The purpose of this paper is to review work which was begun in 1929 and is still in progress on a material obtained from the Brown-Pearce carcinoma of the rabbit (1-20, 22). This material, when injected into rabbits, increases the size of the growth of the transplanted tumor and increases the number and size of its metastases.

By September, 1939 some 1500 rabbits and some 800 mice had been used. In each experiment particular care was taken to control such variables as health, housing, breeding, age, sex, diet, weight, season, and inoculum. Post-mortem examination was made of every animal, and in each of the rabbits some 50 areas of the body were examined. Methods have been developed for bio-assay of the material, and all results have been analyzed through the use of standard biometric procedures.

In most of the experiments slowly frozen and anaerobically preserved metastases or primary growths of the Brown-Pearce tumor were emulsified in normal saline solution. A single injection of 0.3 cc. of the emulsion, containing from 0.0001-0.1 gm. of the original tumor, was made intracutaneously or intratesticularly into rabbits 2 weeks before transplantation of the neoplasm. This treatment resulted in increased incidence, greater number, and larger volume of metastases, in an increased mortality, and in a decreased survival period.

In the course of the experiments it was shown that the material responsible for the phenomenon, sometimes called "xyz" factor, is filtrable through a Berkefeld V candle, withstands drying, is thermolabile (56° C.), can be preserved for some months, and differs from the spreading factor of Duran-Reynals. It was always present in the Brown-Pearce tumor and consistently influenced the growth and spread of this particular strain of malignant cells in vivo. It did not affect the growth or spread of Bashford carcinoma 63 or sarcoma 180 in the mouse. Similarly prepared and administered extracts of normal rabbit testicle and of certain mouse tumors did not affect the malignancy of the Brown-Pearce tumor. Experiments completed up to this time with an homologous material prepared in the usual manner from a transplantable adenocarcinoma of the rabbit (23, 24) have not revealed any evidence of action on the malignancy of the Brown-Pearce tumor (21).

Single and repeated injections of the Brown-Pearce tumor material did not induce visible local or general reactions in the rabbit. It did not affect the relative distribution of metastases. The effect could not be explained on the basis of an altered hemocytologic constitution shown to be important in the natural resistance of the rabbit to this tumor (8).

Injection of the material 2 weeks before, on the day of, or 2 weeks after the inoculation of the tumor resulted in an increased spread of metastases. Only the first of these injections was adopted as a part of the method of bio-assay of the material. It was shown that the material is present in fresh tumor tissue which has not been frozen. Injection of the material cannot be said to have produced any selective injury to various organs and tissues which was not produced by the injection of the tumor alone, the relative distribution of metastases being the same.

In conclusion, it should be emphasized that no other material has thus far been described which is uniformly recoverable from metastases and primary growths of a mammalian tumor, and which exerts a measurable specific and homologous stimulation of the growth and spread of the same mammalian tumor in vivo but has no such effect on any other tumor thus far tested. Similarly prepared and administered materials from certain other tumors of the mouse, the rabbit, and man have not produced a demonstrable augmentation of the malignancy of the Brown-Pearce tumor.

REFERENCES

Material from the Brown-Pearce Tumor


Experiments with a Material from the Brown-Pearce Tumor
Albert E. Casey

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