

# The Urological Investigation of a Case of Periodic Haematuria

## PERSISTING ONE YEAR AFTER SUCCESSFUL TREATMENT OF A *SCHISTOSOMA HAEMATOBIIUM* INFECTION

BY

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The patient, Foster Mavida, aged 25 years, was referred for urological review following treatment in July, 1968, for bilharziasis. The long and detailed follow-up of the patient is described by Blair *et al.* (1969b), the third paper of this Supplement, and shows that a year later the bilharziasis caused by both *Schistosoma haematobium* and *S. mansoni* is now cured—that is, cured in a parasitological sense. The patient, however, still suffers from bouts of haematuria, usually associated with terminal dysuria, which is accompanied or closely followed by the appearance of showers of black eggs. The episodes of haematuria showed a rather strange periodicity and usually occurred on Monday mornings.

### ROUTINE CLINICAL EXAMINATION

This revealed nothing of significance. His blood pressure was 120/90, Odelca chest radiograph was normal and the blood picture showed Hb. 105 per cent., white cell count 4,700 and the differential white cell ratio within normal limits. The blood urea estimation was 22 mg. per cent.

### CYSTOSCOPIC EXAMINATION

The examination was carried out under general anaesthesia on 24th June, 1969. The bladder capacity was 600 ml. and the mucosa showed severe bilharzial changes with a mixture of ground glass and sandy patch appearance in all areas. High on the left lateral wall there was a tiny haemorrhagic spot in the mucosa which was the only localised lesion seen in the bladder that might have been the source of haematuria, although no bleeding was observed from this area or elsewhere on the mucosa during the examination. The lesion did not have the appearance of granulation tissue or papilloma and there appeared to be no break in the mucous surface to suggest an ulcer. It was treated with light diathermy. At the bladder neck there was no evidence of fibrous stenosis or prostatic enlargement, but the mucosa at the neck and in the upper part of the prostatic urethra showed scattered sandy-patch bilharzial involvement.

Both ureteric orifices showed early "golf-hole" appearance, being surrounded by pale, thickened, sandy mucosa over a wide area. Both orifices were easily catheterised to 25 cm. without evidence of obstruction. A straight X-ray (Fig. 1) showed marked calcification of the bladder wall, and retrograde ureterograms (Fig. 2) showed moderate irregular dilation of both lower ureters and no evidence of stenosis. The upper urinary tract above this level was of normal appearance on both sides.

A biopsy was taken from the mucous membrane just below the left ureteric orifice. The material was sectioned and examined by Dr. T. G. Ashworth, Lecturer in Pathology, Godfrey Huggins School of Medicine. His report stated that the sections showed bladder wall with normal transitional epithelium covering a mass of calcified schistosome eggs. There was no obvious inflammatory reaction surrounding the eggs. It is interesting to note that a few eggs of *S. mansoni* were seen in the sections.

### FURTHER OBSERVATIONS

The patient was discharged from hospital on 26th June and returned to his duties in the laboratory the following day, when the usual follow-up routine was resumed. The 0800-hour and midday terminal urine specimens on 27th June (Friday) showed no schistosome eggs and only occasional red blood cells were seen. He had no complaints of any pain or discomfort. On Monday, 30th June, the estimated number of black eggs in the two samples were 350 and 40 respectively. The 0800-hour specimen was heavily blood-stained and the red blood cells were estimated at 5+. It was also noted that the urine showed marked lysis of blood pigments; this would seem to indicate that the blood had been passed into the urine some time before the bladder was emptied. A few black *S. mansoni* eggs were also seen. The midday terminal urine was estimated to contain 40 eggs, but the urine was clear to the naked eye, and on microscopic examination of the centrifugal deposit was rated as only "occasional rbc." The record of black egg output and haematuria from the 1st July was as follows:

From 17th to 28th July black eggs were seen in the 0800-hour specimen on 18th July; there was no haematuria except for occasional rbc in the early specimens on four days. Black *S. mansoni* eggs seen in the early specimens on 3rd and 7th July. On 29th and 30th July (Tuesday and Wednesday) the 0800-hour urine specimen con- and ceases in a few hours and is unlikely to recur.

Date	Estimated Eggs	Red Blood Cells
1st July	0	4 +
2nd "	80	occ.
3rd "	10	3 +
4th "	0	occ.
7th " Monday	100	4 +
8th "	60	2 +
9th "	10	+
10th "	40	occ.
11th "	0	occ.
16th " (after long weekend)	10	—

