovisacs (Pflüger's tubes). Between the upper border of the ovary and the Fallopian tube a number of small tubes with club-shaped extremities were seen, evidently the remains of the Wolffian bodies. Thus the contents of the cyst, as well as its situation, point to the conclusion that it is ovarian, and that it had for its centre of formation a Graafian follicle."