

# **Bilharziasis of the Urinary Tract in Zambia (Observation on 100 consecutive cases)**

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## **SUMMARY**

Cystoscopic, urographic and histological observations on 100 consecutive cases of urinary bilharziasis are presented. 35 patients had calcification of the urinary tract whilst I.V.U. of 40 patients were abnormal. Abnormal urograms were more often observed in patients with reduced bladder capacity than with vesical calcification. Surgery to the urinary tract was considered necessary in 19 patients. There were 3 deaths and all were secondary to schistosomiasis. Our observations indicate that urinary bilharziasis in Zambia is associated with a high morbidity and a significant mortality.

## **INTRODUCTION**

The reported morbidity associated with urinary bilharziasis, leaving aside its equivocal casual role in carcinoma of the bladder, appears controversial. There seems to exist a geographical and racial variation in the severity of the disease. Reports from Egypt (El-Mofty, 1962) and East Africa (Forsythe & Bradley, 1966) suggested high morbidity and significant mortality, while those from South Africa (Powell, 1967) and West Africa (Edington, 1957) cast doubt upon its public health importance. Honey et al (1966), in Zimbabwe, observed a marked difference between bilharziasis as seen in the African and the European. This variability may be directly related to the intensity of infection. Very little is known about the general pattern of urinary bilharziasis in Zambia. Autopsy observation by Fine (1975) indicates the presence of a mild form of the disease in an urban area of Zambia, while it is difficult to assess the clinical pattern of the disease from the report by Umerah<sup>1</sup> (1977). The present study was undertaken with a view to establishing the prevailing trend of the disease at Ndola clinical area and to elucidate clinical and cystoscopy findings, which may indicate the presence of a severe form of the disease.

## **MATERIALS AND METHODS**

One hundred consecutive patients (87 male and 13 female) with histologically confirmed bilharziasis (*Schistosoma Haematobium*) of the urinary tract were studied. The ages ranged from seven to seventy years; the majority (60%) were within twenty to forty years of age. All patients underwent cystoscopy (under general anaesthesia) and intravenous urography. During cystoscopy, biopsy of the bladder was performed and severity of infection, types of bladder lesions and bladder capacity were recorded. At histology the incidence of atypia of vesical urothelium was determined. All cases of granuloma, bladder ulcer and urothelial atypia underwent repeat cystoscopy after three months. The majority of the patients were followed up for a period of up to two years. Patients with carcinoma of the bladder were not included in this study.

## **FINDINGS**

### **Presenting Complaint**

Seven patients were unaware of any complaint relating to the urinary tract, bilharziasis being diagnosed on routine urine examination. The presenting complaints of the remaining 93 patients are summarised in Table 1. Uralgia (painful micturition) was common to the majority of patients, closely followed by terminal haematuria, loin pain and suprapubic pain.

### **Cystoscopy and Bladder Capacity (Table 2)**

Sandy patches of varying degree were observed in all cases. Granulomatous lesions were present in 17 while ulcer of the urinary bladder was observed in 4 cases. Fourteen cases of granuloma and 2 cases of ulcer were in patients below twenty years. Bladder capacity was less than 500 mls. in 26 patients, of which, the bladder was grossly contracted in 2. In the remainder the capacity was 500 mls. or more.

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**TABLE 1**  
**PRESENTING COMPLAINTS OF 93 PATIENTS**  
**(SEVEN PATIENTS WERE ASYMPTOMATIC)**

Symptoms	Only Complain	Combined with Other Symptoms	%
Uralgia	6	29	37
Term. Haematuria	13	20	35
Loin Pain	17	7	27
Supra pubic pain	10	14	27
Total Haematuria	4	2	7
Backache	2	0	2

**TABLE 2**  
**CYSTOSCOPY FINDINGS AND BLADDER CAPACITY**

Sandy Patches	Granuloma	Ulcer	Capacity	
			Less than 500 ml	500 ml or more
100	17	14	26	74

**Radiological Changes**

Calcification of the urinary tract was present in 35 cases. In 29, the calcification was limited to the bladder and in the remaining 6 both bladder and ureters were involved. Two types of bladder calcification were observed; 4 presented as homogenous opacity and the rest demonstrating the classical linear calcification. Wavy calcification of the bladder has sometimes been described as a separate entity (Umerah<sup>1</sup>, 1977) but we feel that this appearance is a variation of the linear type in a post micturation film (Fig. 1A & 1B). Ureteric calcification was of the usual "Tram-line" appearance. Radio opaque urinary calculi were observed in 13 patients. Abnormal urograms were observed in 40 patients (Table 3). Urograms showing minimal beading, tortuosity and deviation of the ureter without associated dilatation have not been classified as abnormal. Of these 40 patients, a varying degree of biochemical impairment of renal function was observed in 5 patients.

