CYSTITIS OF ASCENDING ORIGIN IN THE MALE

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The fact that cystitis is far less common in the male than in the female should engage our interest if for no other reason than the hope of finding an explanation of this sex discrimination.

The conventional theory that the shortness of the female urethra leaves it as an inadequate barrier against the ascent of wandering organisms has not been vigorously disputed, largely because of the difficulty of supplying a scientific alternative explanation. It is certainly somewhat naive to suggest that all females come into the world with such an anatomical inadequacy.

In a previous communication (Winsbury-White, 1957), I have discussed an acceptable alternative, which depends upon the presence in the female urethra, in many cases, of gland elements which are said to be the homologue of the prostate gland, which we know to be prone to infection, particularly in a latent form.

It is also somewhat intriguing to recall that these glandular remnants in the female have been reported by many observers over the years without their significance receiving due attention. But the existence of this tissue does not seem to throw any light on the problem of the special vulnerability of females until we note certain variations according to sex, which seem to offer the explanations we seek. These become apparent in studying the urethroscopic and cystoscopic appearances in the two sexes. I will briefly discuss these differences.

In women, in spite of the fact that, on urethroscopy, only on rare occasions is a gland orifice to be seen near the internal meatus (Winsbury-White, 1948), chronic inflammatory polypi are commonly present on this structure (Fig. 1). Indeed, they are not infrequently seen with the cystoscope to be projecting into the bladder. It is therefore of more than academic interest to find that gland tissue in the female has been demonstrated on the margin of the meatus both histologically and by wax models (Folsom and O'Brien, 1945; Huffman, 1948; Winsbury-White, 1957).

In men such proliferations in this situation are rarely found. In the male sex, however, inflammatory vegetations occur quite often and usually in the form of sessile granulomata, either on or at the base of the

verumontanum; in the latter situation they are in relation to the gland ducts of the prostatic sinuses (Figs. 2-6).

The probable reasons why the vegetations in the posterior urethra of women tend to be polypoid and in men sessile are that as these projections are largely situated at the internal meatus in women they are subject to the elongating effect of the final vesical contractions.

It is generally overlooked that the verumontanum, in addition to providing the site of exit into the posterior urethra of the ejaculatory ducts, also contains gland tissue.

In women anterior trigonitis is often seen, and is in close association with another localized inflammatory

FIG. 3

FIG. 4

FIG. 3.—Granuloma in right prostatic sinus of patient aged 42. FIG. 4.—Granuloma in left prostatic sinus in same patient as in Fig. 3.

FIG. 5

FIG. 6

FIG. 5.—Granulomata on left side of verumontanum and adjacent prostatic sinus in patient aged 40. FIG. 6.—Granuloma on left side of base of verumontanum in patient aged 38.

area in the adjacent posterior urethra (urethrotrigonitis). In the male such appearances are far less commonly observed. Indeed, as I have already indicated, the evidence points in the male to a localized latent inflammation at a considerable distance further forward from the internal meatus.

Children

In children urethroscopic appearances are equally interesting. First of all we find that vegetative posterior urethritis is much more common in the male than in the female. In urethroscoping 29 males and 29 females under 10 years of age having disturbances of micturition of one kind or another, I found that 61% of males had vegetative posterior urethritis, but only 10% of the females were so affected. As in the adults, this male excess is mostly related to the verumontanum. In trying to explain this incidence in the very young, one remembers the importance of minor inflammatory lesions of the genitals (see Table), more common in the male than the female and in the first hemi-decade of life. In my experience they are associated with urethritis.

FIG. 1

FIG. 2

FIG. 1.—Urethroscopic view of internal urinary meatus of woman aged 66. Several polypi are apparent. FIG. 2.—Granulomata on summit of verumontanum in youth aged 18.

Potentially Contributory Factors in Cases of Chronic Increased Frequency of Micturition and of Ascending Cystitis in Children

Male Lesion	Female Lesion
<i>Congenital Conditions</i>	
Phimosis associated with balanitis	Generalized urethral contraction
Adherent prepuce with retained smegma	
Atresia of external urinary meatus leading to urethritis	Atresia of external urinary meatus leading to urethritis
Meatitis from congenital inadequacy of the prepuce	
Urethral stricture	Urethral stricture
Congenital bladder-neck stenosis	Congenital bladder-neck stenosis
Residual urine in bladder	Residual urine in bladder
<i>Acquired Conditions</i>	
Meatitis following circumcision	Vulvitis
Simple balanitis	Meatitis
Posterior urethritis	Posterior urethritis
Epididymo-orchitis or hydrocele	Vaginitis

Vitamin-A deficiency also affects the posterior urethra in producing hyperkeratosis (Hedberg, 1954), and it seems to be an accepted principle of this disease that infection automatically supervenes on this epithelial change. Certainly the fact that in children with vegetative posterior urethritis rectal examination gives no evidence of prostatic infection seems to separate this group from that of ordinary prostatitis. If vitamin-A deficiency plays a part it might well be that, like the hyperkeratosis, the infective lesions are also superficial.

