In tuberculous cystitis secondary to unilateral renal infection, after nephrectomy the bladder condition may heal spontaneously. At all events, in such cases the primary affection must be dealt with first. Supposing the kidney has been removed and some months have been allowed to pass but still the bladder condition remains troublesome, and the cystoscope shows little or no improvement in the appearances, what should be done? It is taken for granted that general constitutional treatment has been carried out: tuberculin R used, regulated by the opsonic index, tonics, iron, strychnine, cod-liver oil, and urinary antiseptics have been prescribed; the patient has had the advantage of open-air treatment and regular dieting. Instillations and irrigation have not given encouraging results and often do harm.

The perchloride of mercury has certainly done good in some cases, but in the majority the effect has been harmful. Lactic acid, pyrogallol acid, creosote, and nitrate of silver are of no value as remedies. Guaiacol along with iodoform mixed in oil, 2 to 3 per cent., is most useful of any, but probably the best results are got by introducing four ounces of sterilised olive oil, or an emulsion of iodoform in olive oil, and instructing the patient to micturate standing until he notices the oil coming away, and then to stop. Some of the oil remains in the bladder, generally for 12 or 18 hours, and certainly helps the healing process. The injection may be repeated every day, and the bladder should be well washed out prior to the introduction of the oil.

Rovsing has reported good results from the injection of 100 c.c. of a 0.5 per cent. solution of carbolic acid in water. He allows it to remain in for five minutes, then draws it off through the catheter. The writer also has had good results from this treatment, better probably than from any other. But it must be combined with complete rest in bed.

Should time pass and still cure be delayed, four courses are open: (1) Instillations of perchloride of mercury; (2) curetting the bladder, in the female per urethram, in the male through a suprapubic opening; (3) injection of 2 per cent. thallin sulphate; and (4) suprapubic drain.

There is no doubt perchloride of mercury 1-20,000 to 1-10,000 parts of sterilised water produces a very beneficial result, and certainly warrants a fair trial. But as it occasions considerable pain the patient is often unwilling to give the treatment a chance. To use cocaine or other local anæsthetic before the instillation is inadvisable, but a subcutaneous injection of morphine or a general anæsthetic may be used. The instillation of half an ounce of the solution should be administered every third day on three occasions, then discontinued for a fortnight, the patient being kept at rest but not in bed. Nitrate of silver instillations should never be used.

Curetting the tuberculous ulcers or nodules through the urethra in the female, or a suprapubic wound in the male, often helps matters very much, and the establishment of a suprapubic drain gives the bladder rest and free exit to the urine, and at the same time the viscus can be carefully and regularly douched, either with weak boric acid solution, 0.5 per cent. solution of carbolic acid, or 2 per cent. thallin, and the ulcers may be swabbed with pure phenol through a speculum, and the action of the agent checked by washing afterwards with a solution of bicarbonate of soda.

The following statistics collected by Walker are of interest²:-

Summary of Walker's Statistics.

	Cases.	Cured.	Deaths.	Improved.	Not improved.	Worse.
Nephrectomies	16	9	5	2	—	—
Nephrotomies	2	—	2	—	—	—
Suprapubic cystotomy, curetting	121	9	28	48	34	—
Curetting <i>via</i> female urethra ...	17	2	0	5	10	—
Perineal section	21	0	10	5	3	3
Vesico-vaginal incision	5	0	1	4	—	—
Total	182	20	46	64	47	3

² Watson and Cunningham: Diseases and Surgery of the Genito-Urinary System, vol. ii., p. 414.

Non-operative Methods.

	Cases.	Cured.	Deaths.	Improved.	Not improved.	Worse.
Injections of iodoform	31	1	—	23	7	—
Of sublimate	38	2	—	18	15	3
Of guaiacol	2	—	—	—	2	—
Gemol	2	—	—	1	—	1
Tuberculin	4	—	—	—	2	2
Climatic or medical	18	6	—	12	—	—
Total	95	9	—	54	26	6

The above statistics date from 1907, and hence do not give the best results now obtainable. The diagnosis can now be made at the beginning of the disease, and the primary focus of infection in the kidney can be removed at an early date in the history of the malady. If this be done, followed by free drainage and complete rest of the viscus for several weeks, together with the administration of tuberculin R., with the dosage regulated by the opsonic index, there is some hope that vesical surgery will be elevated out of the pitiful position it not long ago occupied in relation to tuberculosis of the bladder. Until five years ago cystostomy was employed in the late stages of the disease only, when the patient was tortured by pain and frequent micturition. While in such cases it undoubtedly gave marked relief of the symptoms, from the very nature of the conditions present the operation could not be expected to be a curative one. Now, when attacked early—namely, while the mucous membrane alone is involved, as demonstrated by the cystoscope—cures may be obtained. The writer intends publishing at an early date cases in which perfect healing has taken place, and the patients are now alive and well.

