NON-TUBERCULOUS AND TUBERCULOUS EPIDIDYMITIS

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Non-tuberculous (non-specific) and tuberculous epididymitis have been separately well documented in the surgical literature (Morson, 1933; Robinson, 1943; *Army Medical Department Bulletin*, 1943; Handley, 1946; Borthwick, 1947). Direct comparisons of parallel series of the two conditions are, however, rare (Stevens, 1923; Campbell, 1928; Järvinen, 1944). In this paper, based on a study of 80 cases of non-tuberculous and 28 cases of tuberculous epididymitis seen at Hammersmith Hospital between the years 1938 and 1952, an attempt is made to compare and contrast the two conditions: the differential diagnosis still sometimes remains a difficult problem. The diagnosis of tuberculous epididymitis was based on histological findings in 9 cases and on the presence of tubercle bacilli in the urine in 12; in the remaining 7 cases the diagnosis was based on persistent epididymal swelling in the presence of renal tuberculosis (5 cases) or pulmonary tuberculosis (2 cases).

The average age of the patients in both groups was 42 years; the age ranges were virtually identical—15 to 69 in the non-tuberculous cases and 13 to 72 in the tuberculous. The right and left sides were equally involved in both conditions, but the incidence of bilateral involvement in the non-tuberculous cases (9%) was considerably lower than it was in the tuberculous cases (32%).

Symptoms

Scrotal Swelling and Pain.—Scrotal swelling and pain were the commonest symptoms in both groups, and their incidence is indicated in Table I. The duration of the swelling, deduced from the statements made by the patients, is shown in Table II. Previous attacks of epididymitis, with subsequent resolution, affecting either the same or the other side, occurred in 15% of the non-tuberculous cases.

Urinary Symptoms.—Increased urinary frequency, dysuria, and macroscopic haematuria occurred in both groups (Table III), and these symptoms at times preceded the development of the scrotal symptoms. One or more of these symptoms of increased frequency, dysuria, and haematuria occurred in 47 (59%) of the non-tuberculous and in 18 (64%) of the tuberculous cases. Urinary symptoms preceded the scrotal symptoms in 26 (32%) of the non-tuberculous and 12 (43%) of the tuberculous. In the 26 non-tuberculous cases in which the urinary symptoms preceded the scrotal symptoms there was generally a short interval between the onset of the urinary symptoms and the development of the scrotal symptoms—less than 7 days in 6 cases, from 7 to 14 days in 5 cases, and 15 to 90 days in 10 cases. In the tuberculous cases the interval was always longer than 90 days.

Sinus Formation.—This was rare in the non-tuberculous cases, occurring in only 5%. In the tuberculous cases, however, it was much more common, occurring in 35%.

Tuberculosis Elsewhere in the Body.—Of the 80 patients with non-tuberculous epididymitis none had known tuberculosis anywhere in the body either before or at the time of presentation: it must be pointed out, however, that persistent epididymal swelling in the presence of tuberculous

TABLE I.—Incidence of Scrotal Swelling and Pain

	Non-tuberculous Epididymitis	Tuberculous Epididymitis
Swelling and pain	43	7
" alone	16	10
No recorded complaint of swelling or pain (patients presented with urinary symptoms)	21	11
Total	80	28

TABLE II.—Duration of Scrotal Swelling

	Non-tuberculous Epididymitis	Tuberculous Epididymitis
Less than 21 days	64	7
More " 21 "	14	9
Incidental finding	1	5
No record	1	7
Total	80	28

TABLE III.—Incidence of Urinary Symptoms

	Non-tuberculous Epididymitis	Tuberculous Epididymitis
Increased frequency of micturition ..	34	9
Dysuria	27	6
Macroscopic haematuria	24	3

TABLE IV.—Incidence of Prostatic and Vesicular Nodularity

	Non-tuberculous Epididymitis	Tuberculous Epididymitis
Nodularity present	21	14
" absent	38	6
No record	21	8
Total	80	28

disease elsewhere has been accepted by us as tuberculous epididymitis. Nevertheless, allowing for the possible error in such a presumption, there was a striking difference in the cases of tuberculous epididymitis, and if only those patients in whom the diagnosis was made by histology or by the occurrence of tubercle bacilli in the urine are considered (21 cases), 76% were known to have had tuberculosis elsewhere: 11 patients had pulmonary tuberculosis, 2 renal tuberculosis, 1 spinal tuberculosis, 1 "tuberculous rib periostitis," and 1 tuberculous cervical lymphadenitis.