Frequency and Cystitis

In females it has been possible to show in two different ways that there is a pathological link between the two groups of cases, frequency and cystitis (Winsbury-White, 1957). First of all by the improvement in symptoms—often when these are renal—from treatment of the accompanying urethral lesion. Secondly, in plotting the incidence in the two groups separately the curves followed the same pattern in each in relation to age (Winsbury-White, 1957).

In both sexes, in adolescence, there is a striking lull in the incidence of all disturbances of micturition; but in both sexes also, in early adult life fresh groups of cases with these symptoms present themselves. While in the female sexual life and childbirth are definitely the important predisposing influences, in the male non-gonococcal urethritis is of equal importance in initiating a tendency to cystitis.

A. H. Harkness, the London venereologist, had eight of his cases cystoscoped and found that they all had cystitis—even the subacute ones. In 70% of his cases pleuropneumonia-like organisms were found (1958, personal communication). As would be expected, these cases all go to the venereologist. This fact prevents me from making graphs showing the age incidence of my cystitis and frequency cases in males; but for what it is worth I put forward a series of 66 males up to the age of 20, in a graph representing the two groups (Fig. 7). This shows in the male how relatively uncommon cystitis is compared with frequency, but that, broadly, the two groups keep together with regard to age as we noted in the female.

FIG. 7.—Age incidence in 66 males up to 20 years of age, with disturbances of micturition; 58 with chronic frequency and 8 with cystitis.

The greater incidence of both groups in the first hemi-decade of life suggests the importance of the genital lesions shown in the Table.

As revealed by the urethroscope and as already stated, urethritis appears regularly with them.

In the adult male one may aetiologically summarize certain different groups of cystitis as follows: (1) chronic frequency cases in which symptoms begin in childhood and continue to adult life; (2) the symptoms begin in adult life following any type of urethritis; (3) cystitis from latent anterior or posterior urethritis; (4) the largest of all groups—cystitis complicating prostatic obstruction; and (5) fibrous prostate without residual urine can give rise to troublesome recurring cystitis.

In the younger patients one would call attention to the regularity with which granulomata occur in the prostatic sinuses or on the verumontanum.

There is a large identifiable group originating from internal genital pathology which forms a special clinical entity, before ever an attack of cystitis occurs. These patients have one or more minor symptoms: regular headaches; pubic or suprapubic discomfort; aches and pains about the lower part of the trunk, in the groins, genitals, perineum, urethra, anus, or the back; or even widespread rheumatic manifestations, particularly in the hands or feet. There are often sexual phenomena too: impotence, premature ejaculation, dyspareunia, haematospermia; and any of the above.

Urethroscopy

To distract attention from the source of these phenomena rectal and prostatic-smear examinations may quite well be indeterminate.

Any of the above-mentioned conditions, particularly when associated with micturitional disturbance, calls at once for urethroscopy. Skilled posterior urethroscopy is often the only certain means of revealing the true focal cause of the trouble.

The origin of these signs is often an enigma to the unpractised urethroscope. He may turn in the corner in which he finds himself and make the pontifical pronouncement that there is no pathological state to explain the symptoms. The medical attendant now has no helpful direction in which he can go, and the patient is dubbed neurasthenic; this perplexes and distresses him, particularly if he can pinpoint the origin of his symptoms to a certain date or occasion.

The tranquillity of mind which comes from the relief of the patient's physical discomforts after fulguration of a tell-tale posterior-urethral granuloma is a considerable satisfaction to all concerned.

All cases of cystitis of suspected prostatic origin should be x-rayed as part of the routine investigation; for it is not only a question of getting vital information about the kidneys and residual urine in the bladder, but of being certain whether or not there are stones in the prostate. Where these or an obstruction are found the question of removal must receive due consideration. It is wise to delay the cystoscopy so that it is done as an immediate preliminary to the prostatectomy. Where removal does not seem to be indicated, urethroscopy should always be considered as part of the routine examination; particularly is this necessary when we recall that rectal examination is often unconvincing and that treatment may be possible through the operating urethroscope.