Glasgow.

TWO CASES OF
VOLVULUS COINCIDENT WITH STRANGULATED HERNIA.

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CASE 1.—The patient was 55 years of age and had for years been the subject of a large inguinal hernia. After a hearty supper on the evening of March 13th, 1910, he had sudden pain in his abdomen and vomited several times. The vomiting brought down the hernia, and he was unable to get it back. During the night he had violent diarrhoea and more vomiting, and early next morning he was admitted to the Royal United Hospital.

When I saw the patient there he was complaining of severe abdominal pain, and was constantly vomiting bile-stained fluid without fæulent odour. He looked pinched and ill, his pulse was weak (100 to the minute), and his temperature 99.2° F. There was present a very large right scrotal hernia, obviously strangulated. His abdomen was moderately distended, tender, and rigid, but no swelling could be felt.

Operation was performed 14 hours after the onset of the symptoms. An incision was made over the sac, which contained much dark-brown foul-smelling fluid. The bowel was dark and ecchymosed. A constriction at the neck of the sac was divided, and on pulling down the intestine its condition above the site of strangulation was found to be no better than that below. Coil after coil of black swollen bowel was pulled down, till the origin of the trouble was found to be in a twist which had occurred 3 inches from the ileo-cæcal valve. At this situation a loop of ileum had formed a half-turn on itself from left to right, and here both limbs of the loop were completely gangrenous. The peritoneal cavity contained a large quantity of blood-stained fluid. It was felt that the only chance of recovery lay in the complete removal of the volvulus, so the wound was enlarged upwards and the whole resected. The method used was that which has been described by Barker, the divided distal end of the portion

of bowel about to be removed being allowed to hang over the side of the table and syphon off its contents into a pail while the mesentery was being ligatured off. The divided ends were then closed and a lateral anastomosis was made between the remains of the ileum and the cæcum. A drain was left in the neighbourhood of the junction and the wound was closed. Three pints of saline solution were infused into a vein while the operation was in progress. The portion of ileum resected was found to measure 7 feet in length.

The patient made an uninterrupted recovery, the bowels acting naturally on the third day. During his stay in the hospital he generally had one loose action of the bowels every day, and the restoration of his strength did not appear to be in any way retarded by the loss of so large an area of absorbent surface.

CASE 2.—The patient, a woman, 74 years of age, was admitted to the Royal United Hospital in February, 1911, with a history of complete intestinal obstruction and abdominal pain for eight days, and of vomiting for two days before admission. About a year before she had suffered from an abscess in the right groin, which healed up after being opened.

On admission the patient was drowsy and flushed, with a pulse of 96 and subnormal temperature. She was vomiting faecal-smelling liquid. Her abdomen was much distended, and visible peristalsis was present. Nothing could be felt per rectum. There was a scar in the right groin, with a soft indefinite swelling under it, which was not particularly tender and did not give one the impression of being a hernia.

The diagnosis was intestinal obstruction, probably due to growth. The abdomen having been opened in the middle line, the small intestine was found to be distended, and the cæcum and colon collapsed. A coil of distended ileum was traced down to the neighbourhood of the right femoral canal, close to which it was found to be twisted on itself and to be the site of obstruction. The extremity of the coil protruded into the femoral canal, where it was strangulated in part of its circumference. A second incision was made over the femoral ring and the sac of a hernia opened. The strangulated coil was freed and returned to the abdomen, where it was untwisted and wrapped in gauze. The hernial sac also contained a densely adherent appendix vermiformis, which on being removed was found to have its lumen obliterated. In all probability the history of "bubo" was to be explained by the occurrence of an appendicular abscess in the sac of the hernia. After radical cure of the hernia, on returning to the abdomen it was found that a patch of gangrene was present where the bowel had been caught by the femoral ring. This patch was inverted, and, the rest of the intestine being in good condition, the wounds were closed.