Prostatic and Vesicular Involvement.—Prostatic and/or vesicular involvement, judged by the presence of nodularity on rectal examination, occurred in the cases of non-tuberculous and tuberculous epididymitis (Table IV).

Urinalysis

Records of urinalysis were available in 68 cases of non-tuberculous and 21 cases of tuberculous epididymitis. The results are shown in Table V.

TABLE V.—Urinalysis

	Non-tuberculous Epididymitis	Tuberculous Epididymitis
Coliform pyuria	35	5
" Mixed " (non-tuberculous) infection ..	10	0
Sterile pyuria	7	11
Sterile	16	3
No record	12	9
Total	80	28

The incidence of tubercle bacilli in the urine in the cases of tuberculous epididymitis was as follows:

Tubercle bacilli found on direct examination ..	8
" " " guinea-pig inoculation ..	4
" " " not found	10
No record	6
Total	28

The high incidence (at least 66%) of urinary infection in the cases of non-tuberculous epididymitis is to be noted, while the relatively high incidence (at least 26%) of secondary urinary infection in the cases of tuberculous epididymitis is of interest. Of interest, too, are the observations that 5 of the patients with non-tuberculous epididymitis and urinary infection did not admit to any urinary symptoms and 19 of those with coliform pyuria had haematuria.

Treatment

No records of treatment are available in seven cases of non-tuberculous epididymitis: conservative treatment was generally employed, but surgical measures were required in 20% of the cases. Orchidectomy was carried out in 6 cases, incision and drainage of an abscess in 5, epididymectomy in 2, and vasectomy in 2.

The majority of the tuberculous cases were treated before the introduction of streptomycin and adjuvant drugs, and surgical treatment was commonly employed. Orchidectomy was carried out in 9 cases, epididymectomy in 5, and drainage of an abscess in 1.

After-history

Postal inquiry was made in 71 (89%) of the non-tuberculous and 14 (50%) of the tuberculous cases, and replies were received on behalf of 37 non-tuberculous and 7 tuberculous cases; 4 other non-tuberculous and 13 other tuberculous cases were seen personally.

There was a striking difference in the after-histories of the two conditions. Only four of the non-tuberculous cases had further symptoms: one reported haematuria, one dysuria, one scrotal swelling on the opposite side, and one thought there was some residual scrotal swelling. In contrast, 36% of the cases of tuberculous epididymitis were known to have died.

Discussion

It would be unwise to compute the relative incidence of the two conditions from the present series of cases. It is almost certain that more cases of non-tuberculous epididymitis were seen and treated only as out-patients, and the records of such patients are not readily available to us: nevertheless, it would appear that there is at least a 3 to 1 preponderance of non-tuberculous over tuberculous cases among patients attending the out-patient department of a general hospital.

The average age incidence (42 years) in our own series of non-tuberculous cases is higher than that reported by Campbell (1928), McGavin (1943), Robinson (1943), and Handley (1946): the last two authors, however, based their observations on Service personnel, who, not unnaturally, were made up of younger age groups.

Bilateral epididymal involvement occurred in 32% of our tuberculous cases, and this high incidence confirms the reports of Stevens (1923) and Robinson (1943). Our observations do not support the statement (McGavin, 1943) that non-tuberculous epididymitis is often bilateral and simultaneous.

Although a short history of scrotal swelling favours a diagnosis of non-tuberculous disease, an acute onset can occur in tuberculosis: three of our patients with tuberculous epididymitis had histories of less than seven days. Conversely, patients with non-tuberculous epididymitis may have a scrotal swelling which has been present for as long as three years (Stevens, 1923). While it is common for a patient with non-tuberculous epididymitis to complain of a painful scrotal swelling, it is to be noted that 25% of our tuberculous cases presented in a similar way. Recurrent epididymal swelling is said to occur in 30% of non-tuberculous cases (Campbell, 1928): the incidence in the present series was 15%. Tuberculous epididymitis is persistent.

Urinary symptoms are commonly present in both non-tuberculous and tuberculous cases, but a long history of urinary symptoms preceding the onset of scrotal swelling

favours the diagnosis of tuberculosis. Macroscopic haematuria, no doubt the result of an associated *Bact. coli* cystitis, may be commoner in the non-tuberculous cases than is usually recognized: it occurred in only two of Robinson's cases (1943) and one of Handley's (1946), but in 30% of the present series. Haematuria occurred in only 10% of our cases of tuberculous epididymitis: this incidence is lower than that reported by others (Ross, 1953), but in four of our cases a previous nephrectomy had been carried out and it is possible that haematuria had preceded this operation.

