

must be employed.¹ Of the two, I rather prefer the ureteral catheter for most cases. This is especially true if there is any tubercular lesion of the bladder, for in such cases contact of the segregator with the ulcerated bladder wall is likely to provoke a hemorrhage sufficiently profuse to nullify the result of the examination. It is scarcely necessary to say that the insertion of a ureteral catheter into a ureter whose mouth is tuberculous is quite uncalled for. The duct undoubtedly leads to a tubercular kidney. It is the opposite and apparently healthy kidney that requires catheterization.

The examination of the urine obtained by the ureteral catheter should be both bacteriological and chemical. The pathologist should seek for tubercle bacilli, for the evidences of surgical inflammation, and for evidence of the renal function. The surgeon is not justified in assuming that this kidney is in a satisfactory condition unless the urine obtained from it shows (1) no tubercle bacilli, (2) no pus, (3) no more than a trace of albumin and a few casts, and no marked decrease in the excreted solids. It is worthy of note that a very considerable proportion of those persons who die at a greater or less length of time after a successful nephrectomy for tuberculosis lose their lives on account of amyloid degeneration or chronic nephritis of the opposite kidney. Another point that must be determined is the presence of tuberculosis elsewhere in the body. I need only enumerate the lungs, the testicles, the vesicles, and the prostate as probable seats of tubercular deposit.

The nature of the lesion in the kidney can be determined only by a just appreciation of all these data. The surgeon is not justified in assuming that he has to deal with chronic caseous tuberculosis (the only form of the disease for which a radical surgical cure can be expected) unless he knows that the tubercular lesion is confined to one kidney; and he cannot justly expect to achieve such a radical cure unless he knows that the disease exists only in a mild or latent condition elsewhere in the body. Thus tuberculosis of the ureter and of the adjoining portion of the bladder is no contra-indication to nephrectomy, nor is a slight lesion of the lung. But the presence of active pulmonary or genital tuberculosis will usually nullify the effect of the most successful nephrectomy.

PROGNOSIS

The prognosis of tuberculosis of the kidney depends upon the nature of the lesion, the age of the patient, and the presence of le-

¹ If the case is known to be tubercular, the cystoscope or the segregator should never be employed academically for the mere purpose of distinguishing the extent of the bladder disease, but only as a preliminary to nephrectomy.

sions elsewhere in the body. The prognosis of the acute and sub-acute forms of renal tuberculosis is extremely bad. Usually the patient rapidly loses ground, the disease spreads from one organ to another, and runs its course within a year or two. On the other hand, the caseous form of tuberculosis, if not complicated by a secondary mixed infection and if associated with few lesions elsewhere in the body, is very slow to progress and may last for many years. Apparently the course of the papillary tubercular ulcer is equally chronic. The age of the patient has an indirect bearing upon the prognosis, for tuberculosis of the kidneys, like that of other organs, assumes its more malignant forms in the young and advances more slowly in later years. Finally, the distribution of the disease among the other organs of the body has a marked influence. For, even though the renal lesion be caseating and chronic, the patient may die of some more acute process in the lung or in some other portion of the genito-urinary tract. Tuberculosis of the kidney may progress to a spontaneous cure. Such an event is most unusual, and yet it may occur. Moreover, appropriate hygienic treatment will in many cases delay the fatal issue for years, and sometimes effect a cure.

TREATMENT

We are now on the crest of a wave of operative success in the treatment of renal tuberculosis. We look backward into the depths of the pre-operative period and appreciate—fairly, I think—that a great advance has been made; but looking forward there is another depth which can only be dimly outlined. A cursory review of current therapeutic reports would lead one to suppose that the treatment of renal tuberculosis is purely surgical. A few isolated voices are raised in protest; but it is impossible to deny the great success of modern surgery in eradicating tuberculosis of the kidney, and in our first flush of appreciation of this success it is quite impossible sanely to appreciate how much evil there may be intermingled with the good. Perusal of the works of Tuffier, Israel, Simon, Küster, and Morris is calculated to enforce the conviction that surgery is the ideal treatment—the only treatment deserving of the name. Yet I believe that the future will modify this view. I believe we shall learn that the operative successes are not so permanent as the figures now before us would seem to indicate, and that, lasting as they may be, in the majority of cases hygienic and tonic treatment will prove more effective still. In short, tuberculosis of the kidney, like tuberculosis of any other organ, is not a local disease. I doubt if the surgeon is ever able to diagnosticate tuberculosis of the kidney at a time when there are no other tubercular lesions in the body. Cer-

