Infantile Breast Tissue.*

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THE process of development of the infantile breast is a subject which can be easily studied. The material on which this article is based was obtained from infants still-born in Queen Charlotte's Lying-in Hospital. The drawings practically tell their own story, and but few words are needed in explanation of them. The process of development does not run the same course in all cases, and in the early stages the question of sex does not appear to exert the powerful influence which it does at the time of the development of secondary sexual characteristics. In a large child with abundance of subcutaneous fat the breasts are usually well developed irrespective of sex. The breast tissue can be distinctly felt as a solid mass lying below the primary areola, and on squeezing it a fluid which, on microscopic examination, is indistinguishable from milk, can be expressed. If the breast be a large one and a vertical incision be made over it, one sees a flattish cone-shaped mass of deep red tissue embedded in the pale surrounding fat. This mass of tissue has a very definite capsule, and at its base may measure as much as an inch in diameter, the apex of the cone being immediately below the areola. Sometimes the breast is represented by a small pea-like nodule of deep red tissue, and in other cases it is hardly developed at all.

Figure 1 was drawn from a specimen in which the foetus was about twenty-six weeks old. There is a little subcutaneous fat beneath a layer of gelatinous connective tissue, upon which lies a single layer of epithelial cells representing the skin. In the region of the breast there is a slight condensation of the connective tissue, into which buds of epithelial cells are seen descending; some have been cut off and have become canalized, forming the primitive alveoli. The other skin glands develop in precisely the same way.

Figure 2 was taken from a foetus of about thirty-two weeks' gestation; in it the same process of epithelial down-growth is seen, and in this case an epidermis had developed.

A further stage in the development of the glandular tubes is seen in Figure 3, showing a solid column of cells in which lines of cleavage are developing, and at one side the commencement of a distinct basement membrane can be seen.

Figure 4 is probably an earlier stage taking place in a less active breast. The hollow columns of epithelial cells are here wholly

* From the Pathological Laboratory of Queen Charlotte's Hospital.

innocent of any attempt at a basement membrane marking them off from the surrounding connective tissue, but one can notice in this and some of the other specimens a certain amount of small-celled infiltration round the alveoli. It is possible that the basement membrane is developed from these small round cells. In the alveoli there are small masses of dead epithelial cells. The remaining specimens were all taken from full-time male infants. In Figure 5 large irregularly-shaped alveoli are seen lined by a single layer of epithelial cells and containing masses of broken-down cells. The specimen from which Figure 6 was drawn is unique as far as the author has seen in that many of the alveoli are lined by goblet cells. The drawing also shows several vessels full of blood, and some small-celled infiltration around the alveoli. Figure 6a is a drawing of the same specimen taken under a high power. It would be difficult to believe that the irregularity and the large size of the alveoli are not outside the bounds of physiological development, were it not for the fact that these features are so constant in their appearance. But it is hardly possible that the breast of which Figure 7 is a sketch is not in a pathological state. Microscopically, however, the tissue differs in no essential feature from the foregoing examples, Figure 8 showing the same but larger cystic-like spaces lined by epithelial cells.

It has been thought that the activity of the infantile breast is brought about by the presence in the foetal circulation of the same body which acts as the physiological stimulus to the mother's breasts. Starling and Lane-Clayton have shown that the origin of this body probably lies within the foetus itself, and in this way a very plausible explanation of the somewhat exaggerated activity of the infantile breast is arrived at. In a question of this kind it is difficult to obtain more definite evidence than that derived from a general impression from clinical observation, but the author is trying to collect information as to whether the mother is always a successful nurse in cases where the infant's breasts also secrete. He has not been able to make out any definite connexion between the not uncommon blood-stained vaginal discharge of female infants and activity of the breasts.

The beautiful drawings to which these few words may serve as an explanation were kindly made for the author by an artist who had never seen anything of the sort before, and who had never previously looked down a microscope. They may therefore be taken as representing the actual specimens, without being in any way diagrammatic.

FIG. V.

FIG. VI.

FIG. VI_A.

FIG. VII.

FIG. VIII.