One of the special difficulties about urethroscopy is that relatively few of us have been well trained in the procedure with the Geiringer-type instrument. Remembering one's personal labours of many years ago,

one is conscious of the fact that in the male it is an exercise requiring a good deal of patient and prolonged practice before confidence in one's findings can be established. I recall an occasion when congratulating a Continental urological colleague of good standing on the excellence of a report he made, based on the rectal and smear examination of a large number of prostatic cases. I said to him that I noticed he had made no urethroscopic reports on these cases. He replied that he always found urethroscopy so difficult. Such a response throws a good deal of light on the general approach to this examination.

I could not do better than advise beginners to persevere with the Geiringer-type instrument (Swift Joly pattern); it is particularly advantageous for operating purposes. Although the instrument is called a posterior urethroscope, it does equally well for examining the anterior urethra. This part of the channel is inspected as the instrument is withdrawn. The position of the patient I have come to like best is the dorsal posture with the back slightly raised and the thighs over the end of the table, horizontal, and widely apart. These details are best attained with Lane's leg-rests. Failing these, the supine position, with the feet well separated on a crossboard, is the alternative I prefer.

This simple procedure should never be done without an efficient local analgesic. For fulguration, a general anaesthetic is required, of course, and the back is not elevated.

The double-purpose instrument was devised in the first instance in the hope of simplifying the two examinations. But in my hands it sacrifices too much efficiency to be a satisfactory substitute for the endoscope made for the single task. I was never happy with any form of combined cystoscope and urethroscope. Like the one-man band, it is remarkable to behold but disappointing in results.

One is also reminded of the fact that after the last war the American Forces presented—doubtlessly in a spirit of sincere benevolence—to our Ministry of Health many pan-endoscopes. This was a "gift-horse" which required careful "looking in the mouth."

Prostatic Obstruction

I have already referred to the fact that the largest group of prostatic cases which lead to cystitis are those in the obstructive category. There is every reason for this, from the point of view of prostatic pathology. Let us briefly review the position, considering the two principal types which cause obstruction—namely, the adenomatous and the fibrous.

Beginning with Marion about half a century ago, many surgeons have reported high percentages of foci of infection in the adenomata removed. The same feature is present with the fibrous prostate. For my part I can report on a modest consecutive series of 50 cases of fibrous bladder-neck obstruction from which I removed the cause by open resection through the bladder. Inflammatory changes were identified in the removed bladder-neck tissue in every case (Winsbury-White, 1956). Admittedly in many instances the infection has led to a dense sclerosis, but the cellular concentrations were there as well. In my series none were treated pre-operatively by indwelling catheter, so that this procedure could not be blamed for the infective changes.

Marion (1940) has also reported that the great majority of his cases of fibrous prostate had the same

origin. It may indeed be said that, once obstruction sets in, the latent prostatic infection is likely to be stirred into increased activity, particularly when aggravated by instrumentation, which in these days is often quite unnecessary until the patient actually comes to operation. Whenever sacculi, diverticula, or stone involve the bladder in elderly men the bladder neck must be thought of, even when residual urine is scanty or absent.

Treatment

In treating urological infections it has long been an accepted axiom that the urinary tract must be thoroughly searched for likely predisposing causes and that these must first be treated. Why stop short of examining the urethra?

Garrod and his colleagues (1954) pronounced two important facts in investigating claims of cure of cases of urinary infection treated by medication: (1) the longer the time between the end of the treatment and the test, the more likely was the case to relapse; and (2) cases with a history of previous attacks of infection of the urinary tract gave a high proportion of relapse.

The finding of an inflammatory vegetation in the posterior urethra calls attention to two important matters: it lies superficial to a focus of infection, and the focus drains inadequately.

Surely the nature of the treatment is clearly indicated—namely, to improve the drainage as much as possible. To the skilled operator this is simply done by fulguration, though unskilled and indiscriminate use of this procedure has brought it into disrepute. As a rule the patient does not need to be kept in bed more than the next two or three days, although the patient's symptoms are generally aggravated for about a month. It is certainly my regular experience that the patient benefits from the operation. Subsequently it may be necessary to pass bougies two or three times at three-monthly intervals, especially if there had been a preoperative urethral contraction.

Every experienced cystoscopist has had the satisfaction of observing the improvement in health and symptoms that sometimes follows a simple cystoscopy. Equally, there is the same kind of response to the properly chosen and conducted simple urethral instrumentation (Winsbury-White, 1957). Just as surely, too, is there a disappointing relapse when judgment is at fault in some essential detail of the procedure: for it must not be forgotten that as a result of long-standing urethral infection any or every part of the urinary tract is likely to be the seat of latent infection.

Those well versed in urethroscopy in women will perceive by the appearance of the urethral walls the benefit derived from the same treatment—often to the extent that the lesser hillocks and the more flimsy of the urethral vegetations seen at the first urethroscopy will be found to have disappeared at the next one carried out, perhaps a month later. Undoubtedly, therefore, the procedure improves drainage, possibly through openings in the urethral mucosa too small to be seen. All this applies to both sexes.