tainly he can never feel sure, so long as the patient lives, that the tubercular kidney is not complicated by some other lesion. The gravity of this doubt is impressed upon us by the unexpected failure of some of the most promising cases. For tuberculosis of the urinary tract is a no less treacherous disease than that of the respiratory tract. In some cases it is chronic and advances but slowly, in others it is frightfully malignant; and we have as yet no absolute criterion by which to distinguish the two classes.

Such being the case, the operative treatment of tuberculosis of the kidney must be recognised as palliative only—that is to say, the surgeon may chance to control the disease by extirpating the kidney, but the probabilities are against him; and, inasmuch as he cannot feel sure that the procedure is radical, I think it only just to class the operation as a palliative measure to be employed when hygienic treatment fails, and when employed to be followed by a further course of hygienic treatment in order to complete the cure. Nephrectomy for tuberculosis should hold the same place in reference to hygienic treatment as urethrotomy for stricture does to the employment of sounds. I have nowhere seen a set of cases more beautifully illustrating this relative uncertainty of operative treatment than that recently published by Dr. Tilden Brown,¹ of this city.

Operative Treatment.—In spite of the fact discussed in the preceding paragraphs that, strictly speaking, all operative treatment for renal tuberculosis is palliative, it is convenient to distinguish between those operations employed for the avowed purpose of eradicating the disease and those employed to relieve symptoms or to prolong the patient's life. The so-called radical operations are nephrectomy, nephro-ureterectomy, and partial nephrectomy. The operative technic of these various procedures is described in a subsequent chapter. The indication for nephrectomy is the existence of advanced localized chronic tuberculosis of one kidney. When the kidney is known to be seriously damaged by the disease and the opposite kidney known to be sound, and no active tuberculosis can be discovered in the genital tract or in the lungs, it is proper to extirpate the tubercular portion of the kidney or the whole kidney and the ureter as well, if necessary, in the hope of relieving the patient of his main foci of disease. The presence of tubercular cystitis about the mouth of the ureter, or of a chronic circumscribed tuberculosis in the lung, is no contra-indication to nephrectomy. The statistics published by various surgeons show that patients do about as well after operation whether the bladder is involved or not. In-

¹ Boston Med. and Surg. J., 1901, cxliv, 513.

deed, Israel's detailed descriptions in most cases show a spontaneous cure of the vesical lesion within a year after nephrectomy.

For the same reason there is no absolute need for total ureterectomy unless the duct is very seriously diseased. A moderately inflamed ureter will atrophy spontaneously after nephrectomy in 9 cases out of 10. For the same reason again, it is proper to perform partial nephrectomy upon cases showing macroscopical lesions of only one end of the kidney. It is true, as some authorities contend, that the opposite pole of the kidney probably contains some tubercles; but just as the ureter and bladder will heal spontaneously after the main focus of disease has been removed, so, I believe, may the lesser renal lesions be expected to disappear after extirpation of the disorganized tissue.

To pursue the argument still further—further, indeed, than most surgeons are willing to pursue it—I cannot indorse nephrectomy for tuberculosis in its earliest stages. I believe that the beginning of the disease in the kidney may be checked and cured as promptly and effectively by hygienic treatment as can its beginnings in the lung, and I therefore *restrict nephrectomy to those cases which do not respond to hygienic measures*. The knife is called for if the patient progressively loses weight or if in spite of palliative measures the kidney fills with pus.

