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-

cent portions of the renal tissue, or if this is impracticable, to cut away as much of the cyst as possible, to sear the surface of the remainder with carbolic acid, and to close the lumbar wound, leaving a drainage-tube to the kidney. When the cysts are multiple Morris advises that the smaller ones be neglected. Engländer [1] has reviewed the reported cases from the surgical point of view.

3. **Cystic Degeneration of the Kidney** (*Large Polycystic Kidney*).—The kidney is said to undergo cystic degeneration when it is converted into a congeries of cysts which leave scarcely

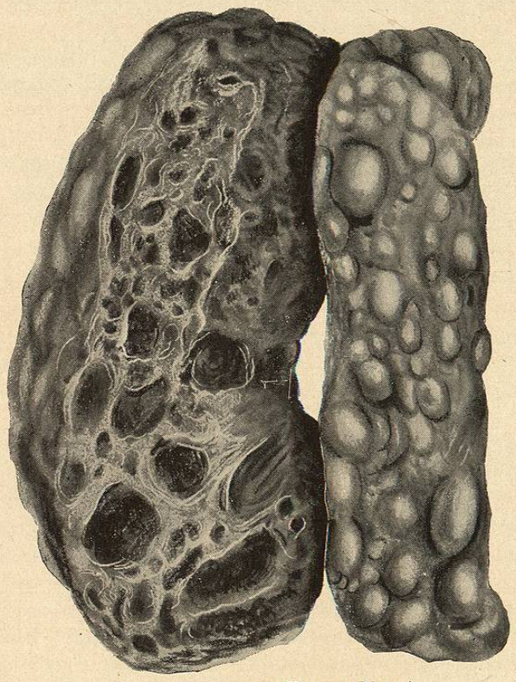

Fig. 150.—Polycystic Kidney (Morris).

any of its parenchyma in a normal condition (Fig. 150). The pathogenesis of this condition is hotly debated. The three favourite theories are—

1. That the cysts are incidental to a chronic interstitial nephritis. This explains the bilateral nature of the disease, but does not show

[1] Archiv f. klin. Chir., 1901, lxv, 112.

why it should be associated with a similar cystic condition in other organs, notably the liver.

2. That they are outgrowths from fetal remains.

3. That they are cyst adenomatous. These two latter theories explain neither the implication of other organs nor the bilateral nature of the disease.

So much for the unsatisfactory theories. From the clinician's point of view the facts, though definite enough, are equally unsatisfactory. The disease occurs at all ages. In the fetus the kidneys have been known to be so much enlarged as to obstruct labour. Certain writers have endeavoured to distinguish congenital cystic degeneration from that which occurs in adults, but there is no very obvious reason for this distinction. In either case both kidneys are habitually implicated. Dickinson found only 1 case in 26 with unilateral disease, while of 62 cases collected by Lejars only 1 was unilateral, and even in that 1 there was a single small cyst in the opposite kidney (Morris). Another peculiarity of the disease is the frequency with which the liver is involved. Of Ritchie's 88 cases 86 were bilateral, the liver was cystic in 21, and the thyroid gland, the uterus, and the ovary each cystic in 1 case. According to Still, the cystic liver is rarely found associated with congenital cystic kidney.

Morbid Anatomy.—The most striking feature of the fully developed cystic kidney is its size. The organ grows so large as to fill the entire lumbar region and to project anteriorly almost to the median line. The disease usually progresses more rapidly upon one side than upon the other, so that one kidney may be so much enlarged as to form a visible abdominal tumour, while the other can be distinguished only by palpation. The largest recorded specimen weighed 16 pounds (Hare).

Apart from its size, the most striking characteristic of this growth is its pathognomonic irregularity of surface. When the kidney has grown to such a size as to cause a surface tumour it may be methodically palpated, and such palpation will reveal the existence over the growth of larger or smaller rounded lumps, some hard, some elastic, and some even fluctuating. This characteristic irregularity of surface is absolutely pathognomonic of cystic disease of the kidney.

On section the cystic kidney shows an infinite number of cysts of varying sizes. With the naked eye it may be impossible to detect any normal renal tissue. The contents of the cysts are liquid, viscid, colloid, or caseous. They are usually amber-coloured, rarely dark and hemorrhagic, and exceptionally suppurating. The cyst contents are

not urinous, and the cysts do not communicate with the sinus of the kidney. Exceptionally calculi are found in the cysts, and there are cases in which calculous obstruction of the ureter seems to have had something to do with the cystic dilatation of the kidney.