**FIG: 1A**



**FIG: 1B**



**TABLE 3**  
**UROGRAPHIC ABNORMALITIES**

Abnormality	Bilateral	Unilateral	%
Hydronephrosis	20	8	70
Hydroureter	25	11	90
Ureterocele	1	3	10
V.U. Stricture	7	5	30
Ureteric Stricture	1	1	5

**Urothelial Atypia**

Atypia of the urothelium was observed in 22 cases. Squamous metaplasia was by far the commonest (63%) followed by V. Bruns nest (31%), cystitis cystica (3%) and epithelial hyperplasia (3%).

**MANAGEMENT**

All cases were initially treated with Ambilhar. During repeat cystoscopy, three months later, all granulomatous and ulcerative lesions were noted to have resolved completely with resolution of associated upper tract fullness on repeat I.V.U. Surgery to the urinary tract was deemed necessary in 19 cases but was performed on 16 (Table 4).

**TABLE 4**  
**OPERATIVE PROCEDURES**

Operation	Number of Patients
Uretero-Neocystostomy	7
Uretero-Ileocystoplasty	3
Ureteric Meatotomy	2
Ileal Conduit	1
Colo-Cystoplasty	1
Nephrectomy	1
Nephrolithotomy	1

DISCUSSION

In this series, uropathy of varying degree was present in 40 patients and in nearly 50% of the cases the manifestation was severe enough to warrant surgical intervention. During the follow-up period, three patients died and bilharziasis was found to be directly responsible for all deaths. The degree of morbidity associated with urinary schistosomiasis as observed in our series thus appears to be formidable, while the incidence of mortality certainly cannot be overlooked.

Calcification of the urinary tract is usually accepted as an index of a high intensity infection with schistosoma (Gelfand, 1972). Obstructive or other forms of uropathy thus are likely to be observed more commonly in the cases with calcification. But our observation (Table 5) tends to minimise the importance of calcification and leads one to place a greater emphasis on reduced bladder capacity. 73% of our patients with reduced bladder capacity had abnormal urograms compared to 57% with calcification. Another significant observation is that the presence of calcification does not invariably denote a bladder with reduced capacity. As a matter of fact only 31% of bladders with calcification had a reduced capacity.

TABLE 5  
I.V.U. FINDINGS IN RELATION TO  
BLADDER CAPACITY AND CALCIFICATION

Capacity	No. of Patients	Intravenous Normal	Urogram Abnormal
Capacity less than 500 ml	26	27 %	73 %
Capacity 500 ml or more	74	73	27
Vesical calcification present	35	43	57
Vesical calcification absent	65	73	27

The reported incidence of vesico-ureteric stenosis in bilharziasis is widely variable. Recent fluoroscopic observation suggests that ureteric dilatation in the majority of cases occurs in the absence of such a lesion and its diagnosis on the basis of urographic appearance alone may be misleading (Young et al, 1974, Umerah<sup>2</sup>, 1977). We feel cystochromatography is a simple alternative to fluoroscopy in the diagnosis of vesico-ureteric stenosis when the dye is seen to efflux in a fine jet. The diagnosis of 12 cases in our series were confirmed by chromatography.

It is important to realise that patients even with advanced bilharziasis may on occasion remain

asymptomatic while terminal haematuria is not always the presenting symptom. We have observed 7 asymptomatic patients (3 with advanced disease) and only 30% presented with terminal haematuria. Loin pain as a symptom becomes significant in that 45% of patients with abnormal urograms presented with this complaint. Our histology findings were based on the examination of cysto-biopsy specimen of the bladder which has probably led to the considerably lower incidence of urothelial atypia (22%).

The incidence of vesico-ureteric reflux has not been determined in this series. The significance of the characteristic lower ureteric deformity so aptly described as "cow horn" appearance (Umerah<sup>1</sup>, 1977) is not well understood. However, preliminary results of our work indicates a high incidence of vesico-ureteric reflux when such deformity is associated with grossly dilated ureters. It is significant to note that not a single case of fibrosis of the bladder neck was observed in our series whilst there was only one case of hypertension.

FIGS. 1A & 1B: Typical linear calcification of the bladder seen on straight Xray (Fig. 1A). The pattern of calcification in the same patient alters to a wavy type in the post micturation film. (Fig. 1B).

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