Adenoma of the breast in childhood / by R. Glasgow Patteson.

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kind regards

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ADENOMA OF THE BREAST IN CHILDHOOD.

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(Plate XII.)

The occurrence of adenoma—or "glandular tumour"—of the breast below the age of puberty is one of such rarity, if, indeed, it is not unique in pathological record, that no apology is needed for describing in some detail two cases which have recently come under my observation.

The first occurred in the practice of my colleague, Mr M'Ardle, and to his kindness I am indebted for the opportunity of examining it and determining its histological character. The girl, who was just 13 years of age, was sent up to St Vincent's Hospital from the south of Ireland last October, supposed to be suffering from chronic abscess in the left breast. In the absence of Mr M'Ardle she first came under my notice, and it was at once evident that we had to deal with a solid growth and not with an abscess. There was a history of a fall and injury to the breast about a year previously, and to this the growth was supposed to be due; at any rate, it was first noticed one or two months after the accident. It had gone on slowly increasing in size, absolutely without pain, tenderness, or any other symptom. The child's general health was excellent, and she looked well and was well nourished. There was no history of a tubercular tendency obtainable. There was commencing development of the normal gland, which was freely movable over the growth. The tumour was about the size of an almond, irregularly oval in shape, and indistinctly lobulated in outline; it was freely movable over the underlying tissues, quite painless to pressure and gave a sense of elasticity, though not of fluctuation, to the touch. Considerable doubt was expressed as to its nature. The age of the patient precluded, it was thought, an adenomatous growth; and it was regarded as most probably of a sarcomatous or of a chronic inflammatory nature. It was removed by Mr M'Ardle, who kindly put it at my disposal

for examination. As it was immediately placed in strong alcohol, no opportunity was afforded me of observing its naked-eye characters.

In the hardened condition it measured 28 mm. in length, 17 mm. in width, and 9 mm. in depth—all outside measurements. It cut somewhat toughly with a firm and uniformly white surface. On examining sections under the microscope, it was found that the greater portion of the growth consisted of a dense fibrous tissue arranged in wavy parallel bundles, and for the main part but sparsely cellular in type. Scattered through this fibrous stroma were numerous groups of glandular acini, some small and round, others large and irregular in shape, which for the most part showed a distinct lumen, and were everywhere sharply defined from the surrounding fibrous stroma by a well-marked basement membrane. They were lined with a simple, or in places compound, columnar or cubical epithelium. Many of the acini had undergone a certain amount of distension, or of "cystic degeneration," and in these many papillary ingrowths projected into the lumen of the tube, giving rise to a sinuous and irregular outline. Many, again, had the lumen obliterated by the actively proliferating and degenerating epithelium, which had here lost its columnar character, except in those cells immediately adjoining the basement membrane. The varying appearances are well seen in the section from which fig. 1, Pl. xii., was drawn. It will be observed in this, that in the immediate neighbourhood of the acini the fibrous tissue is more cellular and less wavy in type.

The second case was that of a child aged 12 years and 9 months, who was brought to St Vincent's out-patient department towards the end of January. She was suffering from a lump in the right breast, and gave the following history:— Three months previously the mother noticed a small "kernel," which was painless, and after a little time apparently went away. About a month later it was again noticed, this time giving rise to pain, and it was also found to be gradually getting larger, until at the end of nearly two months it had attained the size, and very much the shape, of a small fig. There was no trace of mammary development. The growth was seated right below the nipple, which apparently was freely movable over it, as likewise

was the growth over the underlying tissues. It was slightly irregular in outline, giving the sensation of lobulation, and was very tender and sensitive on handling—even the rubbing of the clothes causing pain. It was not continuously painful, but the pain came in darts, and was said to be worse at night, though this statement was afterwards varied. Otherwise the child's health was good, and except for this painfulness, which exactly resembled the so-called "neuralgia of the breast," so often associated with these tumours in young and nervous women, she suffered no inconvenience. However, on account of this, and as the growth was increasing, I recommended its removal, regarding it from the experience gained in the previous case, and the exact identity of the clinical features (except the pain), as another example of adenomatous growth. Accordingly, on the 28th January, I removed the tumour by a small semilunar incision about half an inch below the margin of the areola. The tumour was definitely encapsuled and was freely detachable underneath, but in front and above the capsule was adherent to the skin, so that at the upper limit, about an inch above the nipple, a small elliptical piece of skin had to be removed in order to ensure the complete removal of the growth. The wound united throughout by first intention, and the child was going about at the end of a week.