At this stage it is not out of place to add that prostatic massage offers no permanency to the immediate increase of drainage, although stripping the seminal vesicles is often more beneficial. In bringing about this ultimate improvement, it is also gratifying to the medical attendant that there is an increased response to

sulphonamide and antibiotic treatment in controlling any tendency for the attacks to recur.

Admittedly, new measures in medical practice tend in the beginning to be misused, particularly overused. We have certainly seen this with urethral instrumentation and antiseptic urinary medication. In relation to the former, I had two women patients suffering from frequency, one coming from Bagdad and the other from New York. Each had been having urethral dilatations once a week for several months.

There were two other incidents which had a bearing on the same topic. (1) A prominent American urologist recently proclaimed at an important meeting the need to disregard all instrumental urethral treatment in cystitis and frequency cases, and to rely upon the latest medication; he did not relate any experience which would justify this attitude. (2) A prominent American woman, who gave a long history of recurring incidents of urinary infection, was advised by me to have a urethral polypus fulgurated. She said she hoped she would have no antibiotics while in hospital, because she had had them all and they made her very ill.

Bacteriological Consideration

This can be a big subject, but I shall be brief.

Because the physician does not have an opportunity of seeing for himself, the misconception that chronic urinary infection is not usually dependent on a continuing focus of infection somewhere in relation to the urinary tract itself will not easily be discarded. Cystoscopy and urethroscopy have both made it clear that the urine may fail to show signs of infection, while endoscopically these are manifest—in fact, often fitting in with the symptoms. Modern therapy can produce this situation.

The return at a later date of another acute attack should warn us of any undue complacency in making a good prognosis on a sterile urine.

It is not being too dogmatic to say that there is a solid reason for certainty why attacks recur in some cases, when treatment of urethral lesions is seen to lessen this tendency.

Summary

Reasons are given for the greater frequency of cystitis in women than in men.

An explanation is offered for differences in sex incidences of vegetative posterior urethritis in children.

The lull in disturbances of micturition in adolescence and the reappearance of these in early adult life are discussed.

Various aetiological groups of ascending cystitis in the male are summarized.

Different types of urethroscopes are criticized.

Prostatic obstruction is considered.

The fundamental principle of treatment is emphasized.

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HYPERBILIRUBINAEMIA AND KERNICTERUS IN PREMATURE AND FULL-TERM BANTU NEWBORN INFANTS

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Kernicterus had, until recently, been observed in association with Rh incompatibility. It was not until Zuelzer and Mudgett (1950) and Aidin *et al.* (1950) drew attention to jaundiced premature infants suffering and dying from kernicterus, in the absence of Rh or any other blood-group incompatibility, that interest increased in the circulating serum bilirubin levels in these infants. Knowledge on this subject advanced when Hsia *et al.* (1952) showed a direct relationship between elevated serum bilirubin levels and kernicterus.

Claireaux *et al.* (1953) showed that indirect bilirubin was responsible for the bile-staining of the basal nuclei of the brain. This relationship between bilirubin and kernicterus was substantiated clinically by Crigler and Najjar (1952) when they described five cases of kernicterus occurring in a family with an inherent bilirubin excretion defect in the liver. These patients had high levels of indirect serum bilirubin, and this pointed to the liver as the organ responsible for the hyperbilirubinaemia and the kernicterus.

Rh iso-immunization is rare in the Bantu, and, to our knowledge, no case of kernicterus from this cause has been described in South Africa. This paper intends to draw attention to the frequent occurrence of hyperbilirubinaemia and kernicterus in premature Bantu infants and to a less extent in full-term infants.

Material and Methods

This investigation extended over a period of eight months, when 211 consecutive cases of neonatal jaundice were observed among 5,000 deliveries. This series comprises all infants found to be jaundiced during the first 36 hours of life, regardless of intensity, as well as those who developed severe jaundice between the second and seventh days of life. Four children with Rh incompatibility were excluded from this series.

The following data were noted about each child: birth weight, time of onset of jaundice, time of maximal development of jaundice, and clinical evidence of kernicterus such as failure to feed, vomiting, lethargy, cyanotic attacks, and irregular respiration. The neurological signs noted were divergent squint, oculogyric crises, head retraction, and changes in muscle tone.

All cases in this series received, shortly after birth, 2.5 mg. of a vitamin-K analogue ("synkavit") by intramuscular injection. In addition, children treated by exchange transfusion received a daily injection of 300,000 units of procaine penicillin intramuscularly for three days. No child in this series received sulphonamides and there was no routine administration of antibiotics.