Surgical management of solitary kidneys is a serious undertaking which has to be performed with the minimum loss of renal tissues. Nephrotomy involves great risks because in cases of complications (e.g., haemorrhage) nephrectomy is out of question. Urolithiasis should be surgically treated only if the stone blocks urinary flow. Postoperative renal failure may necessitate extracorporeal dialysis. Grafting of intestinal tissue is a great facility.

The fact that one of the kidneys can be removed without apparent harm has greatly influenced the development of renal surgery [6]. Except for the classic indications of nephrectomy we resort to this procedure if some operative complication, e.g., profuse haemorrhage from a ruptured vessel, threatens the patient's life. Nephrectomy may further be imperative if the renal parenchyma is seriously damaged after a previous operation.

Nephrectomy is always feasible if the other kidney is not impaired but opinions are divided as regards indications. Some surgeons are more, others less cautious in this respect [1, 3, 13].

That surgeons were formerly more inclined to excise one of the two kidneys was due to the notion that a solitary organ functioned quite as satisfactorily as did two kidneys, a notion apparently substantiated by the observation that individuals born with one kidney lived long without complaints. That such attitude is wrong was proved by Rockstroh [11] who found that the mean age of nephrectomized persons was 47 years and that only a third of them lived to sixty. Seipelt et al. [12] examined a number of children with one kidney and found that the kidney of children with congenital aplasia of the contralateral organ displayed functional hypertrophy, whereas the remaining kidney of nephrectomized individuals had not been able to compensate the function of the removed organ.

Another example in this connection is TB. At a time when tuberculostatic agents were unknown renal TB was regarded as requiring immediate extirpation, whereas nowadays only advanced processes justify such radical intervention so that an otherwise healthy kidney is not sacrificed on account of a small tuberculous focus. Admirable results have been achieved by conservative therapy even in advanced cases of TB. Also tumours of the renal pelvis used to be looked upon...
as necessitating nephrectomy although the kidney might have sometimes been saved [9].

The ureter is often damaged by gynaecological interventions with consequent uretero-vaginal fistula, stenosis and secondary renal injury. Such complications, too, were sometimes remedied by the excision of a practically intact kidney. Nephrostomy used to be the only solution if the ureter of a solitary kidney was damaged, a procedure which radically curtailed the patient's life.

The situation is, of course, much more difficult if the patient has only one kidney. Nephrectomy, the last refuge, is out of question. Operation is sometimes inevitable although each surgical management renders the organism more susceptible to functional disorders, while the compensatory mechanism of the other kidney is missing. Such disorders may be serious so that until recently operations on solitary kidneys were performed in cases of vital necessity only [5].

The situation has become considerably easier by the introduction of dialysis and the practice of kidney transplantation.

A solitary kidney may be affected by any disease usual for both kidneys such as glomerulonephritis, pyelonephritis and other disorders which do not require surgical treatment. Urologists are, of course, faced with more serious problems if the anomaly requires surgical intervention, e.g., in cases of serious impairment of the renal tissue or in diseases of the lower urinary tract.

Surgeons managing solitary kidneys should try to reduce bleeding to a minimum and to save the renal parenchyma as much as possible [13].

Urolithiasis, the most frequent affection of solitary kidneys, occurs usually in patients with previous nephrectomy on account of calculous pyonephrosis. Operation is necessary only if the flow of urine is arrested. Puigvert and Mallo [7] suggest that the surgeons look for the lithogenous focus in the lower calix and resect it so as to prevent relapses. Another group of diseases is represented by hydronephrosis. These disorders are often bilateral and the method of treatment should be directed by this consideration. This applies also to states after unsuccessful plastic surgery at the pyeloureteral junction. As regards TB, Puigvert and Gittes [6] recommend resection of the infected focus (partial nephrectomy), an operation they performed successfully in 20 cases. Primary or metastatic tumours of a solitary kidney are less common, while anuria due to pressure of the ureter is exceptional [16]. Operations may involve either the solitary kidney and renal pelvis or the lower urinary tract, the ureter in particular.

I. Surgical management of the kidney

(1) Pyelotomy. This is the procedure of choice in cases of urolithiasis. Pyelostomy or, preferably, retrograde nephrostomy is performed if a drain has to be inserted. After bluntly incising the parenchyma by means of a Péan forceps which reaches the central calyx, a Malecot catheter (24—28 Char) is inserted