Schwartz and Skinner (1949) isolated the fungus from only 20% of 500 patients admitted to a tuberculosis sanatorium in the United States.

Treatment with tetracycline caused an increase in the number of specimens from which *C. albicans* could be isolated. In the present series there was a gradual rise up to the seventh day in hospital—that is, two days after treatment was discontinued. This increase was observed in all the regions examined.

When nystatin was added to the tetracycline the culture results were not uniform although there seemed to be a tendency towards lower yields. Thus the results of examination of rectal swabs seemed to indicate a definite trend towards the elimination of heavy growths. The effect upon the throat was less obvious, although no marked rise occurred. So far as the sputum was concerned the two treatment groups seemed to be similar.

Nystatin would thus appear to be most effective in the bowel, less effective in the throat, and without effect in the sputum. The apparent effectiveness of the material in the bowel would be in keeping with a suggestion that a high local concentration of antibiotic is important in achieving an antifungal action *in vivo*. The manufacturers state that the absorption of nystatin from the bowel is poor and that negligible amounts appear in the blood. If this is the case the inability of nystatin to control the increase of *C. albicans* in the sputum is understandable, but leaves its moderate effect in the throat to be explained. That this is in no way due to local action is certain, for although the drug is taken orally the antibiotic is contained in pills which are sugar-coated and are swallowed entire. The question of absorption obviously deserves further scrutiny.

The importance of overgrowth of candida in the bowel still awaits proper appraisal. It would seem, however, to be of less clinical significance than systemic infection, which is at least potentially dangerous. The results of the present study would seem to indicate that the oral administration of nystatin would be unlikely to control candida infection in sites which could be reached only by the blood stream.

Summary

The frequency with which *Candida albicans* occurred in throat swabs, rectal swabs, and sputum from 50 patients with pneumonia was observed before, during, and after treatment with either tetracycline alone or tetracycline combined with a new antimycotic drug, nystatin. Nystatin seemed to be effective in reducing the number of patients from whom heavy growths of candida were obtained from rectal swabs. A convincing effect upon the yield of the fungus from the throat and from the sputum was not apparent. These results are in keeping with a view that nystatin does not appear in the blood stream in adequate concentration and that the antibiotic might be ineffective in the treatment of systemic infection.

I wish to thank Dr. T. Anderson, Reader in Infectious Diseases at Glasgow University, for his help in preparing this paper. I am also indebted to Messrs. Squibb for the supply of the drugs used.

REFERENCES

- Cannon, P. R. (1955). *Bull. N.Y. Acad. Med.*, 31, 87.
 Carpenter, A. M. (1955). *Amer. J. clin. Path.*, 25, 98.
 Hazen, E. L., and Brown, R. (1950). *Science*, 112, 423.
 Loh, W., and Baker, E. E. (1955). *Arch. Intern. Med.*, 95, 74.
 Schwartz, V. M., and Skinner, C. E. (1949). *Mycopathologia (Amst.)*, 4, 349.
 Sharp, J. L. (1954). *Lancet*, 1, 390.
 Tarbet, J. E., Oura, M., and Sternberg, T. H. (1953). *Mycologia*, 45, 627.

There is now a record total of 26,895 pharmaceutical chemists in Great Britain, states the registrar's report to the Pharmaceutical Society, an increase of 331 in twelve months.

EARLY SIGNS OF BLADDER-NECK DISEASE*

BY

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Certain data are here presented to emphasize what a large part chronic inflammation plays in the aetiology of bladder-neck disease, which may or may not lead to some degree of urinary obstruction.

My interest in this subject has been sharpened because in removing bladder-neck obstructions by open operation from 500 cases I found that 31% were clinically fibrous obstructions—that is to say, of the type which would be wrongly treated by attempted enucleation. I believe the incidence to be greater than this, because I have not included those cases which were treated by endoscopic resection. The method of diagnosis was threefold, and was carried out on the operating table at the time of the removal of the obstruction. The routine adopted was cystoscopy, rectal palpation, and combined inspection and palpation of the internal urinary meatus through the open bladder. The cases of endoscopic resection were excluded because of the lack of opportunity of examining the internal meatus through the open bladder.

