Urological myths

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Introduction

A myth is defined by the *Collins English Dictionary* as "a fictitious or unproven person or thing." Aspects of medical practice are sometimes based on historically perpetuated customs which may seem logical or justified but do not stand up to the test of scientific scrutiny. This paper presents some customs in the field of urology which are still passed on as recommendations of accepted practice but which we consider to justify the description of "urological myths."

"Drink plenty to flush out the stone"

"Drink plenty of fluids" is common advice from both medical and nursing staff to patients with renal or ureteric colic due to stone disease. The rationale behind this practice is to produce sufficient urine flow to flush the stone out of the kidney or ureter. This practice has been recommended by several authors for managing acute obstructive uropathy secondary to stones.^{1,2} In acute obstruction renal blood flow may be preserved or even increased for several hours^{3,4} and glomerular filtration may be normal.⁵ In these circumstances it may be possible to produce a diuresis by increasing the fluid load, but in the presence of continuing obstruction this will simply result in further distension of the collecting system proximal to the obstruction, which will render peristalsis ineffective and hinder the passage of the stone. Furthermore, diuresis by the obstructed kidney is likely to cause a rise in intrarenal pressure, producing further pain and possibly extravasation of urine from small tears in the caliceal fornices (fig 1).⁶ These tears may lead to formation of a urinoma or even to urinary peritonitis after perforation of the urinoma through Gerota's fascia.^{2,7} As obstruction becomes established renal blood flow and glomerular filtration will fall^{3,8,9} and any excess fluid taken will be excreted by the unobstructed kidney and will therefore have no effect on the passage of the stone from the obstructed ureter.¹⁰

Patients with renal colic often experience nausea and may vomit. Forcing these patients to drink extra fluid is likely to exacerbate their nausea and vomiting and is not only unkind but also of no benefit. We recommend that patients with renal colic should be kept normally hydrated. Analgesia should be given in the form of prostaglandin synthetase inhibitors such as indomethacin or diclofenac sodium that reduce renal blood flow⁴ and urine production.¹¹ In addition, opiate analgesics and antiemetics will be necessary in severe cases. Constant supervision of these patients is necessary for early detection of complications such as extravasation, infection, and deteriorating renal function, which are often indications for intervention. The overhydration of patients with renal or ureteric colic has no physiological basis; it is at best pointless and at worst dangerous.

"Clamp the catheter intermittently to maintain bladder tone"

We are aware of a most peculiar custom practised on many surgical, medical, and gynaecological wards, of intermittently clamping urethral catheters. This ritual is usually performed in patients who have been

FIG 1—Post micturition film from intravenous urogram showing partial obstruction of left upper urinary tract with extravasation of contrast from left kidney

temporarily catheterised during an acute illness or after surgery and often starts 24 to 48 hours before removal of the catheter. It has been claimed that the bladder shrinks after it has been catheterised,¹² and presumably the intention of clamping the catheter is to maintain bladder tone and capacity and permit the bladder to become accustomed to being full after a period of enforced rest. There is no evidence, however, that the cyclical bladder filling produced by intermittent clamping has any effect on bladder capacity except in defunctionalised bladders.¹³ Patients undergoing prostatic surgery after several weeks or even months of catheterisation void without difficulty after surgery and maintain normal bladder volumes. Similarly, anuric or oliguric patients who undergo renal transplantation have little difficulty with bladder function after urine output resumes. The normally innervated bladder clearly does not require intermittent clamping after a period of disuse. Indeed, this practice has the potentially harmful effect of producing a stagnant, potentially infected, pool of urine in a system already at high risk of infection owing to catheterisation. Indwelling catheters should be left to drain freely.

