is necessary whatever type of operation it is ultimately decided to perform. As regards pre-operative treatment, it is specially important that infection of the bladder should be combated as far as possible before treatment by electro-coagulation.

Indications for Electro-coagulation.

Conditions suitable for treatment by electro-coagulation are the following:

1. Slightly enlarged prostates, especially those where there is only a local adenoma encroaching on or obstructing the vesical orifice, and obviously causing definite impediment to the outflow of urine. The indication is the stronger if at the same time the prostate is relatively small and fixed. It is in this type of case that electro-coagulation by this technique is of particular value.
2. "Middle lobe" obstruction.
3. Median bar obstruction.
4. The small fibrous prostate and contracture of the vesical orifice.
5. Flap formation resulting from previous operation.
6. Relief can be given to cases of obstruction in extreme old age, those suffering from intercurrent diseases, or those in which the renal function has deteriorated to such an extent as to render the ordinary operation for prostatectomy one of extreme gravity.

After-Treatment.

For two or three weeks after operation a mixture containing hexamine and acid sodium phosphate is administered. During the first few days the patient complains of bladder irritability, and this may continue in diminishing degrees for about three weeks. This symptom can be alleviated to a certain extent by giving tincture of hyoscyamus. For about three weeks after electro-coagulation has been carried out sloughs of various sizes are passed in the urine, sometimes causing temporary obstruction to micturition. In one of my cases the patient was unable to pass the slough; having tried unsuccessfully to remove it by means of a Bigelow's evacuator I adopted the following procedure. The bladder was distended with fluid and the cystoscope reintroduced at the site of the old scar. A lithotrite was passed and the slough seized and broken up under visual control. The larger portion of the slough was withdrawn in the jaws of the lithotrite, and the remainder was removed by means of the evacuator.

Complications.

Other complications that I have encountered are slight incontinence of urine, double epididymitis, and prevesical suppuration. In no case has there been any haemorrhage. One patient, aged 80, died of uraemia, a result that can hardly be attributed to the operation, since he was suffering from diabetes, was very anaemic from persistent haematuria, and had a non-protein nitrogen figure of 85 mg. per cent. In the ordinary course of events I should not have operated on this patient, but as a last resort was induced to do so because of his very persistent and copious haematuria.

Early Results of Treatment.

I have now used this technique for diagnosis alone or diagnosis and treatment in over fifty cases. Owing to lack of experience, bad selection of cases, and technical difficulties with the instruments, some of my early cases, though encouraging in their results, were not strikingly successful. Later results have improved substantially. Of the last twelve consecutive cases, one, referred to above, died; four cases, three of which came under my observation with complete retention, have been markedly benefited, inasmuch as micturition is now free and they have improved greatly in general health; they still, however, have some nocturnal frequency. The remaining seven cases may be classed as complete successes, inasmuch as they have urinary streams of good force and volume, which are passed without hesitancy or straining and without being followed by dribbling. They can retain their urine all night, and there has been a striking improvement in their general health.

As far as my present experience goes I am satisfied that, with this technique, detailed information about the prostate and vesical orifice obstruction can be obtained such as is impossible by any other means. It is therefore a definite aid to diagnosis. As regards treatment, I have had a high percentage of cases showing immediate relief, either complete or partial, but have not yet had them

under observation for a sufficiently long period to make any remarks as to the remote results.

I may incidentally mention that I have used this technique with complete success in three cases of papilloma of the bladder, in which the growth was either too large, or situated too near the vesical orifice, to be dealt with by perurethral diathermy, and have crushed a vesical stone with the ordinary lithotrite under visual control through the suprapubic cystoscope.

The instruments described above have been made for me by the Genito-Urinary Manufacturing Company, and I have to thank Mr. Schranz of that company for his technical advice and for the efficient way in which he has constructed the instruments to meet the requirements of the technique. I have also to thank my colleague Mr. Stanley V. Unsworth, F.R.C.S., for his drawing of Fig. 1.

STRANGULATED FEMORAL HERNIA.

A COMPARISON OF VARIOUS METHODS OF TREATMENT,
WITH ESPECIAL REFERENCE TO END-RESULTS.