Symptoms.—The symptoms of the disease are habitually those of chronic interstitial nephritis, and, unless the tumour grows to such a size as to attract the surgeon's attention, the disease runs its course and terminates as chronic nephritis. The urine is albuminous and contains casts. There is slight albuminuria and habitually some polyuria.

The surgical symptoms are hematuria, which occurs in 25% of all cases (Newman[1]), tumour, and pain. Pyuria from secondary infection is occasionally associated with secondary calculus.

The course of the disease is slow. Morris estimates the expectation of life at from one to ten years, although Ritchie has recorded a case living twenty-two years after the diagnosis had been made.

Diagnosis.—So rarely does the renal condition attract attention that only 5 of Lejar's 62 cases were correctly diagnosed during life. According to Morris, the tumour is discovered during life in 25% of cases, and about 50% complain of symptoms closely resembling those of chronic interstitial nephritis. When there is hemorrhage or pyuria a slight enlargement of the kidney is likely to be mistaken for any one of the surgical diseases of that organ, and the diagnosis can only be made by surgical exploration.

Treatment.—*Cystic degeneration of the kidney is not a surgical disease*: in its clinical aspects it is a chronic interstitial nephritis. Even though the kidney causes pain or grows so large as to be inconvenient, little help may be expected from the knife. Nephrotomy is useless unless there is a stone to be removed from the renal pelvis. Puncture or incision of the cysts has no controlling effect upon them. Nephrectomy has been practised by various surgeons with disastrous results. Morris has been encouraged by his singular good fortune to advise nephrectomy when the opposite kidney has been shown to be normal by palpation through an abdominal incision. But, of his 5 cases, 1 died after a double nephrotomy, 1 after nephrectomy, and 2 others who submitted to nephrectomy are alive and well after two and six years respectively. Morris performs nephrectomy for the removal of a rapidly increasing unilateral tumour or for the relief of gastro-intestinal symptoms. Yet in every case the knife certainly should be the last resort, and I confess that under no conditions does nephrectomy appeal to me.

[1] Glasgow Med. J., 1897, i, 324, and ii, 42

4. **Echinococcus Cysts.**—Echinococcus cysts of the kidney are rare. Houzel[1] collected the statistics of Finsen (Iceland), Thomas (Australia), Neisser and Davaine, a total of 2,111 cases of echinococcus cysts in men, with only 115 (5%) instances of renal echinococcus.

The cyst arises in the cortex of the kidney and grows slowly, without producing symptoms, until it reaches such a size as to form an obvious tumour, or ruptures. When left to itself the cyst habitually bursts into the pelvis of the kidney, and its contents are discharged through the urethra. This occurs in 52 of the 63 cases collected by Roberts.[2] In 3 of these cases the cyst ruptured into the intestines as well, once into the stomach, once into the lungs; and of the 11 remaining cases 8 did not rupture, 2 were incised, and 1 burst into the lungs only. In only 18 of these cases was the tumour distinguished during life. Suppuration of the cyst may occur after it has ruptured. The results of rupture are not necessarily good. The cyst may for years continue to discharge without ever emptying itself. The symptoms of the disease are lumbar tumour, growing slowly, with little fever or pain, and no constitutional symptoms. The tumour itself simulates a hydronephrosis, and the hydatid fremitus can rarely be obtained. Later in the disease rupture of the cyst is betokened by a renal colic and followed by the discharge of hydatid vesicles through the urethra.

Treatment.—Twenty of Roberts's cases recovered and 19 are known to have died. The only treatment of the disease, and often the only means of making a diagnosis, is nephrotomy. After the cyst has been incised and thoroughly washed out a cure may be expected. It is scarcely necessary to excise the entire cyst, and in a number of cases nephrectomy has proved fatal.

SOLID TUMOURS OF THE KIDNEY

Recognising the obscurity that still shrouds the origin and the nature of so many renal growths, I shall not endeavor to follow any pathological theory nor even to discuss the opposing theses advanced by different authors. There are a sufficient number of known clinical facts to afford us a very fair basis for therapeutic conclusions without encroaching upon the purely scientific aspects of the case, which are, as Kelynack[3] remarks in the opening chapter of his detailed investigations, "by general admission very obscure."