"This catheter is bypassing; it must be too small. Put in a bigger one"

Bypassing or leakage of urine around catheters is a common problem and has been reported to occur in 40-70% of catheterised patients.^{14,15} Although it is occasionally due to a blocked catheter, particularly if haematuria is also present, the usual cause for by-

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passing is bladder spasm due to uninhibited detrusor contractions. In the catheterised patient these detrusor contractions may be caused by irritation of the bladder by the catheter balloon, by debris or stones within the bladder, or by infection. The logical management of this problem is therefore to reduce to a minimum the volume of water in the catheter balloon either by partly deflating the balloon or preferably by using a catheter with a 5 ml balloon capacity and to exclude, and if necessary treat, bladder stones or urine infection. Bladder irrigation performed under aseptic conditions has been shown to reduce complications from catheters¹⁵ and may be useful in patients with recurrent stones or infection. Acidifying the urine by giving ascorbic acid orally helps to prevent debris forming in the bladder.

If these simple methods fail to alleviate the problem or if no definite cause for bypassing is identified then the use of anticholinergic drugs such as propantheline, terodiline, and oxybutynin is recommended. Increasing the size of the catheter will be of no benefit in these patients; indeed, Kennedy *et al* found that large catheters were associated with a greater incidence of bypassing than small catheters.¹⁶ Furthermore it is well established that large catheters are more likely to result in urethral strictures owing to obstruction and subsequent inflammation of the paraurethral glands, and the edict to "use the smallest tube that will serve the purpose" should be the guiding principle in selecting catheters.¹⁷

Thus in patients who have undergone lower urinary tract surgery and in whom bleeding is expected or in those already in clot retention a large bore three way Simplicast catheter (22 or 24 French gauge) should be used to allow irrigation of the bladder and the evacuation of blood clots. In most other cases, however, a 12 to 16 French gauge catheter is sufficient. If problems are encountered with the catheter an attempt should be made to eradicate the cause of the problem rather than simply inserting a larger and potentially harmful catheter in the hope that this may somehow alleviate the symptoms.

"This patient has chronic retention—decompress the bladder slowly"

It is often taught that in patients with chronic retention of urine the bladder should be slowly decompressed,¹⁸⁻²⁰ thus avoiding a sudden fall in pressure in the urinary tract; a sudden fall in pressure is said to result in bleeding from the bladder¹⁹ or kidney, which can lead to acute tubular necrosis²¹; the postobstructive diuresis that often occurs after the relief of chronic retention may result in worsening uraemia. It is suggested that by gradually releasing urine from the chronically obstructed urinary tract these sequelae may be avoided or minimised, but recent studies do not support this theory. Removing only 250 ml urine from a bladder with a capacity of 1250 ml that is in chronic retention results in a fall in intravesical pressure of over 75% of the resting pressure (fig 2). Draining the bladder to completion causes little further fall in pressure.²² In other words, removing a small volume of urine from a bladder in chronic retention produces almost identical changes in pressures within the urinary tract as does completely draining the bladder, and intermittent clamping to reduce the retained volume in stages (notwithstanding the urine entering the bladder from the kidneys) is a meaningless exercise.

In addition, renographic studies have shown that removing only a small volume of urine (60 ml) from a bladder in chronic retention produces rapid drainage from the upper urinary tracts and the onset of diuresis.²² Effective regulation of the intravesical

pressure and diuresis can be obtained only if the initial decompression volume is controlled with great accuracy, and as such accuracy cannot be attained in clinical practice subsequent intermittent clamping of the catheter will not avoid the sequelae of rapid decompression.

FIG 2—Relation between intravesical pressure and intravesical urine volume in a patient with high pressure chronic retention (by permission of the "British Journal of Urology")

It is important that the doctor is aware of the problems that can occur after decompression of a chronically obstructed urinary tract and how to treat them, rather than trying to avoid the problems by using techniques that are unlikely to be effective. Haematuria can be expected for a few days but will rarely be severe enough to produce clot retention or a drop in haemoglobin concentration, and it usually requires no active intervention. A postobstructive diuresis often occurs with a beneficial excretion of retained salt and water,²³ reversing the effects of extracellular fluid overload. Patients with previous hypertension or taking diuretics for peripheral oedema may require modification of their drug regimen as these conditions correct themselves. Diuresis in excess of 30 litres a day has been observed²⁴ and 10-12 litres a day is not uncommon. An accurate fluid balance chart, daily weighing, and monitoring of pulse and blood pressure are therefore important in the management of these patients. Intravenous fluid replacement is not usually necessary unless there is a drop in the erect blood pressure or a sustained diuresis with electrolyte imbalance, and overenthusiastic replacement of fluid loss may simply perpetuate the diuresis.²⁵