Nephrotomy is the recognised palliative surgical treatment for tubercular kidney, and it is a very unsatisfactory measure. Nephrectomy has a fair chance of controlling the disease, but nephrotomy seems only to hasten the patient's downward course. Yet in some cases when both kidneys are so involved that nephrectomy cannot be undertaken, and one of them is suppurating freely, nephrotomy must be performed to open the abscess and afford a temporary relief, however unpromising may be the ultimate outlook. Curiously enough, it would seem that in some of these cases nephrectomy gives better results than nephrotomy, even though the opposite kidney is somewhat diseased. Secondary nephrectomy, after an unsuccessful nephrotomy, does not show so great a proportion of cures as primary nephrectomy. Yet, in the presence of pyonephrosis or perinephritis it is sometimes wiser first to incise, and then to remove the kidney when the patient is somewhat relieved of his septicemia. Yet even in these cases nephrectomy (if done at all) should be done within a few weeks of the nephrotomy, for after nephrotomy the tubercular kidney is peculiarly prone to form dense adhesions with the surrounding tissue.

Statistics.—I append the operative statistics of those surgeons who have had the widest experience in this field. I allow the figures to speak for themselves.

	PRIMARY NEPHRECTOMY.						SECONDARY NEPHRECTOMY.						PARTIAL NEPHRECTOMY.						NEPHROTOMY.					
	Cases.	Operative mor- tally.	Unrelieved; died.	Died later of the disease.	Fistulous or im- proved.	Recent.	Cured.	Cases.	Operative mor- tally.	Unrelieved; died.	Died later of the disease.	Recent.	Cured.	Cases.	Secondary nephrectomy.	Cured.	Cases.	Operative mor- tally.	Unrelieved; died.	Died later of the disease.	Fistulous.	Secondary neph- rectomy.	Recent.	Cured.
Israel ¹	27	3	3	2	2	17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Morris ²	17	3	2	1	1	10	5	1	1	1	1	3	4	3	3	4	7	2	1	1	2	2	1	1
Tuffier ³	6	..	..	..	..	6	2	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..
Czerny ⁴	11	2	..	1	1	7 ⁸	16	1	1	4	1	9 ⁸	1	..	..	1	7	2	..	..	3	15	1	2
Albarran ⁵	19	1	..	..	1	17	..	..	..	..	..	..	..	..	..	..	12	1	..	9	..	1	1	
König ⁶	18	3	3	3	1	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	98	12	8	7	5	64	24	2	1	5	1	15	9	4	5	9	6	2	12	3	17	3	7	

¹ *Op. cit.*, p. 218.
² Tuberculose rénale, Paris, 1898.
³ Traité de chir., par Le Dentu and Delbet, 1899, viii, 865. Trans. Fr. Cong. of Surgery, 1897.
⁴ Deutsch. med. Wochenschr., 1900, xxvi, 109.
⁵ Including those that died of intercurrent disease after an interval of a few years.
⁶ *Op. cit.*, p. 510. Renal Surgery, London, 1898.
⁷ Brit. Med. J., 1901, xxx, 1.
⁸ One bilateral.

Thus 159 patients were operated upon; 61.63% of them were deemed fit subjects for primary nephrectomy: of these, 12% died as a result of the operation; 8% were unrelieved and died soon after (total immediate mortality, 20%); 7% died later of the disease, and 64% were apparently cured.

Nephrotomy was performed upon 38.81%. The total immediate mortality was 16%; 24% died later of the disease, 34% underwent secondary nephrectomy, and only 12% were apparently cured.

Only 5.66% were deemed fit subjects for partial nephrectomy, and 44% of these relapsed and underwent secondary nephrectomy, while 55% were cured.

Secondary nephrectomy was necessary in 15.09% and netted an operative mortality of 8%, a total immediate mortality of 12% (considerably less than that of primary nephrectomy), a secondary mortality of 20% (considerably greater), while 62% were cured (about the same).