Sterile pyuria, in the presence of an epididymitis, is suggestive of tuberculosis; nevertheless it occurred in 10% of the non-tuberculous cases in the present series. Conversely, although coliform and/or coccal pyuria, in the presence of an epididymitis, is suggestive of non-tuberculous disease, secondary infection of the urine was found in 26% of our cases of tuberculous epididymitis. The presence of tubercle bacilli in the urine of patients with epididymitis is practically conclusive, but it must be admitted that exceptions to this general rule could occur.

A scrotal sinus usually reflects the degree of chronicity of underlying epididymal disease; it was rare in the non-tuberculous cases, but occurred in 35% of the tuberculous cases, an incidence which is virtually the same as that reported by Stevens (1923).

Prostatic and vesicular involvement is a common finding in cases of tuberculous epididymitis: Borthwick (1947) recorded an incidence of 89%, and the incidence was 70% in the present series. Nevertheless, prostatic and vesicular nodularity occurred in 36% of our cases of non-tuberculous epididymitis. Stevens (1923) has stated that the presence of prostatic and vesicular involvement is not as significant as progression of the lesion while the patient is under observation: if a prostatic or vesicular nodule has been present for less than one month there is an equal chance that it is either tuberculous or non-tuberculous, but if it persists for several months it is likely to be tuberculous.

Judged by the benign after-history of our cases of non-tuberculous epididymitis treated expectantly, there seems to be little indication for carrying out epididymectomy in all cases of non-tuberculous disease as recommended by Järvinen (1944); there is, no doubt, a place for epididymectomy as the definitive treatment for the tuberculous patients, even with streptomycin and adjuvant therapy, but it is irrational to carry out an early excision of a non-tuberculous epididymis simply because its function has been destroyed and because it may prove to be tuberculous on histological examination. There is little doubt that the differential diagnosis between the two conditions is sometimes difficult when the patient is first seen, but it is our opinion that the diagnosis eventually declares itself either as a result of full urological investigation or after the lapse of time.

Summary

Parallel series of 80 cases of non-tuberculous epididymitis and 28 cases of tuberculous epididymitis seen at a civilian general hospital during a fifteen-year period have been compared and contrasted.

The average age of the patients in both series was 42 years and the age ranges were virtually identical.

The right side was involved as frequently as the left in both series: bilateral involvement was relatively less common in the non-tuberculous cases.

A short history of scrotal swelling occurred in 80% of the non-tuberculous cases and in 33% of the tuberculous. Pain occurred in both the non-tuberculous and the tuberculous cases: it was more common in the former. Recurrent swelling occurred in 15% of the cases of non-tuberculous epididymitis; the swelling persisted in the tuberculous cases.

Urinary symptoms were commonly present in both the non-tuberculous and the tuberculous cases, but a long

precedent history of urinary symptoms favoured the diagnosis of tuberculous epididymal disease. Macroscopic haematuria occurred in 30% of the cases of non-tuberculous epididymitis and was probably due to cystitis. Sterile pyuria was noted in 10% of the cases of non-tuberculous epididymitis: it was considerably more common in the tuberculous cases. Coliform and/or coccal infection of the urine was commonly present in the non-tuberculous cases but occurred also in 26% of the tuberculous. Tubercle bacilli were isolated from the urine in 12 of 22 cases so examined.

A scrotal sinus was rare in the cases of non-tuberculous epididymitis but developed in 35% of the tuberculous cases. Prostatic and vesicular nodularity was noted in 36% of the non-tuberculous cases and in 70% of the cases of tuberculous epididymitis. Clinical tuberculosis elsewhere in the body, either concurrent or precedent, was found in 76% of the tuberculous cases. The majority of the cases of non-tuberculous epididymitis were treated expectantly and ran a benign course. The tuberculous cases were treated by surgical excision—before streptomycin and the adjuvant drugs were available. 36% of the patients were dead within a few years.

The differential diagnosis between the two conditions is sometimes difficult and is apparent only after the lapse of time: full urological investigation is advisable.

