

POSTOPERATIVE UROLOGICAL COMPLICATIONS

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LOS ANGELES

UNDER this heading no attempt will be made to go into the management of urological cases, per se, but only to discuss urological factors bearing upon the management of patients needing surgery other than urological. During the last forty years much effort has been directed toward the development of satisfactory quantitative renal function tests. A surgeon is interested principally in such tests when they show definite and measurable deficiencies in kidney function as an aid to surgical decisions and surgical judgment as well as a guide to preoperative preparation and postoperative management of surgical patients about whom there is any doubt of renal sufficiency. Such tests are classified as direct and indirect. The direct tests include the oral, intramuscular or intravenous administra-

tion of various chemicals or dyes and the subsequent determination of their promptness of appearance in the urine, the rate of their excretion and their concentration, and the total output during definite time periods of the substance injected. Ability to concentrate urea, specific gravity, the Mosenthal and other tests undoubtedly have a certain value even to the surgeon; much more to the internist. For the surgeon, however, to arrive at a practicable decision as to whether, when and under what conditions to operate, a simple, direct and fairly accurate test of measurable kidney damage is highly desirable. In phenolsulphonephthalein we have such an one, and it is as reliable a procedure as any in medicine or surgery, not excepting the Wassermann test. Even when done properly, however, its answer is not

infallible. For instance, as occasionally occurs, a patient with a perfectly normal output of dye previous to operation will develop an anuria and die in from one to several days following the operation. In such cases other factors are present, usually discoverable beforehand with the aid of a capable internist. These are cardiovascular disease, more or less latent in its manifestations, too much surgery at one time, excessive surgical shock, hemorrhage, etc., obviously attended with deficiency of the cardiac muscle, lowered blood pressure and often fluid depletion. Conversely, in an occasional instance, the patient, almost without function as determined by the dye test, survives a serious operation. Probably, like insurance companies, we should in most instances be concerned with the law of averages and not primarily the exceptional case. There seems to be a prevalent notion that if total, non-protein nitrogen, urea nitrogen or creatinin of the blood are within normal limits, a good kidney function is assured. This is a wholly erroneous assumption and both kidneys must be severely damaged and the function enormously lowered before the non-protein nitrogen elements of the urine begin to show retention in the blood. At least 80 per cent of prostatics showing marked diminution of kidney function fail to show any evidence of nitrogen retention in the blood.

Too little emphasis has been given the technique of the kidney functional test with 'phthalein. It is amazing to note the number of gross errors of everyday occurrence. These errors are, in a vast majority of instances, due to faulty collection of urine to be examined quantitatively for dye content. Faulty collection results when the patient or nurse fails to deliver to the laboratory the total amount voided, or as more often occurs, the patient fails to empty the bladder completely. This incomplete emptying happens quite often with patients whose entire genitourinary system is quite normal, and yet when a complete emptying of the bladder is most desired

they have a stage fright and fail to accomplish it. Therefore, if a 'phthalein is definitely below normal and the clinical picture as a whole does not conform with it, the 'phthalein should be collected by the catheter method, being careful to rinse the bladder with distilled water and to add the rinsings to the sample intended for the dye determination in the laboratory.

When should the general surgeon require a preoperative functional test? Theoretically, perhaps in every case of elective major surgery, as is required in some hospitals, notably the Peter Bent Brigham and the Barnes Hospital. Practically, if there is a history of urinary disease, if the urine shows abnormalities such as blood, pus, albumin, or casts, or there is undue polyuria, frequency, difficulty or dysuria, then a kidney functional test is clearly indicated. If the patient is a male and over fifty years of age, he should be catheterized for residual urine, and if that is present, kidney function should be determined. Hernias and hemorrhoids of recent occurrence in the male patients over fifty years of age should be suspected of bladder-neck contracture or hypertrophy until proved otherwise. In elective surgery abnormalities of the urine or urinary act should be adequately studied and classified before surgical operations are done unless there is an emergency or other legitimate reason for haste. The amount of urological study necessary to determine this may be little or much, depending on the individual case. With normal urine and a normal urinary act, with no history of previous urinary disease, in the average surgical patient except the prostatic, the urinary function may be assumed to be normal and the danger of postoperative anuria or insufficiency practically nil, provided that the presence has been excluded of cardiovascular or other grave disease affecting actively or potentially the bodily functions in a general way. In a sentence, elective surgery should be preceded by a complete diagnosis by whomsoever is best fitted to accomplish

this. Cardiovascular disease, even latent, when clinical and laboratory examinations indicate normal or at least fair kidney condition, is frequently followed post-operatively by renal insufficiency. One wonders if this is not often an acute cardiac dilatation. Clinical experience seems the best guide under such circumstances.

