

10108 P

Abnormalities of the Urinary Tract in "Essential Hypertension."

HENRY A. SCHROEDER AND J. MURRAY STEELE.

From the Hospital of the Rockefeller Institute for Medical Research, New York.

This communication is the first of a series in which will be described the situation and the course of events in a group of patients suffering from so-called "essential hypertension." Because of recent interest in the relation of the structure and function of the kidneys to arterial hypertension, both experimental¹ and clinical^{2, 3, 4} special studies by a number of methods are being made of the kidneys of patients in whom the diagnosis of "essential hypertension" has been made. One of the methods utilized involves taking X-ray photographs of the kidneys after the intravenous injection of diodrast (3.5 diiodo-4-pyridon-N-acetic acid diethanolamine). This report deals with the results of a study by this method of 71 patients.

The ingestion of fluids was restricted for a period of 36 hours. The night before the examination a mild cathartic was administered. Twenty cc of diodrast was slowly injected intravenously, and X-ray photographs made of the abdomen 5 minutes and 15 minutes after the end of the injection. The patient was then instructed to drink water until urine was passed, and photographs were taken periodically until the renal pelves appeared clear of the injected substance.

The cases of "essential hypertension" were selected for the most part only in that they were relatively young, and that diminution in renal function as measured by the ability of the kidneys to concentrate urine and the standard urea clearance (Van Slyke) had not occurred. The oldest patient was 62, the youngest, 18. The average age at onset of hypertension was 29. An occasional patient was selected because of a history suggestive of renal disease.

Of these 71 patients, some abnormality of the kidneys or ureters was demonstrable in 50. The nature of these abnormalities was as follows:

1. Lesions suggesting obstruction to the flow of urine were found in 36 patients. There was well-marked bilateral hydronephrosis in 4, moderate in 7; unilateral hydronephrosis was present in 20, being

¹ Goldblatt, H., Lynch, J., Hanzal, R. F., and Summerville, W. W., *J. Exp. Med.*, 1934, **59**, 347.

² Leiter, L., *J. Am. Med. Assn.*, 1938, **111**, 507.

³ Longcope, W. T., *Ann. Int. Med.*, 1937, **11**, 149.

⁴ Butler, A. M., *J. Clin. Inv.*, 1937, **16**, 889.

moderate in 11, mild in 9. In 4 of these it was associated with diseases of the other kidney, as follows: (a) marked contraction and distortion of the renal pelvis possibly of inflammatory origin; (b) marked ptosis; (c) total absence of function; and (d) replacement of the kidney by calcified cysts. The obstructions seemed all to be due to constriction of the ureter at the uretero-pelvic junction. In 5 additional patients hydroureter was observed. In one of these marked ptosis of one kidney was present, the other kidney being small and functioning poorly; in a second, a double kidney and mild unilateral hydronephrosis was seen.

2. Renal calculi were seen in the pelves of the kidneys or in their calyces in 5 patients. In one there was also hydronephrosis, and in another, total absence of function in the other kidney.

3. Miscellaneous renal lesions: (a) In 4 patients there was no excretion of diodrast by one kidney on repeated injections, suggesting some interference with renal function on that side; (b) in 2 there was ptosis of one kidney; (c) there was also one case of double kidneys and double ureters; (d) one showing marked distortion of the calyces, possibly a result of old inflammation, and (e) one exhibiting a persistent sharp angulation of the ureter.

Intravenous pyelograms were normal in the remaining 21 patients.

Summary. Abnormalities of the urinary tract, as demonstrated in pyelograms obtained after intravenous injection of diodrast are frequently present in young persons suffering from "essential hypertension." In 50 of 71 patients some abnormality was present. Under these circumstances it seems desirable to explore further the meaning of these phenomena.

10109 P

A New Factor Required for Growth and Reproduction in the Domestic Fowl.

J. C. BAUERNFEIND, A. E. SCHUMACHER,* A. Z. HODSON,† L. C. NORRIS AND G. F. HEUSER.

From the Department of Poultry Husbandry, Cornell University, Ithaca, N. Y.

In an attempt to determine whether or not the chick antidermatosis vitamin (filtrate factor) is required for reproduction in the

* Anheuser-Busch Fellow.

† Borden Investigator.