Missouri Branch.

November 27, 1928.

4235

Auto and Homoiotransplantation of Thyroid Gland into Brain of Guinea Pigs.

W. J. SIEBERT.

From the Department of Pathology, Washington University School of Medicine, St. Louis, Mo.

Shirai[1] and subsequently Murphy[2] have shown that it is possible to transplant successfully heterogenous tumors into the brain where they grow when after subcutaneous transplantation these transplants would have died. Murphy found the lymphocytic reaction in the brain to be lacking and he attributed the success in heterotransplantations to this factor. In the present investigations I determined how normal tissues (thyroid gland) behaved not after heterotransplantation in the brain but after homoiotransplantation, and whether the lymphocytic and connective reactions which are usually very pronounced after transplantation into the subcutaneous tissue were affected by the change in the site of the transplant. We used guinea pigs in these experiments; the transplants were allowed to remain in the host for periods varying between 20 and 120 days. I also compared the results of homoiotransplantation with those of autotransplantation.

I found that autotransplants of the thyroid gland, removed at a period varying between 60 to 120 days following transplantation, had assumed approximately the character of normal untransplanted thyroid gland. There is only the normal amount of stroma present and lymphocytes are lacking. A thin connective tissue capsule may separate the transplant from the surrounding brain tissue in which a slight increase of glia is noticeable.

Homoiotransplants removed at corresponding periods also show living thyroid tissue and in particular a number of well preserved

[1] Shirai, Y., *Japan Med. World*, 1921, i, 14.

[2] Murphy, James B., *Monographs of the Rockefeller Institute*, 1926, No. 21.

acini; however, some important differences exist between such homoiotransplants and autotransplants. In the former the preserved tissue is much smaller in amount than in autotransplants; furthermore, in the homoiotransplants the acini are more irregular in shape and size and only some of them contain colloid. The gland tissue is traversed by thick bands of dense fibrous tissue which radiate from a central core of hyaline connective tissue. The lymphocytic reaction is not pronounced, but lymphocytes in varying numbers are seen throughout the tissue and also in the surrounding host tissue. There is a marked increase in glia tissue about the transplant. At earlier periods (20-30 days) after transplantation the autotransplants appear quite similar to those seen at the later periods except that there is slightly more connective tissue present. On the other hand, the homoiotransplants in the majority of cases consist of a mass of dense hyaline connective tissue at the periphery of which a few small acini are seen; occasionally these acini contain colloid. While lymphocytes are scattered through the transplanted tissue and are also seen in the surrounding brain tissue, the lymphocytic reaction on the whole is much less pronounced than after transplantation into subcutaneous pockets.

We may then conclude that after homoiotransplantation in the brain the thyroid of the guinea pig may be found alive at periods, when after transplantation into the subcutaneous tissue it has been killed mainly through the activity of the host connective tissue and lymphocytes; but that even after transplantation in the brain the result is inferior to that obtained in autotransplantation. Furthermore, we may conclude that, whereas the lymphocytic reaction is diminished in the brain, the connective tissue reaction is at least as pronounced in this case as after transplantation into the subcutaneous tissue. It seems that at later periods a moderate new formation of acini takes place in the homoiotransplant of thyroid tissue in the brain.