Clinical Studies

Genitourinary tuberculosis: study of 20 patients

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Summary

In the past year 20 new cases of genitourinary tuberculosis were referred for treatment at Wrightington Hospital. Many of these patients had waited a long time between diagnosis and referral and the start of effective treatment. We suggest that a new short course of chemotherapy should be used, and surgery undertaken during the first three months of treatment, but after the patient has had at least four weeks' drug treatment. After chemotherapy follow-up may be reduced to two years. Genitourinary tuberculosis remains a serious disease and should be managed by a urologist.

Introduction

Genitourinary tuberculosis continues to present many problems in urological practice. In 1974 20 new patients, several with advanced disease, were admitted to Wrightington Hospital. During the preceding five years the average number of new patients a year was five. The 1974 intake therefore, represented a sudden considerable increase in the number of referrals. A further alarming feature of this series was the number of patients presenting for specialist treatment with a severe form of urinary tuberculosis.

We undertook this study to determine whether any significant underlying factors were responsible for the apparent recrudescence of the disease. The chemotherapeutic regimens currently used and the policy for surgical management are also described.

Patients

In the 12 months ending 31 December 1974 20 new cases of genitourinary tuberculosis were admitted to the urological tuberculosis unit at Wrightington Hospital. The 14 men and six women had an average age of 47 years (range 27-71 years). The presenting symptoms were as follows: diurnal frequency of micturition in 12 patients, nocturia in 14, dysuria in 10, renal pain in 5, haematuria in 7, incontinence in 3 (1 overflow), enuresis in 1, and swelling of the testes in 5. These presenting symptoms conformed to the expected pattern except for haematuria, the incidence of which was higher than usual. All patients had *Mycobacterium tuberculosis* isolated from the urine before treatment started, and the sensitivity pattern was ascertained before chemotherapy was begun. The patients were graded in accordance with Semb's classification¹: two had type I disease, 11 type II, and seven type III.

Other indices studied included calcification hypertension, history of tuberculous disease, and, in particular, the duration of symptoms before the start of treatment and the "time lag" from first seeking medical advice until referral to the specialist unit. Calcification was noted in 12 patients, six of whom required surgery. Five patients were treated by nephrectomy and one by partial nephrectomy, which underlines the serious nature of the disease process in this group. Hypertension was not a feature of this series. One patient who had significant hypertension had nephrectomy performed without noticeable effect on his resting blood pressure. This agrees with previous findings.² A history of the disease was obtained in seven patients, and in four 20 years had elapsed before they presented with the genitourinary disease.

Two patients had waited two years from the onset of symptoms until treatment was started. Moreover, four patients had waited one and a half to two years between first seeking medical attention and receiving antituberculous chemotherapy.

Treatment

Our present regimen of treatment (see table) was started in 1973. Patients classified as type III who received six months' total chemotherapy were those in whom it was possible to excise the diseased tissue. Those who required nine months' chemotherapy were those in whom disease was widespread and bilateral so that surgery was not possible. The urine of all 20 patients was sterile at the end of the three months' intensive chemotherapy.

SURGERY

Reconstructive surgery consisted of caecocystoplasty in five patients and reimplantation of the ureter in six. Excision of diseased tissue necessitated nephrectomy in six patients, partial nephrectomy in four, and epididymectomy in four. All the procedures were carried out during the three months of intensive chemotherapy but all patients had had at least four weeks' chemotherapy before surgical treatment was begun.

Case reports

Case 1—A 52-year-old woman was referred from another hospital, where she had first presented six months earlier with right renal colic, dysuria, frequency of micturition, and nocturia. An intravenous pyelogram at that time showed a right duplex kidney with some irregularity of the calyces and a normal left kidney. The urine was not examined for tubercle bacillae. The kidney was explored, and pyonephrosis with a thickened ureter was revealed. A nephrostomy and suprapubic cystostomy was carried out and the urine from the nephrostomy tube showed *M. tuberculosis*. On admission to Wrightington Hospital the wound in the right loin had completely broken down and was discharging purulent urine. In the suprapubic region there were four independent urine fistulae. Urea, creatinine, and electrolyte levels were normal and she was normotensive. She was started on antituberculous chemotherapy, and an indwelling urethral catheter was inserted. After one month there was no change in the urinary fistulae either in the loin or in the suprapubic areas, and a right nephrectomy was then carried out. Urethral catheter drainage was continued and after a further month all the fistulae had healed and her urine was sterile. After three months' intensive chemotherapy she was discharged home with normal micturition apart from occasional nocturia.

