

## A new occluding device for producing Goldblatt hypertension in the rat

The advantages and disadvantages of several modifications of the original Wilson & Byrom (1939) technique for producing Goldblatt renal hypertension in the rat have been described (Schaffenburg, 1959; Leenen & de Jong, 1971; Brooks, Brown & Muirhead, 1972; Burns & Robbins, 1972). A simple and efficient means of partially constricting the renal artery in rats has been developed in our laboratory. For this purpose we have employed a Hemoclip Applier with its fitted tantalum clips (Edward Weck Co. Long Island City, New York model number 523140 and 523135). This instrument has been used for a wide range of clinical procedures necessitating vessel ligation (Samuels, Roedling & others, 1966).

By modifying the Hemoclip Applier in a similar manner to that used by Schaffenburg (1959) to modify his needle holder, we were able to provide a standardized occlusion of a renal artery for the production of a stable hypertension in the rat. The instrument was fitted with a number 440 brass machine screw and locking nut 0.5 cm from the hinge such that the degree of closure of the instrument could be adjusted. The screw was adjusted until the degree of clip closure was set at 0.2 mm internal diameter, the degree of constriction noted by Leenen & de Jong (1971) to produce a predictable hypertension. This calibration was performed by closing a clip around a piece of number 32 enameled copper wire having a known diameter of 0.2 mm, and tightening the locking nut.

The animals were anaesthetized with ether, and via a left lateral incision, the clip was placed around the left renal artery in a similar manner to that described by Wilson & Byrom (1939). Utilizing this instrument, we were able to produce a stable hypertension, i.e. systolic blood pressure greater than 150 mm Hg determined plethysmographically in the conscious rat via the tail artery, in both the so-called "two kidney" (renal artery clipped, contralateral kidney untouched) and "one kidney" (renal artery clipped with contralateral nephrectomy) Goldblatt models. In our most recent study, the incidence of hypertension in both models was 94% (n = 36). If desired, the occlusion may be released by reopening the incision under anaesthesia, grasping the two tips of the clip with two curved mosquito haemostats, and spreading them apart.

We feel that the desirable features of this method include the simple modification of the commercially available instrument; the reliable standardization of occlusion; and the tantalum clip being closed at both ends precludes its slipping from the artery. The ease of application also permits large numbers of animals to be prepared in a minimal amount of time.

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Hemoclip is a registered trade mark.