or appear for a time only at the beginning or at the end. It is rarely continuous throughout, tending, as it does, to be irregularly intermittent without appreciable cause. Often during the paroxysms it is very profuse, perhaps clotting in the ureter or bladder, and causing considerable inconvenience and pain. If distressing feelings have been present, some alleviation of them is apt to follow profuse bleeding. When hæmaturia is abundant and paroxysmal without provocation, in the case of renal tumor, cancer is pretty certain to be the cause.

Among other symptoms there may be ascites, anasarca, and great development of the cutaneous abdominal veins, from pressure of the tumor upon the large venous trunks within the abdomen. The size of the

Fig. 124.—(*Roberts.*)

tumor may cause functional derangements of the stomach and bowels. Vomiting sometimes appears early. The urine presents no characteristic diagnostic features. It is idle to place any reliance upon the appearance of so-called cancer-cells in the urine, or upon the hope of finding a shred of cancer-tissue, since such a shred, starting at the kidney, already softened and partly decomposed by the ulcerative process which

loosened it, would become wholly indistinguishable as a portion of cancer after traversing the ureter and remaining soaked in urine in the bladder for even a short time. In children the disease is more rapidly fatal than in the adult. It rarely lasts over a year. The tumor grows to an immense size, not infrequently fills the whole abdomen. The patient emaciates rapidly and dies.

Fig. 124 is an excellent representation of a child with advanced cancer of the kidney.

Adults with cancerous kidney usually die in two or three years, but many drag out more than double that length of time (Roberts). Cancerous cachexia is more liable to be marked in the adult than in the child.

The diagnosis in the male is with ascites, hepatic or splenic tumor, or renal tumor of other nature (hydro-nephrosis, pyo-nephrosis, hydatid). In ascites fluctuation is distinct, both loins are flat, the dullness may be made to change by position. A kidney-tumor is immovable, feels solid in parts, only one flank is flat on percussion. A tumor in connection with the liver does not have the colon in front of it. A kidney-tumor can usually be separated from the liver unless adhesions have formed; perhaps a line of resonance will exist between them. A splenic tumor does not have the colon in front; it grows more upward than downward; resonance may be heard in the flank behind it; its border may be felt stiff and thinnish; deep percussion will elicit the bowel-sound beneath (for the spleen is not a very thick organ); the history will show previous malarial poisoning.

For diagnosis with other renal tumors, the previous history, presence or absence of cachexia, existence of pus or hydatids in the urine, sudden decrease of the tumor after free urination, etc., form the distinguishing points.

Treatment.—The hæmaturia, if excessive, calls for treatment, as may also the nephralgia. As the disease is so often confined to one kidney for a length of time, without infecting neighboring glands or other parts, it belongs to the surgery of the future to decide whether, in a case recognized very early, ablation of the kidney might be a justifiable operation.

ABLATION OF THE KIDNEY.

The successful case of removal of the kidney by G. Simon,[1] of Heidelberg, has been followed by other operations, but as yet by none of fortunate issue. Simon's case was that of a woman, aged twenty-six, whose kidney was healthy, but the ureter had been divided in ovariotomy. To cure the resulting urinary fistula, the kidney was removed and the woman recovered.

G. A. Peters,[2] of New York, removed a kidney five and three-quarter

[1] "Deutsche Klinik," 1870. [2] *New York Medical Journal*, November, 1872.

inches long by three broad. The patient failed to recover. Dr. Peters's paper upon the subject is interesting and full, and contains a report of the only cases (three in number) where a similar operation had been performed previous to the date of his own. The operators were Simon, Linser, and Durham. Dr. Peters's method of reaching the kidney was simple and effective. An incision six and three-quarter inches long was made from the twelfth rib to the crest of the ilium, three inches from, and parallel to, the vertebral spines. The outer border of the quadratus lumborum was thus easily reached, and, through the fat beneath it, the kidney. This was gradually enucleated and removed, after tying the vessels.

SYPHILIS OF THE KIDNEY.