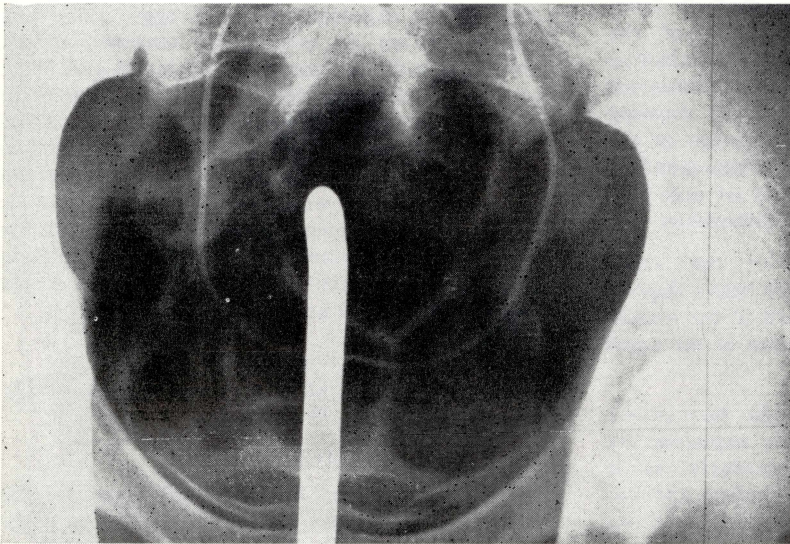


Fig. 1—X-radiograph of bladder area, showing calcification of bladder wall.

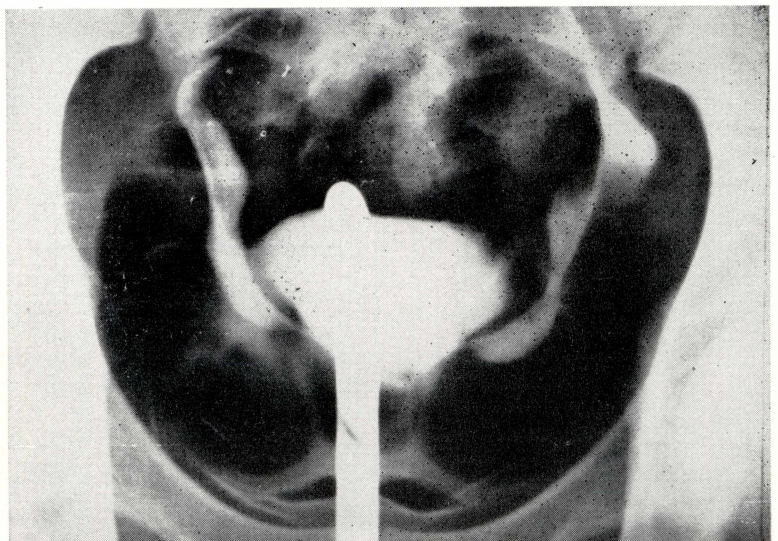


Fig. 2—Retrograde ureterogram, showing irregular dilation of both lower ureters.

The mucosa of a chronic bilharzial bladder tends to bleed easily from congestion when the bladder is over-distended. This factor, combined tained an estimated 20 black eggs each, and the red blood cells were estimated at 3+ and 4+ respectively. Both specimens showed heavy staining with lysed blood pigments. Nevertheless, the midday specimens on the same day contained no eggs and red blood cells were estimated at + only, and on naked-eye examination there was no blood in the centrifuged deposit.

#### COMMENT

The cystoscopic appearance is that of long-standing chronic bilharzial involvement of the bladder wall, the result of repeated re-infection and the accumulated deposition of schistosome eggs over many years, but no longer showing evidence of present activity. Calcification of the bladder wall is also an indication of long-standing chronic bilharziasis, but it is worthy of note that the bladder capacity is as yet not diminished.

The radiological appearance of the lower portions of the ureters is typical of heavy deposition of eggs and fibrous replacement of the muscle layers with resulting atonic dilatation of the areas affected.

The symptom of regular periodic haematuria on Monday mornings is not easily explained by the cystoscopic examination, particularly as it continued for weeks after the diathermy application to the suspected area. Haemorrhage from the site of biopsy is generally of a transient nature with admitted increased beer consumption at the

weekend, may account for the Monday haematuria. Sexual activity might be considered a contributory causative factor, but in the event one would expect also a haemospermia, and of this there is no evidence in this case.

It would seem that haematuria and the passage of black eggs is more often seen in the specimen passed at 0800 hours than in the midday sample. It may be that the bladder is most likely to be fully distended just before awakening in the morning and prior to the first morning micturition. Perhaps the urine in the bladder at this time may so stretch the bladder as to cause bleeding and the expulsion of black eggs. Following the micturition on arising, the tension on the mucosa is suddenly removed and blood and black eggs are passed into the urine and are present to be passed out at 0800 hours, by which time some of the blood would have had time to be lysed in the urine—a phenomenon which was observed on most occasions where visible blood was to be seen in the specimen. It was quite remarkable to see how the urine had cleared by midday on a day when the earlier specimen had been deeply stained with blood and blood pigments.

#### REFERENCE

- BLAIR, D. M., WEBER, M. C. & CLARKE, V. DE V. (1969). *Cent. Afr. J. Med.*, **15** (Suppl. No. 10, p. 12).

#### *Acknowledgments*

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