

In the case of one artery and one vein, an ordinary occluding ligature was first tied about the vessel, after which a transverse suture was introduced about one centimeter on each side of the ligature. The results in these cases did not materially differ from those observed on the non-occluded vessels. No marked differences were observed with different kinds or sizes of sutures.

Microscopical results, particularly as regards the character of the deposit on the foreign surfaces and the presence or absence of intimal covering, will be reported later.

13 (632)

On tumor-immunity in rats (with demonstrations).

By **RICHARD WEIL.**

[From the Department of Experimental Therapeutics, Cornell University Medical School, New York City.]

It is the intention of the present paper to summarize briefly experiments bearing on the problem of the acquired immunity of rats to the implantation of tumors. In rats, as indeed in practically all the other species of animals in which similar experiments have been practicable, it has been found that the absorption of an implanted tumor is succeeded by a period during which the animal is refractory to further implantations. The same refractory condition can be induced by the injection of tumor autolysates (Levin), or by the injection of suspensions of normal tissue, or even of blood. The relative specificity and effectiveness of these procedures vary in their details; the underlying principle has been thought to be the same throughout.

In a series of experiments with the Flexner-Jobling rat tumor, I have observed certain phenomena which seem in a measure to support the belief that the mechanism of immunity to the tumor is identical in its biological manifestations with that found in infectious disease, and is therefore mediated by immune substances carried by the serum. These observations may be summarized as follows:

1. Inoculation of the Flexner-Jobling adeno-carcinoma into normals rats is not followed by any macroscopic evidence of

inflammation or reaction, if the grafts are made from a small, non-necrotic tumor.

2. Rats specifically immunized to the Flexner-Jobling adenocarcinoma respond to an implantation by an intense local inflammatory reaction, often with necrosis.

3. Animals bearing necrotic tumors present this reaction on reinoculation.

4. After removal of the necrotic tumor, the animal still reacts to reimplantation by local inflammation.

These phenomena seem analogous to those instances of local anaphylaxis known as the "Arthus" phenomenon in rabbits, and to the local allergic reactions described in human beings by Pirquet. Until the possibility of a reaction to a complicating infection of the tumor can be excluded (as suggested by Apolant of Yamanouchi's experiments), this interpretation must be considered provisional.

In the sarcomata of rats, it has not been possible to elicit these phenomena.