Because fibrosis was so commonly encountered, Dr. Robert Thomson, pathologist of St. Peter's, St. Paul's, and St. Philip's Hospitals, made a careful histological search for signs of inflammation of the obstructing tissue removed by me from 50 consecutive cases. He found them in all cases, including those of adenomatous prostates removed by enucleation. I might add that as I do not use indwelling catheter drainage pre-operatively in removing obstructions the inflammation found cannot be attributed to such a cause. So far as I am able to discover, Marion in 1912 was the first to point out that chronic prostatitis and fibrosis of the prostate resulted from any type of urethritis (Marion, 1940).

In 1850 Civale put forward the theory that the bulk of the cases of chronic retention without prostatic enlargement were due to primary atony of the bladder. But now that fibrous bladder-neck obstruction is commonly recognized we no longer see cases of primary atony of the bladder. But by no means all cases can be fitted into the Marion category; indeed, we recognize another group in young adults of both sexes in whom disturbances of micturition develop insidiously and show inflammatory changes in the posterior urethra.

The commonest disturbance of micturition from these changes is chronic increased frequency of micturition; but this symptom is to be found in both sexes at all ages. Therefore I have taken a consecutive series of cases of men, women, and children with chronic increased frequency of micturition and examined them with urethroscope, cystoscope, and in other ways where necessary. There were 274 cases in all. Lesions in the posterior urethra recognizable as inflammatory (including hillocks) were noted in 88%.

*Read in the Section of Urology at the Joint Annual Meeting of the British Medical Association, Canadian Medical Association, and Ontario Medical Association, Toronto, 1955.

Characteristics of Chronic Increased Frequency of Micturition

First let us consider the features of chronic frequency commonly noted in these patients: (1) The increased frequency is diurnal rather than nocturnal. (2) The onset can often be pin-pointed to a definite occasion, sometimes several years before. (3) The frequency is aggravated in bouts. (4) There is little tendency to spontaneous cure of the increased frequency. (5) In young adults the urine is often crystal clear and shows few or no pathological elements. (6) There tend to be occasional attacks of cystitis, which can clear up quite spontaneously. (7) Antibiotics appear to shorten the acute attacks and bouts of frequency, but do not prevent either from recurring at a later date. (8) Urgency is a striking symptom, and is not only most conspicuous when the patient is erect but often noticeable at the moment when a change is made from the recumbent or sitting to the erect posture. The reason for this is the displacement of the urine from the hind to the fore part of the bladder, which is adjacent to where the pathological change is seated. It is for the same reason that the frequency is more marked in the day than at night.

These patients are particularly susceptible to aggravation of their symptoms by emotional disturbances, or, shall we say, by brain impulses generally. There are, of course, often symptoms other than frequency—for example, in children enuresis is not unusual, in young men sexual complaints, and in both sexes mild dysuria, urethral irritation, or aches and pains in the loins or about the lower part of the trunk.

Three Aetiological Groups

From the point of view of chronic frequency we can recognize in men three different groups aetiologically: (1) those with a history of urethritis; (2) those with an insidious onset at a definite time; and (3) those in whom symptoms have persisted since childhood. Hedenberg (1954), of Stockholm, by his experiments on rats, has demonstrated the possibility that children could acquire bladder-neck inflammation as a result of vitamin-A deficiency. Research on this subject in the early part of this century showed that hyperkeratosis, infection, and dilatation occurred in the urinary tract as a result of this food fault, so that certain cases of slight chronic pyuria and dilatation of ureter, pelvis, and calices, and bladder-neck inflammation may possibly owe these lesions to this cause. In children also we are conscious of certain potential contributory factors (see Table). The aetiology in women is probably somewhat the same as in men, with the additional hazard of trauma to the urethra from childbirth.