CATHETER CYSTITIS A MISNOMER

Usually the nurse or interne is blamed for the occurrence of urinary infection following surgical operations when, as a matter of fact, the surgeon in charge is responsible. So often one is told that after a few catheterizations the patient began to void and the use of the catheter was discontinued; still, fever and other symptoms continued and the urine was loaded with pus. The patient was in effect simply voiding the overflow with a big residual left behind. Infection follows catheterization of a healthy bladder only when that bladder is not emptied soon enough, often enough and for a long enough period. The greatest factor in the production of any infection of the upper urinary tract (including the bladder), is distention or back pressure, frequently a superimposed latent infection. Distention brings about a "prepared soil," following which some degree of infection is pretty sure to occur notwithstanding the most rigid aseptic catheter technique. Conversely, the intentional introduction of pyogenic organisms into the bladder of man or animals does not produce infection, even in the presence of considerable trauma, if no pathologic condition, active or latent, exists in the urinary tract, and there is no distention or residual urine. Hugh Cabot, in a paper entitled "Prepared soil,"¹ discusses this problem at some length and, on both experimental and clinical data observed by himself and others, believes that post-operatively a patient should not be allowed to accumulate more than 10 oz. (300 c.c.) in the bladder. He instructs his nursing

staff to catheterize the patient at any time after the twelfth postoperative hour if their observations lead them to believe that this amount has been reached, their conclusions being based on the patient's own sensations. Curtis² believes that distress should be the signal for catheterization. It occasionally happens, however, that a considerably distended bladder gives little or no distress, or any distress felt is referred to other organs or regions. Better twice as many catheterizations as necessary than 20 per cent too few. If a patient after operation has persistent difficulty in urination and requires prolonged catheterization or fails to empty the bladder, an indwelling catheter should be used.

In the female a 22 Pezzer, self-retaining catheter is inserted after the following method: A uterine sound with an especially large and rounded point is inserted through the eye of a Pezzer catheter on into the hollow end and the rubber stretched, the right thumb and forefinger holding it alongside the sound. This for the moment straightens out the button end and allows it to pass more easily through the urethra into the bladder. The operator, if right-handed, should stand on the right side of the bed and, after generous use of a water-soluble lubricating jelly, the thumb and fingers of his left hand should separate the labia, exposing the vestibule with the urethra in the center, and the catheter should then be pushed on into the bladder. The thumb and fingers of the right hand are then relaxed, allowing the end of the catheter to resume its button shape, after which the sound is carefully dislodged and removed. One now injects the syringe full of water or other solution into the bladder, and, if there is a good return flow, the patency of the catheter is established. Slight traction should be made on the catheter until one's tactile sense shows that the button end has impinged on the bladder neck. It is then pushed into the bladder an

¹ Cabot, Hugh. Doctrine of the prepared soil. *Canad. M. Assn. J.*, 11: 610, 1921.

² Curtis, A. H. Management of the female urinary bladder after operation and during pregnancy. *J. A. M. A.*, 80: 1126, 1923.

additional half inch and a good-sized glass connecting tube, with the two ends of the *same* caliber, inserted in the outer end to weigh it down. In a male urinal one should cut off the catheter before inserting the glass connecting tube, so that excessive length will not cause it to bend or kink. The catheter need *not* be strapped or tied in and will be self-retaining provided it is not connected with a heavy rubber tube emptying into the bottle alongside of the bed. If a female urinal is used, it is much more easily upset. Even urine in the bed is preferable to bladder stasis or distention.

In the male a soft rubber or Coude catheter answers best. (A Pezzer catheter should never be forced through the male

urethra because of the trauma it produces.) When so-called urethral fever or a chill follows urethral instrumentation, four times out of five it means active or latent pyelonephritis, very often calculus, at most other times latent infection in the seminal vesicles or prostate. If catheterization is harmless in the absence of a urinary pathologic condition, but not infrequently gives severe reactions when disease is present in the urologic tract, withholding the use of a catheter through fear of infection parallels the foolishness of the ostrich with its head buried in the sand. If there is present a pathologic condition, latent or active, one should know it in order better to combat it.

