

A Chair for Renograms

Halcott T. Haden, M.D.¹

Richmond

Though already widely used as a test of renal function, the technique of the radioisotope renogram is not well standardized. A number of technical factors may alter the tracing considerably, but patient position is generally not a critical factor. The test is almost always done in either the sitting or prone position and tracings recorded in either position are usually comparable. The sitting position when possible is generally preferred (1).

It is important, however, that the patient maintain the same position throughout the test, which usually requires twenty to thirty minutes. Any movement of the patient in relation to the radiation detectors will produce artefacts in the tracing, and a rotational movement may alter the tracing on one side without changing the other. These artefacts may be misinterpreted or may require a repeat test. The change produced by any patient movement will, of course, depend on the type of collimation used and the distance of the detector crystal from the kidney.

We have used both the sitting and prone position for this test. If the patient simply sits on a stool or bed with the detectors positioned over his back, movement often occurs. If provided with a table in front of him on which to lean

¹From McGuire Veterans Administration Hospital, Richmond, Virginia.



Fig. 1.

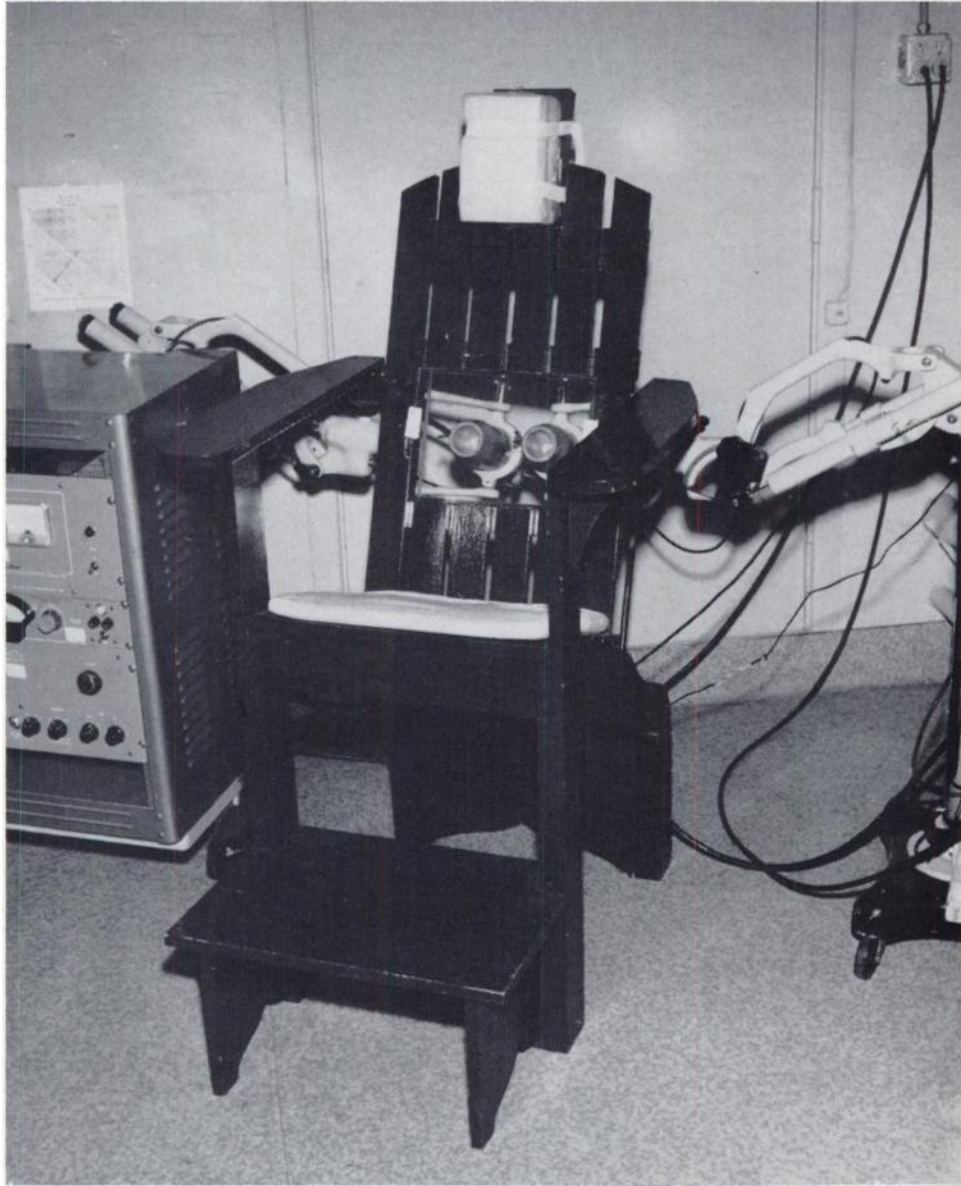


Fig. 2.

and rest his arms, most patients will maintain position satisfactorily, though frequently with some discomfort by the end of the procedure. The prone position provides a stationary patient but is uncomfortable for many patients, and intravenous injections in this position are awkward. In addition, we have encountered abnormal renograms present only in the prone position, and this has been reported by others (2).

In order to provide a comfortable and constant position for renogram patients, the chair illustrated in the accompanying photographs was constructed. This was made from a wooden lawn chair by increasing the height of the legs and inserting a $\frac{1}{8}$ inch thick transparent plastic (Plexiglass) panel in the chair back over the renal area. A headrest was also added. The back is inclined enough to keep the patient's back constantly pressed against it, but is sufficiently upright to allow easy placement of the probes. The seat makes an acute angle with the back so that there is no tendency for the patient to slide forward in the chair. The arms are comfortable and well suited for venapunctures. The headrest maintains the head well forward so as to prevent any tendency to arch the back. The plexiglass panel reduces the radiation less than 5 per cent for ^{131}I , depending to some extent on the discriminator setting. This chair has been in regular use for the past year and has proved quite satisfactory for routine renogram use.

REFERENCES

1. TAPLIN, G. V., DORE, E. K., AND JOHNSON, D. E.: The Quantitative Radiorenogram for Total and Differential Renal Blood Flow Measurements. *J. Nuclear Med.* 4:404, 1963.
2. WEDEEN, R. P., GOLDSTEIN, M. H., AND LEVITT, M. F. The Radioisotope Renogram in Normal Subjects. *Am. J. Med.* 34:765, 1963.