Cures from nephrectomy are known to persist twenty-one years, twelve years, eleven years (3 cases), ten years; in 13 cases from five to ten years; in 13 cases (2 partial nephrectomies) from three to five years, and in 15 cases (1 partial nephrectomy) one or two years.

Nephrotomy cures are known to persist two, four, and five years.

In short, of 159 cases 31 (19%) died shortly after the operation; 24 (15%) were temporarily relieved, but died later of the disease, and 90 (56.6%) are believed to be cured; though in only 34 of these (20%) is the cure known to have persisted for three years or more.

After-treatment.—The after-treatment of operative cases is the same as the preliminary treatment. It consists in antitubercular hygienic measures. The special complications of the various operations do not concern us in this place.

Medical Treatment.—A critical survey of the original surgical reports quoted above leaves the impression of uncertainty fixed in the reader's mind. While many of the operative successes are brilliant to the last degree, and while the knife saves some cases that have sunk to a depth where recovery seems impossible, yet the element of uncertainty prevails and the most promising case may go entirely wrong. Therefore it is that while the disease is purely tubercular and uncomplicated by any mixed infection, pyonephrosis or perinephritis, hygiene and medical treatment are more likely to succeed than the knife with its associated shock and a more or less prolonged after-treatment in unhygienic surroundings.

I find no satisfactory statistics showing the results of medical treatment upon renal tuberculosis; indeed, from the very facts of the case, the surgeon who makes the diagnosis must send the patient

to some health resort in order to do him justice, and thus, in the majority of instances he loses sight of the case.

Yet in every discussion of surgical reports upon this subject some few men will be found who record their belief in the satisfactory results of hygiene. The absolute diagnosis of tubercular kidney, except in its advanced and obviously surgical conditions, is such a recent refinement of science that few of us can feel sure of spontaneous cures, and only in a few instances has the dead-house disclosed healed lesions of renal tuberculosis. Yet I have seen several cases, most of them obviously inoperable on account of the extent of tubercular involvement, go on for many years, better or worse, in accordance with the amount of care they took of their physical condition. I believe appropriate hygiene will almost always check the disease and in many cases will prolong life indefinitely, while I look forward to the time when we can say with certainty that medical measures promptly undertaken and thoroughly carried out will be probably curative. There are no specific drugs for this form of the disease: creosote has a record of cures and so has ichthyol, but climate and hygiene are our chief dependence.

CHAPTER XLII

CYSTS AND TUMOURS OF THE KIDNEY

CYSTS

FIVE varieties of cysts occur in and about the kidney. These are:

1. Multiple small cysts.
2. Large simple cysts.
3. Cystic degeneration.
4. Echinococcus cysts.
5. Paranephritic cysts.

1. Multiple Small Cysts.—Multiple small cysts are those dilatations of the renal tubules that are often seen in kidneys affected with chronic nephritis. They usually occur in the cortex and often project beneath the capsule. They may be single or multiple; they do not seem to attain a large size and are of purely pathological interest.

Paranephritic cysts also may be dismissed with a word. They are extremely rare; they may arise from the suprarenal capsule; they may be hydatid or the result of an encysted perinephritic hematoma. They are not distinguishable from other cysts of the kidney except by exploratory incision. Morris has collected their published records.

2. Simple Cysts of the Kidney.—It is not necessary to delay over the debated pathogenesis of this condition. Suffice it to say that single, large serous cysts are occasionally found projecting from the surface of the kidney. Such cysts may be single or multiple. They may be associated with chronic interstitial nephritis; they are rarely bilateral. The contents of the cyst are serous or hemorrhagic, never urinous. Such cysts give rise to no symptoms unless they attain such a size as to produce a tumour or to cause pressure pain. Under these circumstances the tumour is habitually mistaken for hydronephrosis, renal echinococcus, ovarian cyst, or some other tumour. Exploratory incision reveals the nature of the disease. The proper treatment of such cysts is to excise them with the adja-