This patient also made a satisfactory recovery, save that after the stitches had been removed on the tenth day she extruded her intestines through the wound during a fit of coughing. The extruded coils were at once cleansed and returned and the wound re-sutured, and she appeared to be little the worse for the accident.

Remarks.—These two cases are examples of the combination of volvulus with strangulated hernia, to which attention has been called in recent years by several writers, notably Knaggs,¹ Dobson,² and Miller.³ They form a very marked contrast in the severity of the symptoms which may be met with in cases of this kind, where conditions exist which, though anatomically alike, differ both in degree and in mode of production.

In the first case it is, I think, clear from the history that the volvulus was the primary trouble, and that the strangulation of the hernia was produced by the vomiting and by the swelling of the affected intestine consequent on this. The amount of intestine involved being very large, the mesenteric blood-vessels were immediately occluded by the twist, with the result that in little more than 12 hours after the onset of symptoms the intestine was reduced to a condition in which complete excision became necessary to save the patient's life.

In the second case, on the other hand, there can be little doubt that the pinching of part of the circumference of a loop of ileum in the femoral ring was the primary trouble. The strangulation not being very tight the vitality of the bowel was not immediately endangered, and probably owing to peristaltic movements and the fixation of the bowel at this point the volvulus occurred secondarily. As only quite a small loop was involved the blood-supply was not entirely cut off, but complete obstruction of the bowel was produced by the pressing together of the limbs of the loop at the point where the twist took place. The result was that after eight days' obstruction the condition of the second patient was better than that of the first at the end of 12 hours, and a simple operation was sufficient to remedy the trouble.

In neither case was a correct diagnosis made before operation. In the second case probably this was excusable, but in looking back on the first case one feels that the gravity of the patient's condition only 12 hours after the beginning of his illness ought to have suggested that behind the obviously strangulated hernia some further and more severe cause of trouble might be in existence.

With regard to the successful issue after so extensive a removal of intestine, I think one may attribute it in the first instance to the continuous intravenous infusion of saline throughout the operation, which was kindly carried out for me by colleagues at the hospital; and, in the second place, to the use of that most valuable device, described by Barker, of using the whole length of the intestine about to be removed as a syphon, whereby large quantities of septic fluid can be drained off from the obstructed bowels.

In the excision of inflamed or gangrenous intestine it appears to me that one of the most important points, and one to which sufficient attention is not given in text-books, is the treatment of the mesentery. This structure, in all cases of which I have personal experience, is enormously swollen and cedematous and its vessels are engorged with blood, with the result that severe hæmorrhage is apt to occur when the clamps are removed after it has been divided. Such loss of blood, in addition to the already grave shock associated with these operations, is, I believe, sufficient sometimes to turn the balance against recovery.

To avoid this hæmorrhage as far as possible the mesentery should, as recommended by Barker, be first folded on itself and clamped in its whole length, parallel to the long axis of the intestine to be removed, with long powerful clamps (pylorectomy clamps answer admirably). The bowel is then cut away from the mesentery, and while the divided lower end of the part to be removed is syphoning off its contents, the whole mesentery is ligatured off, distal to the clamps, by interlocking sutures, passed through both leaves and back again with a large straight needle carrying stout linen thread. In order to interlock the sutures the second must be passed before the first is tied, the third before the second is tied, and so on to the end.

Even after carefully ligaturing off the whole margin in this way bleeding may still be found to occur from a few points after removal of the clamps, owing either to the failure of the ligatures to sufficiently compress the large vessels in the swollen mass of tissue or to some of them having cut through portions of it. These points can, however, easily be tied separately.

The ordinary method of a simple running or blanket suture along the divided margin of the mesentery is useless in such cases, and if depended on will lead to severe loss of blood the moment the clamps are removed.

The interesting question as to how far nutrition suffers in persons who have lost a large portion of their small intestines is answered, in the case of my patient, by a letter received from him in January last—i.e., 1 year and 10 months after the operation. He states that his health and appetite are good, and that it makes no difference to him what kind of food he eats; that his bowels act regularly two or three times a day; and that he regularly does light work.

Except, therefore, for some looseness of the bowels this patient does not appear to be appreciably the worse for the removal of what in all probability amounted to more than half the length of his ileum.

Bath.

¹ Annals of Surgery, 1900; THE LANCET, June 16th, 1900 (p. 1726), and March 6th, 1909 (p. 676).

² THE LANCET, March 6th, 1909 (p. 679).

³ Annals of Surgery, 1911.