Local Signs of the Advancing Pathological Process

Generalized urethral narrowing is an abnormality which is easy enough to detect by noting the largest size of sound which will not enter the urethra or pass along the channel; in children it is recognized by knowing the calibre the urethra should be in relation to age. Fig. 1 shows that it can be

Incidence in Children up to 15 Years of Potentially Contributory Factors in Chronic Inflammatory States of the Lower Urinary Tract

Males (68)		Females (40)	
Lesions	No. of Cases	Lesions	No. of Cases
Meatitis	10	Vulvitis	10
Stenosed external urinary meatus	14	Meatitis	1
Urethral stricture	5	Vaginitis	1
Adherent prepuce and retained smegma	2	Generalized urethral contraction	2
Residual urine	4	Urethral stricture	1
Balanitis	1	Residual urine	5
Positive findings on urethroscopy	30	Positive findings on urethroscopy	17
Epididymo-orchitis or hydrocele	2	Dilated pelvis and ureter, and pus in urine	3

Total 108 = 81% of 133 cases.

detected in girls, and that it tends to be more common as age advances.

Residual urine also occurs at all ages and in both sexes: the small amounts which sometimes occur in children are generally missed. In my view the importance of identifying this fault is that the patients invariably suffer from disturbances of micturition and often from attacks of cystitis and pyelitis. Fig. 2 shows that this sign of bladder-neck disease can affect all ages and both sexes and that it becomes more common as age advances. It is important to note that this applies to women as well as men. In the former I have excluded all cases of procidentia. A point of some interest

FIG. 1.—Incidence of generalized urethral contraction in 124 female cases of chronic increased frequency of micturition. (Shown as percentages of age groups in decades.) FIG. 2.—Incidence of residual urine in 158 male and 130 female cases of chronic increased frequency of micturition. (Shown as percentages of age groups in decades.)

is that there is a lack of evidence that all cases of bladder-neck disease in men ultimately give rise to residual urine; for in addition to a total of 533 cases of prostatic disease from which I removed the obstruction by open operation, 73 others (13%) had no residual urine.

At this stage I would like to add that laboratory reports on the urine are often unhelpful in these bladder-neck cases.

Urethroscopic Findings

As briefly as possible I will summarize the urethroscopic findings. It would be true to say that the older the patients the more positive the findings in the posterior urethra; in children these are more positive in the male than in the female—for example, granulomata are fairly commonly seen in the posterior urethra of males, but are not seen at all in females. From the third decade onwards granulomata continue to be seen in the posterior urethra with the utmost regularity in men in whom the symptoms suggest a posterior urethral lesion, but they are not seen in women. In the latter, well-formed polypi (Fig. 3) and rudimentary polypi (hillocks) (Fig. 4) take their place. Hillocks, on the other hand, are seen at all ages and in both sexes. On fulgurating polypi, the cavities in the submucosa which caused them are sometimes displayed. Again, non-proliferative inflammatory signs, such as oedema with hyperaemia, patches of thickened epithelium, and tags of adherent mucus, are commonly seen.

In the fourth and fifth decades the verumontanum tends to be smaller than normal and the internal urinary meatus to be raised high above the floor of the posterior urethra. In exceptional cases pus has been seen oozing from several foci or a single focus on the floor of the urethra in both sexes.

In women, one would call attention to the fact that from the beginning of the third decade onwards the adjacent

urethral changes are accompanied by inflammation of the trigone (urethro-trigonitis). In the earliest cases only the front of this structure is involved, and in the more advanced ones the base or even the whole bladder mucosa shows the same signs, according to whether the local condition has spread to those parts.

FIG. 3.—Photograph of a coloured drawing of a urethroscopic view of chronic inflammatory polypi in the posterior urethra in a woman aged 23 who suffered from many attacks of cystitis and pyelitis. FIG. 4.—Photograph of a coloured drawing of a urethroscopic view of a hillock in the posterior urethra of a woman.

Kidney Involvement

Anyone who systematically examines the posterior urethra when necessary will have his attention drawn to the fact that renal aches and pains are common enough in a chronic form with bladder-neck disease, although there is often no residual urine in the bladder; and that these tend to disappear with appropriate treatment of the lower urinary tract. A tendency to attacks of pyelitis can often be eliminated in the same way. The intravenous urograms in these cases may demonstrate no features which can be regarded as indicating pathological changes. On the other hand, one or more of the following signs are commonly seen: persisting poor definition in relation to one or more groups of calices throughout the whole series of films; mild dilatation of ureter, pelvis, or a group of minor calices.