On making a section of the fresh tumour, which measured 35 mm. in length, 27 mm. in breadth, and 13 mm. in depth—all extreme measurements—the cut surface presented a peculiar, pearly-white, in parts almost translucent, appearance, as if composed of a collection of half-boiled grains of sago—in each a dull opaque whitish centre, with a clear greyish translucent halo round it. It was quite soft on cutting into it, and exuded a clear mucinoid juice. On examining sections under the microscope, it was found to resemble very closely in its general features the growth described above. The fibrous inter-acinous stroma was, however, finer and more delicate in texture, and was composed of slender interlacing bundles of connective tissue, between which lay long flattened nuclei. These were few in number, except in the neighbourhood of the acini, where in many parts a distinct small-celled infiltration had occurred. The general features are well shown in fig. 2. Under a higher power it was

seen that in many of the larger acini, active cell-proliferation was going on, taking in many cases the form of epithelial ingrowths. These, it could be seen, consisted at first merely of a heaping up and protrusion into the lumen of the growing lining epithelium, which at the same time lost, except near the basement membrane, its columnar type. In a more advanced stage it was seen that a fine core of delicate connective tissue was now projected into the mass of proliferating cells, thus forming a distinct papillary ingrowth, so that the lumen of some of these distended acini was almost obliterated by the intra-acinous growths. These stages of formation are illustrated in fig. 3. The drawing also shows in the neighbourhood of the acini the more cellular type of the stroma and the small-celled infiltration which surrounded many of them. These cells were embryonic in type, and were either proliferating tissue cells or an exudation from the blood-vessels. I incline to the former view, although in some places they seemed to bear a definite relation to the vessels, as in fig. 3; but in no place were they sufficiently numerous to justify the view that any sarcomatous development was in process. Further, in no place could the evident epithelial proliferation be found to transgress the limits of the basement membrane, it was always intra-acinous, so that in no part did the growth show the characters of an infiltrating, or "destructive" (*destruirendes*) adenoma.

Based on their microscopic characters therefore, from the relative amount of fibrous stroma and glandular tissue, these tumours must be classed as fibro-adenomata. They differ from the *true* or simple adenoma met with in the breast and represented in fig. 4, by the relatively greater proportion of fibrous to glandular tissue, and also by the character of the inter-acinous stroma. This in the true adenoma is an excessively delicate tissue composed of a network of branching, stellate cells, and of cells with oval, vesicular nuclei lying between these fine fibres. In this pure form, adenoma is one of the rarest of breast tumours, the majority of cases conforming to a fibro-adenomatous type.[1] The two growths which are recorded above are interesting again

[1] The tumour represented in fig. 5 was removed from the breast of a young unmarried girl. It is the only example of pure adenoma of the breast I have met with.

as presenting an intermediate stage between the simple adenoma and the proliferating cystic adenoma which occurs in the breast, but is more commonly met with in the ovary. I have given a drawing of this condition for comparison in fig. 5. It was removed from the breast of a woman aged 50. Here with marked dilatation of the acini and secondary disappearance of the intervening stroma, we have well-marked papillary intra-cystic growths, such as are so frequent in the cystadenoma papilliferum of the ovary. But the sequence shown in these drawings proves most conclusively the identity of the process, and is most instructive in the light it throws on the successive stages. As long as the epithelial proliferation remains *intra-cystic*, we have the comparatively benign proliferating cystic adenoma; but, if the epithelial development becomes *extra-cystic*, and crossing the basement membrane runs riot in the inter-acinous stroma, then we have, on the other hand, the infiltrating adenoma, or early stage of the adeno-carcinoma, with its rapid local malignancy and distant metastatic deposits.

The rarity of such adenomatous tumours even in early adult life is well recognised. Gross analyses 23 examples of these growths: only 4 occurred between the tenth and the twentieth year; 6 between the twentieth and thirtieth, a proportion which holds almost constant up to the fiftieth year, after which age only two cases are included. "Of the entire number not a single one occurred before the sixteenth year, or during the developmental state of the mamma; 16, or 69·5 per cent., appeared previous to the fortieth year, or during the period of the greatest functional activity of the breast."[1] Of 55 cases observed by Velpeau, only 8 occurred between the ages of 15 and 20, and not a single one before the fifteenth year; and of 130 other cases collected by him, 35 occurred between the ages of 15 and 30, but, again, none earlier than the fifteenth year.[2] "These '*adeno-fibromata*,'" writes Mr Bryant, "are found, as a rule, in the young and unmarried, and in the apparently healthy and robust. . . . . In women the majority of these

[1] Gross, art. "Tumours of the Breast," *Amer. Syst. of Gynecol. and Obstet.*, vol. ii. p. 266, Edinburgh, 1888.