[1] Revue de chir., 1898, xviii, 689, 811.
[2] Urinary and Renal Diseases; 2d Edit., Phila., 1872, p. 566.
[3] Renal Growths, Edinb. and Lond., 1898.

Benign Tumours

Benign tumours of the kidney are extremely rare. Probably the most common of these are the renal lipomata, the *strumæ lipomatodes aberrantæ renis* of Grawitz. These tumours are simple inclusions of suprarenal tissue. They may grow within the kidney tissue itself or project into its pelvis. True lipoma has only been met with once or twice. Some doubt is thrown upon the existence of true fibroma. Myxoma, chondroma, osteoma, angioma, lymphangioma, and lymphadenoma have all been described in single cases. These benign growths have no clinical features. They do not give rise to any symptoms and the diagnosis is only made post mortem. Their sole interest lies in the fact that most of them are liable to malignant degeneration.

Malignant Growths

Nine cases of primary renal tumour were recorded in 4,505 autopsies. Secondary deposits were found in the kidneys 10 times in 126 cases of carcinoma, and 10 times in 69 cases of sarcoma. While these secondary deposits are commonly bilateral the primary malignant disease is habitually unilateral (Kelynack). Renal growths are about equally frequent in the two sexes and on the two sides. The distribution of the disease throughout life is rather striking. Kelynack has tabulated 160 cases as follows:

Up to the age of one year	12 cases.
From one to two years	23 cases.
From two to three years	16 cases.
From three to four years	17 cases.
From four to five years	6 cases.
From five to nine years	10 cases.
From nine to eighteen years	no cases.
From eighteen to twenty-five years	7 cases.
From twenty-five to thirty-five years	8 cases.
From thirty-five to forty-five years	17 cases.
From forty-five to fifty-five years	22 cases.
From fifty-five to seventy years	22 cases.

In other words, more than half the cases occurred in the first decade of life; only 15 occurred between the ages of nine and thirty-five; while of the remaining 61, 34 occurred between the ages of forty-five and sixty. Thus the malignant tumours of the kidney may be considered clinically as the tumours of childhood and those of adult life. In childhood they are most common from birth to the fifth year, exceptional after the tenth year. In adults they occur most commonly between the forty-fifth and the sixtieth year. Sixty-

one of the 68 cases seen by Israel occurred between the fiftieth and the seventieth year. The majority of the tumours of childhood are sarcomata, while those of later years are carcinomata. Of 138 cases of sarcoma collected by Walker,[1] 116 occurred before the fifth year. Trauma and heredity have not been shown to influence tumours of the kidney, while nephritis, suppuration, and stone are accidental and secondary rather than primary.

Morbid Anatomy.—Benign and malignant adenoma, carcinoma, and sarcoma of many varieties have been described. They are alleged to arise from adrenal rests or inclusions, or from the normal or diseased renal parenchyma, or from encapsulated portions of that tissue (Albarran). To enter into a brief discussion of these varieties is only to complicate confusion. Ample discussion of the facts may be found in the writings of Kelynack, Morris, and Albarran.[2] Suffice it to say that tumours are encountered involving the whole kidney (Fig. 151) or only a part of it; and that without exploratory

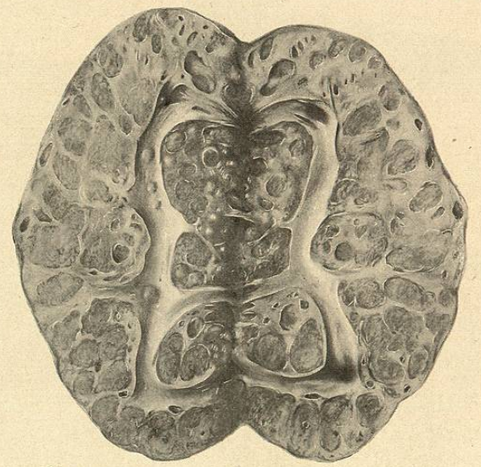

Fig. 151.—Malignant Adenoma of the Kidney.

incision it is impossible to distinguish clinically between tumours of the kidney itself, tumours of the suprarenal gland, and tumours of the perirenal tissue. The sarcomata of childhood grow far more rapidly and to a far larger size than do the malignant growths of later years. Thus Morris mentions a 31-pound tumour removed post mortem from a child, who without the tumour weighed only 100

[1] Annals of Surgery, 1897, xxvi, 529.
[2] Guyon's Annales, 1897, xv, 243, 387.