On May 1, 1952, she had her ureteric transplant and three weeks later she underwent cystectomy. She stood both operations well. She had some difficulty with her anal sphincter but in October 1952 I timed her in the Out-patient Department and she was able to hold her water for two and a quarter hours. Every Saturday as was her wont she spent the evening in a "pub" from 7 to 10 p.m. and during that time she had to leave the saloon only once. On March 1 this year she died at the age of 78, ten months after her cystectomy.

Case V.—This is a stage 5 squamous-cell carcinoma of average grade of malignancy (Figs. 3 and 4), a man aged 66. As well as his carcinoma he had an enlarged prostate and two diverticula. He first

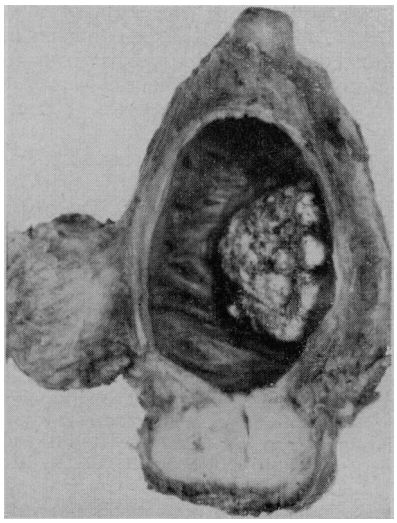

FIG. 3 (*Case V*).—Bladder from a man aged 66 years showing an ulcerative stage 4 carcinoma, benign hypertrophy of the prostate and two diverticula.

FIG. 4 (*Case V*).—Photomicrograph of section of lymph gland from the case illustrated in Fig. 3. This is a squamous-cell carcinoma of average grade of malignancy. × 280.

attended on April 4, 1952. He had first noticed hæmaturia two weeks previously. A one-stage cystectomy was performed May 1, 1952, and he was discharged fifteen days later.

Last seen in December 1952 when he reported that his control was good and he was still at work.

On January 9, 1953, nine months after his operation he died suddenly during the night.

It may be of interest to note that while this patient was in hospital his brother aged 64 attended the Out-patient Department with multiple papilliferous tumours of his bladder.

I think it was justifiable to submit these patients to cystectomy.

Vaso-Epididymal Reflux Syndrome

By ALEC W. BADENOCH, M.A., M.D., Ch.M., F.R.C.S.

THE purpose of this short communication is to draw attention to a condition which is comparatively rare but which appears to be a definite clinical entity.

In May 1948, J. V. T., aged 60, consulted me complaining of pain in the left testicle. This pain had begun twenty-one days previously, was quite severe, gnawing in character and had lasted four hours. It recurred the following day and on most subsequent days, lasting usually for two to four hours. In between the attacks there was complete freedom from pain for anything up to twenty-four hours. A left inguinal hernia had been present for thirty years and for most of this time had been controlled by a truss—the latter had not recently been changed.

On examination.—There was nothing abnormal to feel in the abdomen. A left inguinal hernia which reached the neck of the scrotum was easily reducible. The left epididymis was rather tender and was enlarged to about twice the size of the right, both upper and lower poles being affected. On rectal examination, the prostate was moderately enlarged, bi-lobed, smooth and elastic. The urine was crystal clear and contained nothing abnormal. He had been seen by another surgeon, told that the hernia was the cause of his symptoms and was advised to have it repaired. Neither he nor his own doctor agreed with this course. I suggested that the pain

might be due to a reflux of urine along the vas deferens and advised further investigation, to which he agreed. During the waiting period he wrote me in the following vein "I am pretty sure now the pain starts invariably after I have passed water. I have got the habit of pressing two fingers down my groin, it may be pure imagination but I think this often prevents the pain from coming on. The pain is enough to make me lie in a hot bath for an hour or two and stops me doing anything. When the pain is over, my health is extraordinarily good."