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A PURPURIC DRUG ERUPTION CAUSED BY CARBROMAL

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Carbromal (α -bromo- α -ethylbutyrylcarbamide) is a hypnotic, belonging to the class of open-chain ureides and closely related chemically to chloral, bromvaletone, and "sedormid." It was introduced in 1910 and popularized by Bayer Products Ltd. under the name of "adaline." The first report that the substance caused a drug eruption did not appear until 1921 (Loeb, 1921), and the purpuric nature of the eruption was well emphasized in the same paper. Since then, further cases have been described by Continental authors. The nearest approach to a description of the condition in the English language, however, is in a paper by Sneddon (1952), where it is cited as a differential diagnosis to purpuric textile eruptions. Usually it is merely alluded to by including carbromal in a list of drugs capable of causing purpura—for example, Brain (1950); while it has even been stated that carbromal does not cause purpura at all (Ackroyd, 1949; Beckman, 1952). However, it is generally agreed that carbromal has no effect on the blood platelets, as has sedormid, which is a well-recognized cause of thrombocytopenic purpura.

Carbromal is becoming increasingly popular in this country as a nocturnal sedative. It can be purchased

by the general public without a doctor's prescription, and seems to be the first choice of the chemist when asked for "something to make me sleep." Besides being sold as 5-gr. (320-mg.) tablets, carbromal is sold under a variety of trade names, such as "persomnia," containing, *inter alia*, 3 gr. (200 mg.) of carbromal, "dormiprin," containing 2 gr. (130 mg.), and "somnotil," containing 1 gr. (65 mg.). Finally, it is also being fairly widely advertised to the public.

In view of these facts, it was thought that a full description of the drug eruption caused by carbromal might be of value, and this paper deals with six such cases seen in the skin department of St. Bartholomew's Hospital in the first half of 1954.

Case Reports

Case 1.—A spinster aged 40 complained of a very irritating rash that had been present for four weeks. It had begun on the thighs and was still spreading. On examination well-defined patches, irregular in shape and size, were found on the thighs, buttocks, and lower trunk, consisting of petechiae and linear purpuric streaks, erythema, pigmentation, and branny scaling. Over the hips the eruption had become confluent and thickened. Increased capillary fragility was present. Five weeks previously she had begun taking persomnia, two tablets nightly. A patch test with 1% carbromal in propylene glycol was negative, but the eruption cleared in two weeks after stopping the drug. Slightly increased capillary fragility was still present a fortnight later.

Case 2.—A man aged 53 complained of a very irritating rash, present for six weeks, which had begun around the ankles, the inside of the knees, and over the hips, and which had spread steadily ever since. On examination the whole skin, with the exception of the soles, hands, and face, was affected by an eruption consisting of petechiae and linear purpuric streaks, erythema, pigmentation, and branny scaling. On the trunk, thighs, and upper arms these elements were aggregated into well-defined, irregularly shaped patches of varying size. On the forearms and lower legs the eruption was mainly petechial, in some areas diffuse and in the others confluent. Over the inner aspect of the knee-joints, the hips, and shoulders the eruption formed a slightly thickened sheet. Marked increased capillary fragility was present. He had been taking persomnia, one or two tablets nightly, for nine weeks. A patch test to 1% carbromal in propylene glycol was negative, but the eruption cleared completely in four weeks on stopping the drug.

Case 3.—A married woman aged 52 complained of an irritating eruption, present for three months, which began round the right ankle in the region of her varicose veins. On examination an eruption was seen on the legs, trunk, and upper arms, consisting of petechiae and purpuric streaks, erythema, pigmentation, and branny desquamation. On the thighs, trunk, and upper arms the eruption was patchy; over the shoulders, hips, and knees it was confluent and thickened; and on the lower legs it was profuse and mainly petechial. Slight increased capillary fragility was present. She had begun taking persomnia, two or three tablets nightly, six months previously. On stopping this drug the eruption cleared completely in two weeks.

Case 4.—A single woman aged 27 complained of an irritating eruption, which had been present for three months. On examination a grossly excoriated eczematous reaction was seen affecting the legs, thighs, and upper arms. The eruption had coincided with extreme domestic difficulties and cleared completely in four weeks as a result of bland local applications, mild sedation, and sick-leave. She was referred again, one week after returning to work, with a relapse of the eczema. This time, however, the eruption was mainly petechial, together with some erythema, pigmentation, and branny scaling, patchy on the thighs, trunk, and upper arms, and diffusely purpuric on the lower legs and forearm. It had begun on the feet, had spread suddenly in a few days,