BY

HAMILTON BAILEY, F.R.C.S.,

GILLSON SCHOLAR, SOCIETY OF APOTHECARIES; SURGEON, DUDLEY ROAD HOSPITAL, BIRMINGHAM.

THERE still exists some doubt as to the advisability of relinquishing the old (lower) operation for femoral hernia. H. W. Carson¹ writes: "I have been unable to find statistics of the end-results of Lotheisen's operation." It is, perhaps, for this reason that in some quarters (to judge by the reports of disappointed candidates for the English Fellowship) the inguinal route for femoral hernia is looked upon with distinct scepticism, if not actual disfavour.

In order to determine the relative values of the various operative methods I have analysed my series of cases of strangulated femoral herniae, paying particular attention to the ultimate end-results. I have chosen *strangulated* cases because there are sufficient in each group to make a comparison. It would be manifestly unfair to compare the end-result of, say, a case of strangulation operated upon in the middle of the night by the older technique with an unstrangulated femoral hernia repaired at one's leisure by Lotheisen's method.

Disadvantages of the Lower Operation for Strangulation.

The lower operation has been practised for years, and has saved thousands of lives, but it is beset with certain dangers and difficulties which, from time to time, have been recorded.

1. Resection and anastomosis within the limits of the wound is extremely difficult, and in many instances impossible. If resection is necessary laparotomy must usually be performed.

2. If the sac has been slit up in order to release a constriction high up in the neck, a loop of intestine may be reduced extraperitoneally. This is an error easily committed, and referred to by Jonathan Hutchinson, jun.²

3. The bladder is in more danger than when other methods are used.

4. The abnormal obturator artery, if cut, causes embarrassing haemorrhage, whereas, when operating from above, the artery may be seen and is accessible.

5. The loop of imprisoned intestine may suddenly retract into the peritoneal cavity after the obstructing agent has been divided, and so prevent proper inspection unless laparotomy is performed.

It so happened that it was objection No. 5 which, in 1923, finally led me to abandon the lower operation.

A woman, aged 28, had a strangulated femoral hernia of thirty hours' duration. After Gimbernat's ligament had been nicked the obstructed loop, before it could be inspected, slipped back into the peritoneal cavity. Two days later general peritonitis supervened, and laparotomy showed that a small patch of lifeless intestine had given way—evidently where the constricting band had been present. The patient died. I have never performed the lower operation since.

Analysis of Cases Treated by the Lower Operation.

Number of cases	20
Died	4
Number of recovered patients traced	10
Lump returned	5

The Inguinal Route (Lotheisen's Operation).

The inguinal route for femoral hernia, while being technically a more difficult operation, is relatively immune to those dangers referred to above. Resection and anastomosis can be carried out within this area as readily as through a laparotomy wound. The only danger peculiar to this route is the proximity of the femoral vein; but if the simple precaution is taken of protecting the vein with the finger during the insertion of the deep sutures the danger fades into insignificance. It has been my privilege to discuss the merits of this operation with a number of the younger surgeons, some of whom had lately embarked upon actual operative work. When asked what they found to be the difficult part of the operation there was a general consensus of opinion that it was placing the sutures through the periosteum and Cooper's ligament which overlies the ilio-pectineal line. This information emboldens me to describe a method of inserting these sutures which simplifies the operation. The femoral artery is located by its pulsation with the left index finger in the wound. The finger is now shifted 2 cm. to its inner side, where it will rest upon the femoral vein. Here the finger comes to rest and remains throughout this critical stage of the opera-

Method of placing the deep sutures referred to in the text.

tion. In order that the ilio-pectineal line may be clearly visible good retraction is necessary, and a valuable instrument for this purpose is Sargent's retractor. Its shining surface helps also to reflect light into the depths of the wound. It is held by the assistant in such a way as to keep back both the internal oblique and the peritoneum (see figure). With a rather small curved needle mounted on a holder three sutures are passed through the periosteum and Cooper's ligament overlying the ilio-pectineal line—the first being near the finger guarding the femoral vein and the last near the insertion of Gimbernat's ligament. After each suture has been placed the needle is removed, and the two free ends of the suture clipped together with a haemostat. The accompanying figure will make this stage of the operation clear. The detempered bendable needle, made by Philip Spencer of Redditch, which I described elsewhere,³ is very useful in passing these deep sutures. It may be bent up into a U shape, which materially aids matters when working in a confined space. Furthermore, it does not readily break if bone is encountered. The remainder of the operation is simple. Retractors and the guarding finger are removed. The free ends of the three sutures are passed through the conjoint tendon from its deep to its superficial surface, and tied in pairs. Thus the conjoint tendon is approximated to the ilio-pectineal line—the essential step in the repair by Lotheisen's method.