On investigation the urine was sterile on culture. A cysto-urethroscopy showed some lateral and middle lobe enlargement of the prostate into the bladder. The verumontanum was small and nothing abnormal was noted in the appearance of the uterus masculinus or in the openings of the ejaculatory ducts. In view of the persistence and severity of the pain, I advised orchidectomy together with removal of the vas and repair of the hernia. From this he made an uneventful recovery. The pathological examination showed a great excess of fibrous tissue round the epididymis such as is found in a chronic inflammatory lesion. The vas was fibrotic and its lumen contained a coagulated colloid material. The testicle was normal. There was no sign of tuberculosis of neoplasm.

On January 16, 1953, I was asked to see S. S., aged 48, who had been admitted to hospital four days previously.

History.—He complained of recurring attacks of pain which he thought started in the lower part of the spine, passed round the waist and down into the scrotum. The pain first occurred some four years previously and at first came on infrequently. It began quite suddenly, was not accompanied by nausea or vomiting or with any disturbance of micturition. At times he felt the left testis might have swelled. Some two years ago the pain began to recur more frequently—every two to three weeks—and increased in severity. About eighteen months ago he was seen by a surgeon who found a left inguinal hernia, considered this to be the cause and did a repair. Six weeks after the operation the pain recurred exactly as before and since then there had been an attack every few weeks. He had been seen by at least five surgeons and had had the urine cultured on several occasions without anything abnormal having been discovered. The longest period of freedom from pain was six weeks and, during the last attack, the pain was so severe that he fainted and was admitted to hospital as an emergency. An intravenous pyelogram showed some dilatation of the left ureter down to about the middle of the sacro-iliac joint. It was in view of this that he was referred to me, with a view to having a catheter passed along the left ureter to exclude a ureteric calculus.

On examination I found the left epididymis was tender and was enlarged to three times normal size. The spermatic cord was a little tender and was thickened. On rectal examination the prostate was small, bi-lobed and smooth but on palpating in the region of the left vesicle the patient volunteered that the pain always started in this position and from there circled to the front. When asked, he said there was no relation between the onset of the pain and the act of micturition. I cystoscoped him and found nothing abnormal in the bladder or prostatic urethra and a ureteric catheter passed easily up the left ureter.

Operation.—I postulated that a vaso-epididymal reflux was the cause of the pain and advised epididymectomy. To this he agreed. The repair of the left inguinal hernia had been most efficient, however, and by the time I had exposed the pelvic part of the vas, the cord was somewhat attenuated. I performed an orchidectomy removing most of the vas deferens. He also made a good recovery. The section of the duct showed very little abnormal whilst the epididymis showed the appearances of inflammatory reaction without abscess formation.

Discussion.—The anatomy of the vas deferens is of course, familiar to us all. It is some 30 cm. long with a diameter of 2–3 mm. Towards its urethral end it dilates to form the ampulla and then narrowing joins with the duct of the ipsilateral seminal vesicle to form the ejaculatory duct. This very slender channel—2 to 3 cm. in length—passes through the prostate to open by a slit-like aperture on the lateral wall of the verumontanum. The wall of the duct is composed mainly of plain muscle with the outer layer longitudinal, the middle circular, and the inner layer again longitudinal. The mucous membrane is of columnar epithelium which in the human is not ciliated. I can find no reference to any sphincter mechanism at the orifice of the ejaculatory ducts in any of the commoner authoritative textbooks such as Gray, Cunningham, Buchanan, Scharper's Microscopic Anatomy, or Marshall (1922). Experimentally most observers have been unable to force fluid along the ejaculatory duct from the prostatic urethra. Bellfield and Rolnick found it impossible to produce a chemical epididymitis by injecting along the vas. Since Rolnick's work in 1925 and 1928, however, many urologists, if not all, have accepted that infection can pass along the lumen of the vas after prostatectomy and reflux of urine in this connexion is no new conception. Cases of fistula have been reported by Kreutzmann, 1938; Hanley, 1945; and Schmidt and Hinman, 1950. This occurrence may well be influenced by the point of division of the urethral end of the vas since if this occurs through the ampulla, and especially when there is also infection at the scrotal end, reflux may be more likely to occur. It occurs in association with genital tuberculosis and has been reported by Yates Bell (1937) and Perves and Duvergey (1939). It may then be due to the orifice being held open as the result of inflammatory rigidity.

