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Many human tumors of various kinds can be successfully transplanted into nude mice [1, 2]. However, several human tumors have not been transplanted into nude mice. In some cases the reason may be the hormone-dependence of the transplanted tumor. This paper describes an investigation to show that changes in the hormonal status (pregnancy) of an animal can lead to successful transplantation of a cervical carcinoma into nude mice.

EXPERIMENTAL METHOD

Nude mice based on the BALB/c line, bred by ourselves and aged 4-8 weeks, were used in the experiments. Material for transplantation was taken from the main tumor at biopsy and

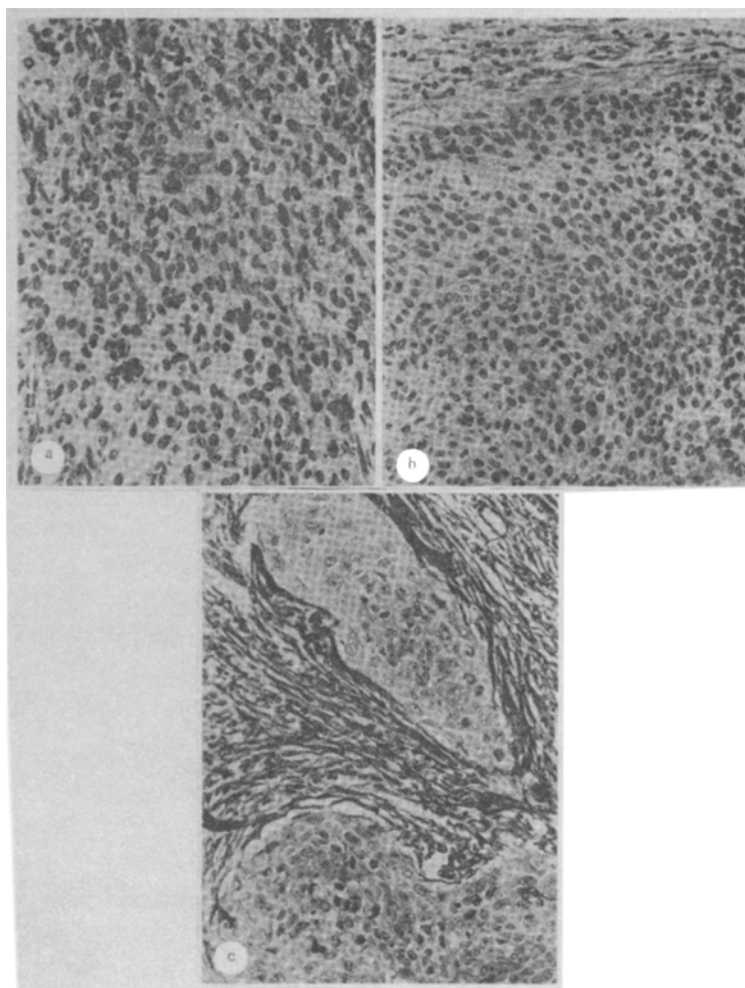


Fig. 1. Squamous-cell nonkeratinizing carcinoma of the cervix uteri: a) material obtained at biopsy; b, c) transplant of tumor CCU-5 into nude mice (fifth passage). a, b) Stained with hematoxylin and eosin. 250 \times ; c) PAS reaction. 150 \times .

was injected 5-8 min later in fragments subcutaneously into nude mice. During subsequent serial transplantations, 0.5 ml of cell suspension (one part of minced tumor to three parts of Hanks's solution) was injected subcutaneously. Pieces from the primary tumor and also from transplants growing in nude mice were fixed in Carnoy's fluid and embedded in paraffin wax. Sections cut through the tumors to a thickness of 5-7 μ were stained with hematoxylin and eosin. The PAS reaction also was carried out.

EXPERIMENTAL RESULTS

Biopsy material from six patients with cervical carcinoma was transplanted into nude mice. All the tumors were squamous-cell carcinomas. Transplantation of five tumors was unsuccessful. The sixth tumor was transplanted into two females, one of which was pregnant. The tumor grew only in the pregnant mouse. This tumor was subjected to serial transplantation four times into pregnant females. After the fifth passage the tumor began to grow in nonpregnant females. By now this tumor has undergone 10 passages. The transplantability of the tumor is 100% and the rate of its growth has increased. The weight of the tumor 1 week after transplantation is 0.5 g, rising to 1.5 g after 2 weeks. The tumor after serial passage through nude mice, is completely identical with the material removed at operation (Fig. 1a), and is a squamous-cell nonkeratinizing carcinoma (Fig. 1b, c).

Growth of tumors of cervical carcinoma CCU-5 was observed at the first passages only in pregnant nude mice. The explanation of this fact may be that during pregnancy the blood estrogen level is raised, and this probably stimulates growth of the CCU-5 tumor. This approach, namely modification of the hormonal status, can be used during transplantation of hormone-dependent human tumors into nude mice.

LITERATURE CITED

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