

The Urological Aspects of Bilharziasis in Rhodesia

BY

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PART IV

THE CYSTOSCOPIC APPEARANCES

The urinary form of the disease can be recognised by means of cystoscopy in the great majority of cases. The changes seen in the posterior urethra and bladder are so distinctive that it is only in the occasional case that a confident opinion cannot be given.

In reviewing cystoscopic examinations on 300 Europeans and on 100 Africans, all of whom were suffering from *S. haematobium* infestation in its various stages, it became obvious that there were marked differences between the two groups.

Many of the Europeans presented themselves in the earlier stages, whilst others suffered from late or fibrotic bilharziasis with its various urological sequelae, but none of the Africans sought advice before the fibrotic stage had been reached. In the European the infestation was on the whole less severe than in the African.

Table III describes the lesions found on cystoscopic inspection in the European and African series.

Table III

CYSTOSCOPIC LESIONS FOUND IN 300 EUROPEAN AND 100 AFRICAN SUBJECTS

Bilharzial tubercles present in—	77 per cent. of Europeans and 24 per cent. of Africans.
Pallor of mucosa present in—	69 per cent. of Europeans and 86 per cent. of Africans.
Sandy patches present in—	26.5 per cent. of Europeans and 89 per cent. of Africans.
Granuloma (papilloma) present in—	7 per cent. of Europeans and 32 per cent. of Africans.
Carcinoma present in—	0 per cent. of Europeans and 4 per cent. of Africans.

The earliest lesion seen cystoscopically is the bilharzial tubercle, which is pink and fleshy-looking, with frequently a faint zone of congestion round it. The number seen in any bladder may vary from two or three to many hundreds and may be evenly distributed over the wall, but are usually aggregated in patches, especially on the base round one or other ureteric orifice, and on the fundus immediately above and behind the base.

Tubercles which have been present for some years become pale, harder and more fibrotic-looking and eventually calcified and can be seen as shining white dots through the elevated mucosa.

We have cystoscoped many cases repeatedly over periods of up to 10 years and have been able to observe the change in the appearance. Recent tubercles may disappear entirely or may become fibrosed or calcified. Once fibrosed and pale, they remain unchanged, except that with time they shrink somewhat into the surrounding mucosa. Once calcified, they can be seen more or less unchanged on each successive cystoscopy.

The next most frequent change observed cystoscopically is the pallor, haziness or ground glass appearance of the mucosa, which is due to the fibrosis and avascularity of the submucosa. The normal vascular pattern, as familiar in the normal bladder as in the retina, gradually becomes obscured. In the more advanced cases no vessel can be seen, the walls being hazy and white. In still more advanced cases they are yellowish, dull and have an irregularly elevated surface which is hard and unyielding, giving the appearance of a washed pigskin glove. All stages of this change are encountered; 69 per cent. of European bladders and 85 per cent. of African bladders showed some degree of pallor. In the lightest infestation there is only a suggestion of pallor, and unless there is other evidence in the form of tubercles or sandy patches, it becomes impossible to say, simply by viewing the mucosa, whether the pallor is due to a mild chronic cystitis or mild bilharziasis.

The third most frequent change found with the cystoscope, and one which is pathognomonic of the disease, is the sandy patch. In the early stages with lesser degrees of infestation it resembles granules of flour caught in a fine spider web, and moves as the mucosa and submucosa moves over the muscle wall. This appearance is best seen with a right angle lens held up against the mucosa and looking along its surface.

In older and more advanced stages the patches are much harder and more fixed and look and feel like grains of very fine sand in a fibrotic mucosa. The change may occur in patches or may be generalised over the whole bladder wall and posterior urethra. The size and number of patches vary considerably, but usually the greatest concentration is on the base, and after this on the fundus. Sandy patches were far more frequently seen in the African than the European.

Areas of granulation tissue is another pathological condition seen on cystoscopy, the epithelium having disappeared over an accumulated mass of tubercles. The area may be seen below the level of the surrounding epithelium and appear as an ulcer, or be raised above it as a sessile mass, or be pedunculated as a fleshy-looking solid mass on a broad stalk—sometimes called a bilharzial papilloma or bilharzioma or a nodule, depending on its size and vascularity. This lesion is also more common in the African bladder. They may in time become completely avascular and calcified and be seen as shining nodules or hanging calculi.