The kidney is occasionally the seat of syphilis. Lancereaux,[1] in twenty autopsies of patients with visceral syphilis, only found the kidney affected in five cases; four with interstitial nephritis, and one with gummy tumor; several with cicatrices. Virchow[2] believes that amyloid degeneration of the kidneys may depend directly upon syphilitic cachexia.

Kidneys affected by syphilitic disease do not furnish any symptoms which can distinguish the malady from other forms of slow nephritis; more or less albumen, in a fluid of low specific gravity, with usually a few pale casts. There are no distinctive, subjective symptoms. Such patients are liable to slight morning nausea. Sometimes recoveries occur, under treatment. An occasional case of albumen in the urine, which has disappeared under anti-syphilitic treatment, may be found recorded in the journals.[3] But, on the other hand, it will occasionally happen that patients with visceral syphilis, under protracted treatment, by large doses of iodide of potassium, will gradually show morning nausea, and upon examination their urine will be found light, slightly albuminous, and containing pale casts. In such cases the kidney-trouble is probably due to the irritation produced by the large amount of iodide of potassium passing through them, and the albumen and casts may be made to disappear, together with the morning nausea, by reducing the activity of the treatment. Several such cases have fallen under the authors' observation.

The pathological appearances of syphilitic kidney, besides amyloid degeneration, which may be found, perhaps due to the disease, are those of interstitial chronic inflammation (usually circumscribed), local cirrhosis (rarely general), thickening of the parenchyma and capsule, perhaps local fatty degeneration, with atrophy, the tough adherent capsule being depressed in deep seams, the kidney stroma compressed, atrophied, and degenerated between portions of contracted connective tissue.

[1] *Op. cit.* [2] "Die krankhaften Geschwülste," vol. ii., p. 471.
[3] Ollier, quoted by Rollet, p. 278.

These appearances may be found alone or combined with one or more yellow gummy nodules, of varying size, solid, or more or less softened. Such nodules are usually connected to white bands of hypertrophied connective tissue, running through the kidney. The gummy nodule is pathognomonic; the chronic interstitial nephritis is distinguished from the usual form by being generally confined to circumscribed portions of the gland.

The treatment of cases suspected to be syphilitic is that of tertiary syphilis.

CHAPTER XXI.

DISEASES OF THE SCROTUM.

Anatomy.—Injuries.—Œdema.—Emphysema.—Eczema.—Intertrigo.—Pityriasis.—Eczema Marginatum.—Pruritus Genitalium.—Pediculi Pubis.—Phlegmonous Erysipelas.—Elephantiasis.—Tumors and Cancer of Scrotum.—Epithelioma.

THE scrotum is a pouch formed of skin, muscular and connective tissue. Its function is to contain and support the testicles. It is developed from two lateral halves which unite centrally in the raphe (*ῥάπτω, I sew*), a raised line continuous with the raphe of the penis and that of the perinæum. The lateral halves sometimes remain separated and resemble labia majora, giving rise to an appearance suggestive of hermaphrodism. The healthy scrotum in the young man is thrown into rugæ at right angles to the raphe on either side, by the contractions of the dartos.

The integument of the scrotum is delicate in structure, covered with a few hairs, and apt to become pigmented at puberty. The sebaceous glands are very large.

The dartos is a layer of unstriped muscle. It lies beneath and firmly attached to the integument, and is reflected on either side inward from the raphe, to form the septum scroti. Each testicle has thus a dartos of its own. On exposing the scrotum to the air, the vermicular contractions of this muscle can be readily seen. They occur under the influence of cold or fright, and during the venereal orgasm. In youth, especially in winter, the dartos is habitually contracted and holds the testicles well up under the pubes. The ancient sculptors did not fail to notice that contraction of the scrotum was a mark of general as well as of sexual vigor. In the aged and infirm, on the other hand, especially during summer, the muscle relaxes, allowing the testicles to hang low, supported mainly by the cord.

The connective tissue of the scrotum is peculiarly loose, and contains no appreciable amount of fat. The septum scroti is pervious to