Conclusion

Myths, legends, sagas, and folk tales have a vital place in our culture, and we are strong supporters of Aesop, Omar Khayam, Mickey Mouse, and Santa Claus. However, myths have no place in the art and craft of surgical practice and should not be allowed to pass unchallenged. This paper has identified several aspects of urological care that are worthy of reassessment and has recommended alternative practices. It is hoped that these comments will be of interest and value to medical practitioners and nursing staff both in the hospital and the community who care for patients with urological problems.

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St Mary's Hospital, Isle of Wight: a suitable background for caring

Richard Burton

Nine years ago we participated in a low energy hospital study for the Department of Health and Social Services on "low energy nucleus" and were subsequently commissioned to design the first low energy hospital. Now the 191 bed St Mary's Hospital on the Isle of Wight is ready for its first patients and will be formally opened next spring. It is appropriate that this major energy saving initiative should have come from the Department of Health because in the late 1970s the NHS used 1% of all energy in Britain. The initiative was timely for two reasons: firstly, the urgent need, of which we are now all aware, to halt both the depletion of the planet's resources and the consequent pollution from exhaust products; and, secondly (as readers of this journal well know), the desperate need for doctors and nurses to work in a good environment for healing.

The challenge

Our initial study in 1981 was to see if a new "nucleus" hospital could have its energy expenditure cut by half—a challenge tailor made for our practice, as we are specialists in energy conservation. In the same year, during a three day working session with representatives of the Department of Health, the Wessex Regional Hospital Authority, the local district health authority, and our specialist consultants, we outlined

the way the hospital should be. In 1982 we were asked for proposals for incorporating art and craft into the hospital—again something to which our practice has been committed. We have always incorporated art and craft into our design and have also made it a practice to donate a tree for the landscaping of our buildings.

From the start I took very seriously a study that seemed to confirm what most of us instinctively know: that harmonious surroundings—natural and man made—actually speed the healing process.¹ I had a further, personal interest in hospital design. While an NHS patient in the early 1970s I thought a great deal about how to make a hospital more human and congenial. For instance, like every patient before me, I'd spent a lot of time lying in bed and staring at the ceiling. So I knew how important ceiling shapes and materials are to patients and how boring ceilings normally are. The ceiling shapes in St Mary's are complex (fig 1); their design is one of the bonuses of the energy conservation. In due course mobiles will be added to provide an escape route for the patient's imagination from the confines of bed and ward.

We wanted to make St Mary's a place in which not only patients but also the public and the staff would enjoy the environment. The staff was of great importance because they have to be in the hospital throughout the year, often working under great stress. If they are happy, patients will have a better quality of care. And if the environment is visually interesting, even uplifting, everyone's mood will improve, and patients will have opportunities to divert their minds from their illnesses.

Energy savings

Experience had shown us that energy saving can result not in austerities but in benefits of both aesthetics and comfort. For instance, when we analysed the energy use in a nucleus hospital we found that 22% was used in the kitchen. Efforts to keep the cooks cool were being directed at pushing the heat out of the kitchen into the surrounding air, as anyone who has walked past a hospital kitchen and suffered a blast of hot air well knows. Recycling that heat for use elsewhere brought the bonus of a cooler kitchen and insulated fittings. Another example: we knew that if we could design a naturally lit hospital that too would effectively cut energy bills, because electricity is such a high cost fuel—and at the same time the natural light would lift the spirits of everyone in the building.

In fact the chief feature of St Mary's is that it is a light building, both literally and in mood. The lightness begins outside, with the high tech stainless steel

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TERRY GRIMWOOD

FIG 1—Wards are light and airy, with interesting ceilings and view windows.