Case 2—This 27-year-old man was well until the age of 17, when he

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Chemotherapy regimen: daily doses of drugs given to patients according to severity of disease (graded on Semb's classification)

Type I	Type II	Type III
Rifampicin 450 mg Isoniazid 300 mg Ethambutol 800 mg } 3 months	Rifampicin 450 mg Isoniazid 300 mg Ethambutol 800 mg } 3 months followed by Rifampicin 450 mg Isoniazid 300 mg } 3 months	Rifampicin 450 mg Isoniazid 300 mg Ethambutol 800 mg } 3 months followed by Rifampicin 450 mg Isoniazid 300 mg } 3-6 months

presented with frequency, dysuria, and pain in the left loin. Investigation showed a non-functioning left kidney with a left renal mass. At exploration he was found to have a perinephric abscess, which was drained and ultimately a left nephrectomy was carried out. The infection was then found to be due to *M. tuberculosis*. He was an irregular outpatient attender and his anti-tuberculous chemotherapy was sporadic and inadequate. He first attended this unit nine years after the initial infection was diagnosed. He was found to have a small contracted bladder, a stricture at the lower end of the right ureter with right hydronephrosis, a large cavity in the prostate containing calculi, and numerous fistulae in the perineum. He was given intensive antituberculous treatment. After one month there was improvement from the discharge in the perineum, and ileocaecocystoplasty was carried out with reimplantation of the ureter in the ileum using a reflux preventing technique. The calculi were removed from the prostate, which appeared to be almost completely destroyed. Three weeks later the perineal fistulae had healed and he was micturating well with normal renal function.

COMMENT

These two cases highlight certain aspects of genitourinary tuberculosis. Firstly, there is no indication for cystostomy or nephrostomy, and in our experience no tuberculous kidney on which nephrostomy has been performed has survived. Secondly, in patients with tuberculosis surgery should not be undertaken without at least one month of effective antituberculous chemotherapy. Thirdly, it is important that antituberculous chemotherapy should be taken consistently. Finally, with modern chemotherapy no case should be abandoned as it is possible with modern surgery to restore the renal tracts to normal function.

Discussion

Genitourinary tuberculosis is still a serious disease and a sudden increase in the number of patients tempts one to ask whether there is a new outbreak of the disease due to a more virulent type of organism. Nothing we have found suggests this but we do plead for a greater awareness of the disease, as many patients wasted a considerable time from the onset of symptoms to the start of effective treatment. In this context as many as five early morning specimens of urine should be examined to exclude the disease. It is important that all the specimens of urine should be brought individually and not collectively, otherwise the best chance of finding *M. tuberculosis* is diminished. It is a sad reflection that two patients waited two years from the onset of symptoms and an even sadder one that four patients waited between one and a half to two years from first seeking medical attention to the start of treatment.

It is important that all cases of genitourinary tuberculosis should be supervised by a urologist. The urologist should be aware of the best method of chemotherapy for tuberculosis, just as he is aware of the best method of treatment in other forms of urinary tract infection. From the start of treatment he should review patients at least every two weeks and if after the initial examination there is any suggestion of lower urinary tract disease, an intravenous pyelogram should be taken at frequent intervals. In these cases one full-length film taken 25 minutes after injection is quite adequate. Recently one patient lost a kidney through not being supervised in this way. After diagnosis routine chemotherapy was begun by doctors who were apparently unaware of the effects of tuberculosis on the lower urinary tract. After three months, when a further x-ray picture was taken, the kidney which had previously functioned well was found to have ceased to function and ultimately had to be removed.

For many years the standard treatment of tuberculosis has been streptomycin, isoniazid, and aminosalicylic acid given in various combinations for two years or even longer. With the discovery of rifampicin, a drug as effective as isoniazid against all strains of *M. tuberculosis* and of equally low toxicity, it was felt that a new dimension in the treatment of tuberculosis might have appeared, and intermittent short courses of treatment were again attempted. This cannot be recommended in view of the hypersensitivity reactions with combinations of rifampicin and isoniazid.³ Nevertheless, short courses have been encouraging in pulmonary disease. In 1974 the British Thoracic Tuberculosis Association published a preliminary report on courses of six or nine months.⁴ They suggested that nine months was better than six but that for many patients six months' chemotherapy was perfectly adequate. As soon as the first encouraging reports appeared in 1970 we decided to investigate a short-course regimen for genitourinary tuberculosis since rifampicin is excreted in such high concentrations in the urine over 12 hours⁵ (see fig).