[2] *Nouv. Dict. de Méd. et de Chir. Prat.*, tome xxi., art. "Mamelles," Paris, 1875.

cases begin to grow, or are first discovered, between the ages of 21 and 30, although, as shown by my table, almost as many begin in younger people, at or after puberty; at later periods of life they less frequently originate, although they may be frequently found to exist in them."[1] Mr Bryant gives the results of "100 cases consecutively observed, seen, and analysed," and of these "27 cases were first discovered between puberty and the age of 20, that is, during the developmental stage of the breast's life;" but not one of these cases occurred under puberty, and no mention is made of any such case being on record. Indeed, it would appear from the literature of the subject that *a growth of any kind in the breast before its period of development or of functional activity has been hitherto undescribed.* Sir James Paget writing of "mammary glandular tumours" and their rate of growth, says:—"One was removed from a woman twenty-seven years old; it was observed for fourteen years, and in all that time it scarcely enlarged; yet after this it grew so rapidly, that in six months it was thought imprudent to delay the removal."[2] This, if the dates are reliable, would place its development from the fourteenth year, and is the earliest example I can find recorded.

One point of peculiar interest in my second case is the entire absence of any trace of glandular development on the healthy side. But that an adenoma should occur before the secreting tissue of the breast has shown signs of development is, however, no more remarkable than that such a growth should form after the gland has ceased to be functionally active, and has under natural conditions undergone fibrous atrophy. Yet Velpeau records a case occurring in a woman aged 85! The occurrence of these tumours at the extremes of life must therefore, I think, be explained by a common theory; and to such a theory a leading pathologist has already given expression. Writing of the occurrence of adenomata in general, and the absence of any special age liability—in so far as such growths have been observed to occur congenitally or in the earliest years of life as well as in extreme old age—Birch-Hirschfeld remarks:—"It is, however, probable that those glandular tumours which

[1] *Diseases of the Breast*, p. 102, London, 1887.

[2] *Lectures on Surg. Pathology*, 4th ed., p. 560, London, 1876.

first become apparent in later life are in reality the outcome of embryonic rudiments."[1] Whatever light the future may throw on the origin of heteroblastic growths at all periods of life, we must be content for the present to let the question lie enveloped in the same darkness that surrounds many other problems of the pathology of to-day, if we decline to accept the only alternative—the theory of "embryonic rudiments."

[1] Eulenburg's *Real-Encyclopädie der gesam. Heilkunde*, vol. i., art. "Adenom."

Fig. 1.

Fig. 2.

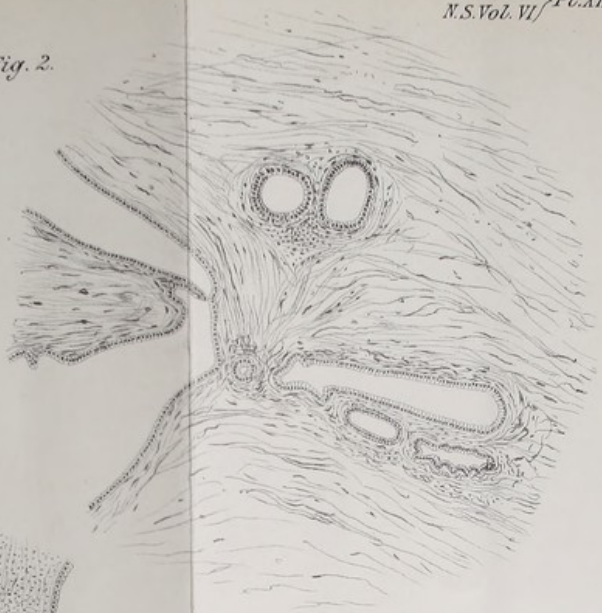


Fig. 5.

Fig. 3.

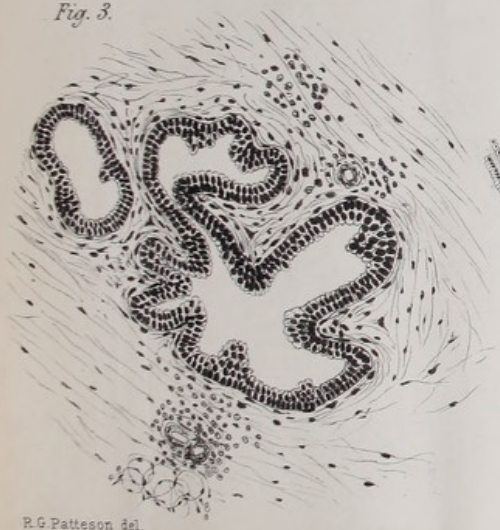
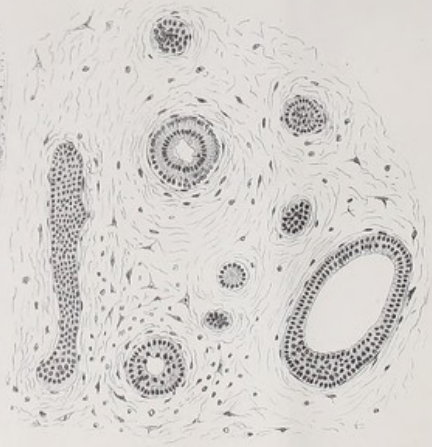


Fig. 4.



R.G. Patteson del.

ADENOMA OF BREAST.

F. Huth, Lith^r Edin^r