Documentation of Adrenal Cyst by Adrenal Scanning Techniques

Adrenal scanning has been found useful in the diagnosis of various adrenal disorders (*1,2*). It has been shown that with [^{131}I] 19-iodocholesterol, pheochromocytoma was correctly identified preoperatively in terms of absent or decreased adrenal tracer activity in six of six patients (*3*). The radiotracer [^{131}I] 6β-iodomethyl-19-norcholesterol (NP-59), because of its fivefold increased adrenal activity over [^{131}I] 19-iodocholesterol, gives better delineation of adrenal structure and allows improved evaluation of cold adrenal defects (*2*).

A 51-year-old man with a history of hypertension was admitted to the Medical Center for further evaluation and control of his hypertension. His 7-yr history of hypertension was complicated by recurrent renal calculi, retinal detachment, pulmonary embolism, and transient left hemiparesis. A preadmission excretory urogram showed a calcified mass in the region of the upper pole of the left kidney (Fig. 1A). For further study of this mass, an NP-59 adrenal scan and adrenal ultrasound examination were performed. The radionuclide scan demonstrated bilateral adrenal visualization, with a cold defect in the upper pole of the left adrenal (Figs. 2A and B). A definitely concave defect in that area could be identified. The sonogram characterized the mass as cystic and clearly separate from the upper pole of the left kidney (Fig. 1B). Under ultrasonic guidance, 10 cc of serosanguinous fluid were aspirated from the cyst and replaced with an equal volume of contrast material (Fig. 1C). Cytologic studies for malignant cells and cultures for bacteria were negative, and renin levels were unmeasurable in the cyst fluid. The patient remained hypertensive after the cyst puncture, and was noted to be hypertensive while off his medications at a 6-mo followup examination.

The functional evaluation of the adrenal gland has been improved by the introduction of the iodocholesterol adrenal scan. With the use of NP-59, a more effective adrenal imaging agent, greater detail can be obtained from the scan, especially with respect to cold defects (*2*). Moreover the demonstration of an adrenal lesion as cystic on ultrasonography allows a conservative management approach, in the form of percutaneous cyst aspiration (*4*). These two noninvasive studies are complementary, the scan indicating adrenal function—or lack of it—and ultrasound demonstrating the anatomic characteristics of the lesion. In many instances these methods can be utilized to obviate the necessity of a surgical procedure. The inclusion of the adrenal scan in the evaluation of the suprarenal calcified lesion—in addition to conventional excretory urography and ultrasonography—gives functional, noninvasive information not previously available by other diagnostic means.

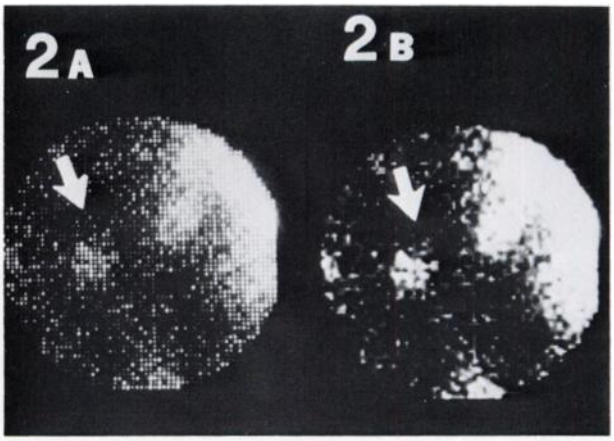

FIG. 2. (A) Posterior analog adrenal image demonstrating a defect (arrow) in the upper pole of the left adrenal; (B) Posterior computer enhanced image of the concave adrenal defect (arrow).

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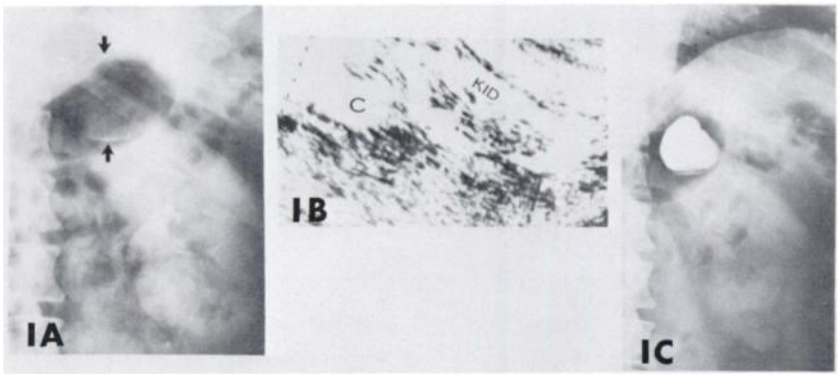

FIG. 1. (A) Excretory urogram shows peripherally calcified mass (arrows) overlying upper pole of left kidney, (B) Prone longitudinal sonogram showing 3 cm cystic mass (c) adjacent, but separate from anteromedial aspect of the upper pole of left kidney (k), (C) Radiograph following contrast injection into adrenal cyst lumen.