

in small quantity, increased by exercise. Increased frequency of micturition, more especially during the day, the reverse being true in prostatic stricture; a sudden stoppage in micturition; a previous history of nephritic colic often; passage of a stone, red sand, or gravel; sounding.

C. *New growths.* Paroxysms of severe lancinating pain, independent of micturition; hæmaturia irrespective of exercise, irregular sometimes at long intervals, sometimes persistent, and copious, presence in the pus, the epithelial cells or villous processes; cachexia and emaciation: absence of stricture, prostatic disease, and other cause, possibly a hard, irregular, tender tumor felt by rectal or vaginal touch; possibly enlarged glands in the groin; thickening of the vaginal wall detected by the sound.

IV. Pus from kidneys or ureters, is at first uniformly mixed with the urine, but after a little settles as a creamy layer; urine acid as a rule but may be alkaline if there be cystitis; then the urine is turbid and does not settle. Pain and tenderness over kidneys, extending down to the bladder and penis; a tumor in the renal region may be sometimes detected. Increased frequency of micturition may be present. The causes are (a) certain rare cases of acute nephritis; (b) calculous pyelitis; (c) tubercular pyelitis; (d) pyelitis from obstruction.

In (a) certain rare cases of acute nephritis such as sometimes supervene in cases of carbuncle, boils, erysipelas, acute fevers, parturition, pyæmia, or gonorrhœa, there is a slight quantity of pus; degenerate products of nephritis in urine, epithelial, pus, or hyaline casts, etc.; the previous history of smokiness or other evidence in the urine of the existence of acute nephritis; 4, a quantity of albumen much too great to be accounted for by the amount of liquor puris; 5, general dropsy not uncommonly; 6, uremic symptoms possibly, such as headache, retching, drowsiness, coma, or convulsions; 7, the absence of any tumor to be detected externally; 8, a dry skin; 9, the previous history of one of the above causes. B. *Calculous pyelitis* is distinguished by: 1, a previous history, though not always, of nephralgia, a pain extending from the kidney to the testicle, penis, vagina, or thigh, attended with

rigors, nausea, vomiting, frequent micturition, hæmaturia, retraction or swelling of the testicle, pallor, a quick, feeble pulse, and some fever, perhaps; 2, pain and tenderness, or simply a burning or aching, not necessarily in all cases, however, more or less constant in the region of one kidney or both, which is increased by much exercise and fatigue, or may be present only during fatigue; hæmaturia, especially when the calculus is composed of oxalate of calcium, and in any other case after violent exercise, while microscopic blood is usually present at other times; 4, a variation in the quantity of pus from day to day; 5, the absence of casts; 6, crystals of uric acid, or, not uncommonly, of oxalate of calcium; 7, a tumor in certain cases, not in all, more or less painful, in the kidney region, which enlarges when the quantity of pus in the urine diminishes, and becomes smaller, or disappears, when the quantity suddenly increases; 8, attacks of intermitting pyrexia, occasionally ushered in by rigors, and followed by profuse sweating, which are most severe when the tumour is largest; 9, the absence of dropsy and other signs of acute nephritis, though the patient may ultimately die of uræmia, due to the wasting of the secreting tissue of the kidney; 10, its duration, which may be a fair lifetime (one case lasted forty years), or may end favourably, by the stone passing into the bladder, or becoming encysted.

C. *Tubercular pyelitis* is distinguished by: 1, the absence of any history of renal colic; 2, a constant dull pain in the back, over one kidney or both, with exacerbations when the ureter becomes blocked, and which is accompanied by tenderness over one kidney, in nine cases out of ten. 3, hæmaturia not uncommonly, which is slight, and may be the earliest symptom, and then disappear; 4, the unvarying, or steadily increasing, quantity of pus in the urine; 5, the absence of casts from urine, and the presence often of amorphous granular matter insoluble in acetic acid, of particles of caseous matter, or fibres of connective or elastic tissue; 6, the absence of crystals; 7, the formation, if the ureter be blocked, of a tumor, which may point externally, or even stretch across the middle line (of sixteen cases, a tumor formed in seven); 8, persistent pyrexia, usually intermittent and hectic, with night-sweats; 9, as a rule,