Concentration of rifampicin in serum and urine.⁵

During the last four years this regimen has been continued and the urine of all patients has been sterile at the end of three months' intensive treatment. Furthermore, no case of reversion has yet been discovered up to one year after completion of chemotherapy.

In addition, patients used to be followed up five years or even longer but this has now been reduced to two after the report of Pearce *et al.*⁶ They showed that 80% of sputum reversions in pulmonary disease occurred in the first two years, that the reversion rate was less than 5%, and that all but three of the reversions were in patients whose chemotherapy was sporadic and inconsistent. Furthermore only 58% of the reversions were found at routine examination.

Calcification—Excision of calcified areas depends on the size and site of the lesion. Small areas may safely be left alone as patients with such lesions have been followed up for up to 10 years without any change in the appearances of calcification or reversion of urine becoming apparent. Large areas, however, should be excised. In those cases in which a large calcified area

was excised 30% produced viable tubercle bacillae in the calcified substance.

Surgery—If the policy of chemotherapy has been changed to a short-term regimen then current surgical policy must be reconsidered. Latimer has thought for many years that long-term chemotherapy will sterilise most tuberculous genitourinary lesions. He has gone so far as to say that chemotherapy has replaced the knife.⁷ It is illogical, however, to treat useless organs in the hope of ultimately destroying the causative organisms. We believe that surgical treatment should be carried out during the three months of intensive chemotherapy. Our present policy is to admit all patients to hospital for this first three months of intensive chemotherapy because if short courses are to be successful then the utmost care must be taken to ensure that the drugs are ingested at the right time in the right amount and without interruption. It is our intention that patients are discharged from hospital only when all surgical

treatment has been completed, thus allowing the chemotherapeutic agents to destroy organisms in small and occult lesions which at that stage have an adequate blood supply.

We thank Dr G Acocella and the Vienna Academy of Medicine for permission to reproduce the figure.

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Social Medicine

Social network diagram

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Summary

A diagram that shows at a glance the social network and support of patients was found useful in a follow-up study of patients with strokes. We believe that the diagram would prove valuable in medical case records and should be an essential part of medical-social reports, particularly for patients at risk of losing their independence.

Introduction

Medical case records often contain little information on the social background of patients and give little idea of the environment or problems a patient convalescing from an illness may face when returning home. When referral has been made to a social worker the reports are often kept in a separate file in the social work department and may be so detailed that the patient's dependency is not readily appreciated. In view of the persisting shortage of skilled social workers and the frequency with which social problems prevent patients from being discharged from hospital it is important to have a summary of a patient's social circumstances as soon as possible after admission.

In a domiciliary follow-up study of patients with strokes a social network diagram was devised to show how the patient was supported at home by family and friends. The diagram was found useful in indicating the social needs of any patient, particularly those at risk of losing their independence, so that the

necessary help to maintain these patients at home could be arranged—for example, home aid, domiciliary services, or contact with hospital or area social workers. We describe here the social network diagram and give two illustrative case histories.

Method

On a sheet of paper a box is drawn to indicate the patient's home. When the patient lives in a flat in a converted house boxes are drawn to indicate the flats immediately above and below the patient's flat. When the patient lives in a purpose-built block of flats other boxes are drawn only when immediate neighbours are frequent visitors. All persons, whether family, friends, or others, living in the patient's home are included in the box; other relatives are named on the right side of the page and friends on the left. Lines of communication are drawn to indicate contact with the patient and also the direction of contact. A solid line is drawn when a relative or friend visits the patient daily, but when visits are less frequent the line is dotted, with abbreviations above the line to indicate the frequency of the visits—for example, 3/7 = three visits a week; 2/52 = a visit every two weeks. Other lines of support, such as Meals on Wheels, a district nurse, etc, are drawn on the left side of the page, again with the frequency of the service above the line. Means of support that have been lost are shown by a cross through the appropriate line.

Case histories

CASE 1

A 91-year-old woman was admitted to hospital on 13 July 1973 after a right cerebral infarction causing dense left hemiplegia. She had had diabetes for six years, was receiving insulin, and had been attending the Charing Cross Diabetic Clinic for three years. She was transferred to the West London Rehabilitation Unit after three weeks, being discharged home after a further three weeks. There had been no recovery in the left arm, although the leg had improved enough for her to walk with a Zimmer frame and the help of one person. At home, further progress was made despite osteoarthritis of the left hip. One year later she was able to walk slowly unaided. She could also wash and dress herself and continued to exercise her left arm despite there being no recovery of power.

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