It may follow obstruction in the urethra distal to the verumontanum and then should be bilateral.

J. W., aged 27, attended my out-patient's department in January 1947 with a suprapubic fistula.

History.—During the previous three years he had had fifteen operations on the bladder including excision of diverticula but had continued to leak suprapubically.

On examination.—There was 26 oz. of residual urine and a cystogram showed a grossly dilated prostatic urethra. I saw what I took to be a valve on each side of the prostatic urethra and removed part of them. After this the residual urine came down to 4 oz. the bladder closed and he was able to pass water fairly well but the urine remained infected with *B. coli.* In August 1949 he developed a moderately severe acute epididymitis. This partly cleared up but recurred in April 1950. He was again admitted to hospital and X-rays showed a reflux along both vasa. I tied the duct on each side but he developed a fistula on the left side, an abscess on the right and the suprapubic wound also broke down. I did a minimal resection in the region of the flaps and since then the fistulæ have remained dry. Such obstruction does not always produce vaso-epididymal reflux nor does it often occur in cauda-equinal lesions when the prostatic urethra may be widely dilated.

The 2 cases I described at the beginning of this communication do not fall into any of the above groups. There was a little prostatic obstruction in one case but this in itself, unless very asymmetrical, should not be the cause. Otherwise, in neither case was there any local ætiological factor and the urine was sterile in each case. On the other hand, Yates-Bell (1937) referred to a fistula having occurred in a patient who had had a cystostomy and vasectomy done for retention of urine due to prostatic obstruction. Vincent O'Connor in 1935 recovered from the vas, traces of a silver solution which had been instilled into the bladder the day before, in each of two cases of acute retention due to prostatic obstruction. Graves and Engel (1950) have produced epididymitis by injecting sterile urine along the vas in dogs. There seems little doubt, therefore, that urine can and does pass along the vas, in association with prostatic obstruction and may not always give rise to symptoms.

Many of us will also remember the numerous cases of epididymitis which occurred, sometimes in epidemic proportion, amongst Service personnel during the last war. I think it was Robinson in 1944 who first suggested that these might be due to reflux of urine from straining with a full bladder. At the time I felt that the more likely cause was a virus, but it was with this suggestion in mind that I made the tentative diagnosis in my first case. I have no suggestions as to why this reflux should occur, nor moreover as to why it should cause such severe pain; but I have no doubt it was the cause of the symptoms in each case. Both patients were extremely grateful. A year after I had operated on the first case, I received a telegram which read "Twelve months to-day you made a good job. Thank you." And in October of that year, and for several subsequent years, I received a brace of pheasants. It is only four months since the second case was treated, but up to now he is quite free from symptoms.

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An Approach to the Problem of Simple Enuresis

By A. R. C. HIGHAM, F.R.C.S.

THE ætiology and the pathology of what I have called simple enuresis are both obscure if not unknown. Thus Ellison Nash in this country found that 86% of his cases had an unknown cause, and Campbell in America calls it a "purely functional disorder".

This is manifest, and I cannot frame a rigid definition that will include the older child who wets the bed and not the normal infant who would do exactly the same thing if not swaddled in absorbent nappies.

On the other hand, it is easy to exclude the pathological cases with continual dribbling or with obvious urinary obstruction preventing micturition from being instantly initiated, copiously continued, and completed with certainty, as it ought to be.

We are left with a larger group who are continent by day and who yet are emptying the bladder without waking, and it is these cases I wish to discuss.

If a child is capable of holding his water when awake he can be trained to hold it when asleep. This is fundamental. The mechanism, and the control of that mechanism, must both be intact if the child is dry by day. There can be no question of the nervous system being inadequate, under-developed, or deranged. A radiological diagnosis of spina bifida occulta is quite irrelevant in any clean dry child.