Analysis of Cases Treated by the Lotheisen Principle.

Number of cases	...	...	...	...	...	32
Died	...	...	...	...	...	1
Died two years later, no recurrence up to time of death	...	...	...	...	...	1
Untraced	...	...	...	...	...	4
Recurrence	...	...	...	...	...	2
Alleged recurrence; no hernia found on examination	...	...	...	...	...	1
No recurrence between one and six years after operation	...	...	...	...	...	22

Hey Groves's Operation.

To those of us who were taught and brought up in the belief that to sever Poupart's ligament was permanently to weaken the abdominal wall Hey Groves's operation, which the originator described in 1923,⁴ was something of a surprise. His results, however, were so good as to compel attention. Personally I have used the method in only a small number of cases, but these have been the very worst subjects for any operation—namely, those who were so fat that Lotheisen's operation would probably have been very difficult, or those who were so ill or old that life was almost despaired of. The operation is quick and efficient, and the end-results are exceedingly good. It combines the simplicity of the older operation with the safety and good end-results of the new. Resection and anastomosis is not quite so readily performed through this exposure as in Lotheisen's operation.

Number of cases	...	...	...	...	...	7
Died	...	...	...	...	...	2
Untraced	...	...	...	...	...	1
No recurrence	...	...	...	...	...	4

Conclusions.

1. Owing to the better exposure of the seat of the strangulation, Lotheisen's operation is less likely to be attended by operative accidents than the lower operation. Hey Groves's operation shares with Lotheisen's method this advantage.

2. The end-results of both Lotheisen's and Hey Groves's operations are very considerably better than the old lower operation.

3. The technique of Hey Groves's operation is easier to understand and to master than that of Lotheisen's operation.

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CANCER TREATED IN GENERAL PRACTICE BY COLLOIDAL LEAD.

BY

ERNEST TALBOT, M.C., M.B., CH.B.VICT.

I WAS very much interested in the proceedings of the International Conference on Cancer, especially in the discussion relating to the treatment of this disease by lead salts. The pessimistic conclusions of some members who were present appear to justify a report of my treatment of two cases of cancer which, two years ago, were condemned as hopeless and inoperable. Although my experience has been limited to two cases only, the results have been both illuminating and encouraging.

CASE I.—Carcinoma of the Right Breast.

The patient was 49 years of age and unmarried. In February, 1924, I performed a radical amputation of the breast. The tumour was examined microscopically, and reported to be definitely carcinomatous. In June, 1925, definite cancerous nodules appeared in the scar. The patient was now admitted to the Ashton-under-Lyne Infirmary, where Mr. Marcus Mamourian made a wide excision of the skin involved. In the following month she began to attend twice a week for x-ray treatment, but in spite of this the cancerous nodules reappeared in the skin and extended rapidly. In May, 1926, the whole of the right anterior chest wall was one mass of cancerous nodules. A further excision was suggested to her, but she declined to undergo any further operative intervention, and x-ray treatment was continued. By this time the patient had become very cachectic, and there was definite dullness on percussion over the upper right lobe of the lung and the mediastinum. She complained of difficulty in swallowing. There were undoubtedly secondary deposits of growth within the chest wall. As a last resort I began to give injections of colloidal lead. In June, 1926, the first injection of 1 c.cm. was given intramuscularly into the gluteal region. This was repeated every four days, the dose being gradually increased, until by the end of a month she was having 15 c.cm. After six months' treatment the scars on the chest wall instead of being fixed became more movable, the nodules in the skin had disappeared, and she had gained 14 lb. in weight. There was no albuminuria, and the patient felt very much better. During this time 166 c.cm. of colloidal lead were injected into the gluteal region. In the next two months only one injection of 10 c.cm. was given. At the end of this period there was a reappearance of the cancer nodules in the skin of the right