A certain proportion of these bladder-neck cases develop stone in the upper urinary tract. Elsewhere (Winsbury-White, 1954) I made an indirect reference to this matter when I stated that in a consecutive series of 200 cases of stone in the upper urinary tract 74% were associated with signs of past or present genital or urethral infection or bladder-neck obstruction. Now in another series of 150 cases of bladder-neck disease in patients between 21 and 50 years of age 15% had stone in the upper urinary tract. These cases were all examined by urethroscope, cystoscope, and radiography.

Rheumatic Signs

The work of Romanus (1953), of Stockholm, makes abundantly clear what an important part is played by internal genital infection of the male in initiating arthritic conditions, and in particular pelvo-spondylitis. I would call attention to the fact that the bladder-neck changes in women which I have so much stressed likewise show a common association with the same forms of rheumatism. Therefore it is not surprising that arthritic changes are commonly present in the older age groups of bladder-neck cases of both sexes.

Conclusion

It would seem that inflammation seated in the region of the bladder neck can account for many of the inflammatory states that we meet with in the urinary tract. And the tendency for residual urine to increase with age in both sexes suggests the insidious development of a fibrotic process at the bladder neck. The older patients of both sexes with chronic frequency, chronic *Bact. coli* infection, attacks of cystitis, renal aches and pains, and rheumatic manifestations should be suspected, until proved otherwise, of representing the later stages of bladder-neck disease.

Finally, let us not forget that in treating infections of the urinary tract it is a cardinal rule to search for some pre-existing condition which may be the precipitating cause, and that the bladder neck and the posterior urethra should be included in the investigations.

Summary

In 500 personal cases from which bladder-neck obstructions were removed by open operation—including prostatectomy cases—the change in 31% proved clinically to be predominantly fibrous.

Histological examination of a consecutive series of 50 cases showed signs of chronic inflammation in every case. Examinations made in 274 cases of chronic increased frequency of micturition in both sexes from childhood onwards showed chronic inflammatory changes in the posterior urethra to be common (88%).

In men with inflammatory bladder-neck disease three aetiological groups can be recognized clinically. Except for the extra hazard from the trauma of childbirth, the aetiology in women is probably the same as in men.

In women with chronic frequency, chronic inflammation of the posterior urethra is common and is associated with anterior trigonitis. In children posterior urethral changes are also commonly present.

In children with bladder-neck inflammation, pyuria is usually associated with a slight degree of calical, pelvic, or ureteral dilatation.

Chronic or recurring renal aches, or even attacks of pyelitis, may occur without the presence of residual urine in the bladder. These tend to be controlled by treatment of lesions of the posterior urethra and bladder neck.

In the older age groups a high proportion of cases have residual urine. Attacks of cystitis, chronic *Bact. coli* urinary infection, backache, and rheumatic manifestations are also common.

In all cases in which no lesion is obvious the urethra should be examined.

REFERENCES

- Hedenberg, I. (1954). *Acta chir. scand.*, Suppl. 192.
 Marion, G. (1940). *Traité d'Urologie*, 1, 740. Masson, Paris.
 Romanus, R. (1953). *Pelvo-spondylitis Ossificans in the Male, and Genito-urinary Infection*. Stockholm.
 Winsbury-White, H. P. (1954). *Stone in the Urinary Tract*, 2nd ed., p. 11. Butterworth, London.

The MINISTER OF HEALTH opened a new villa at Fulbourn Hospital, a mental hospital near Cambridge, on March 2. The new villa will accommodate 40 female patients and will be used as a social therapy unit. In his speech at the opening Mr. Turton referred to the "terribly cramped conditions" at Fulbourn Hospital, and said that he considered the problem of out-of-date and overcrowded hospital buildings one of the most difficult of the problems with which he had got to deal. He went on to say that very little was done to improve hospitals between 1930 and the beginning of the war, and from the beginning of the war until 1948 nothing could be done. According to the Guillebaud report capital expenditure on hospital services since 1948 was running at a true level of one-third the level before the war, when it was under the voluntary hospital system. Mr. Turton concluded by saying that his predecessor, Mr. Iain Macleod, had done two very important things. He had devised a three-year capital programme, which would mean that next year the Minister would be spending some £13m. on capital improvements in hospitals and mental hospitals—"about fifty-fifty"—and in the year after that about £18m., which, as he said, was a very great improvement on the level of capital expenditure over the years between 1948 and now.