The appearance and situation of the ureteric orifices are both frequently altered. At times the orifice is hidden in the midst of an area of granulation tissue and indistinguishable from the other clefts and caves of the mass until indigocarmine is injected intravenously and observed emerging from the orifice, which can then frequently be catheterised with ease.

In catheterising a ureteric orifice in a normal bladder, the gold rings on the catheter can usually be seen shining through the mucosa covering the last two or three millimetres of the catheter. These cannot be seen in the thickened bilharzial bladder and this constitutes one of the early corroborative signs of a thickened mucosa and submucosa.

In the fibrotic stage the orifice usually loses its slit-like appearance and mobility and becomes rounded and immobile. It is often surrounded by a heaped-up ring of submucous fibrous tissue. In other instances it is greatly retracted under a crescentic fold of fibrotic submucosa and mucosa resembling a horse collar. This orifice is not unlike the "railway tunnel" type seen in certain non-bilharzial cases of megaureter (Higgins, Williams and Nash, 1951). The size of the crescentic fold and the thickness of the crescentic edge vary considerably from case to case.

Some orifices are retracted so greatly that they resemble the golf hole ureter of tuberculosis.

The orifices are often also considerably reduced in size; in fact, so small as to be discerned with difficulty in the thickened sandy patches along the ureteric ridge which frequently stands out above the rest of the bladder, due to gross thickening of the intramural ureter.

The orifices too are often displaced. The most common displacement is backwards, when they become drawn closer together than usual. They may be so close that they can be seen in one field of a 21F Brown Buerger observation cystoscope. Occasionally they are so far back that they appear to be tucked into an angle between a bladder base which runs up to them and a fundus which turns up abruptly at a right angle to the base. It is these displaced orifices which are usually most abnormal in appearance—either "golf hole" or "railway tunnel" in type.

BIOPSY

In certain cases it is difficult, even on cystoscopy, to give a definite opinion as to whether the bladder is or is not the site of bilharzial ovideposition. In some of these doubtful cases, as well as in others with a normal-looking mucosa and in others with obvious tubercles and sandy patches, cystoscopic biopsies of the bladder wall were done, as suggested by Gelfand (1948) and Sayegh (1950). A 24F Brown Buerger operating cystoscope and a 7F biopsy forcep, which removes a very small biopsy of the bladder mucosa and submucosa, were used. This procedure was carried out on 79 Europeans and 21 Africans.

If the bladder looked normal or only slightly pale, the biopsies showed no ova in most instances. In 10 cases biopsies were taken from healthy portions of bladders which contained obvious tubercles elsewhere and no ova were found. Biopsies taken from six bladders which were markedly pale on cystoscopy, but in which no sand or tubercles could be seen, revealed ova in two and none in four. In all biopsies in which a definite tubercle was removed, ova could be demonstrated, and similarly every biopsy from a sandy patch was positive. In one instance, in which the bladder on cystoscopy appeared healthy and a rectal biopsy was negative, biopsy of the bladder mucosa revealed ova. In another instance biopsy of a doubtful tubercle on the base of an otherwise healthy bladder showed an adult schistosome worm, but no ova.

The cysts of non-bilharzial cystitis cystica can be differentiated from tubercles by this method, as can granulomata from neoplasms, although

for this purpose the larger Lowsley forceps is employed.

Another possible use for this method of diagnosis is in helping to determine whether a patient has been cured by a course of therapy (Miller, 1954). Cystoscopy some months later will still show the tubercles in which ova can be demonstrated. It is usually possible to determine whether the ova contain viable miracidia or not.

Our investigation of the value of a vesical biopsy shows that it is only of limited use. It

has a place in diagnosis, as it has shown the presence of ova and even schistosomes when the diagnosis was otherwise in doubt. A negative biopsy is not of significance.

BLADDER NECK FIBROSIS

Although we have specifically looked for fibrosis of the bladder neck as described by Makar (1955) in Egypt, we have seldom found it.

(To be continued)

