Case 12. The theory of Leslie-Roberts (1934) that the condition is due to abnormal function of mesenchymal cells in the dermis is hard to reconcile with the spontaneous development of the trouble in a localized area of skin, and with the finding that the hyperidrosis does not return although regeneration of the sympathetic fibres takes place. If, as he believes, these fibres function as a trigger mechanism for starting the excessive sweating, then any return of sympathetic activity should provoke the full response, since the sweat glands do not undergo degeneration after sympathetic denervation (Adson *et al.*, 1935). Evidence of sympathetic overactivity is present in some cases of hyperidrosis in the form of excessive vasospasm, resulting in acrocyanosis or in attacks of the Raynaud phenomenon. Most cases are, however, free from these manifestations, and the disturbance is most likely due to excessive activity in some localized part of a sudomotor centre, probably in the hypothalamus.

No fewer than four of the patients whose cases are reported above had observed that after the Telford operation of thoracic sympathectomy the eating of food was accompanied by sweating of the forehead and face. The foods which provoked the strongest reaction differed in these cases, being cheese in one, chocolate in another, and vinegar in the third and fourth. The latent period between operation and the first detection of the sweating varied between six weeks and six years, and in three cases the condition has persisted unchanged for three to five years. The patients state characteristically that on eating the appropriate food, usually a strongly flavoured food, they feel a tingling or warm sensation in the face or scalp, accompanied by flushing of the face, and in a short time beads of sweat appear, mainly on the forehead but also in the circumoral region. The condition is not severe enough to cause the patient much trouble or embarrassment.

The gustatory sweating has not previously been reported as a complication of upper-limb sympathectomy, although its occurrence after superior cervical ganglionectomy has been noted. Conflicting theories have been advanced in explanation, and indeed it is difficult to account for sweating occurring after the sudomotor pathways have been divided. (Thermoregulatory sweating on the head and face is almost or completely abolished by preganglionic operations for the upper limb.) This fascinating phenomenon is the subject of a special study which will be reported later.

Summary

A study of 12 cases of hyperidrosis treated by sympathetic section, five of them followed for more than seven years, has shown that the operation affords a prolonged and probably permanent cure for this uncomfortable and sometimes disabling condition.

Gustatory sweating of the head and face is a frequent development after the upper-limb operations.

I wish to express my grateful thanks to Prof. Telford for his stimulating interest in this work, and for permission to report on his cases.

REFERENCES

- Adson, A. W., Craig, W. McK., and Brown, G. E. (1935). *Arch. Surg. Chicago*, **31**, 794.
Cobb, S. (1939). Cited by White (1939).
Grimson, K. S. (1946). *Surgery*, **19**, 277.
Haxton, H. A. (1947). *Brit. J. Surg.*, **35**, 69.
Langley, J. N. (1894). *J. Physiol.*, **17**, 296.
— (1897). *Ibid.*, **22**, 215.
Lee, F. C. (1929). *Physiol. Rev.*, **9**, 575.
Leslie-Roberts, H. (1934). *Brit. J. Derm. Syph.*, **46**, 126.
Simmons, H. T., and Sheehan, D. (1939). *Brit. J. Surg.*, **27**, 234.
Telford, E. D. (1935). *Ibid.*, **23**, 448.
— (1938). *Brit. J. Derm. Syph.*, **50**, 637.
— (1942). *British Medical Journal*, **2**, 96.
— and Stopford, J. S. B. (1931). *Brit. J. Surg.*, **18**, 557.
White, J. C. (1939). *New Engl. J. Med.*, **220**, 181.
Wilson, W. C. (1936). *Clin. Sci.*, **2**, 273.

IMMEDIATE PROSTATECTOMY FOR RETENTION OF URINE

BY

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In recent times so many different procedures have been advocated for dealing with cases of benign prostatic hypertrophy that it is becoming increasingly difficult to estimate the value of new methods of treatment. This difficulty has been amply shown by the conflicting views put forward at discussions which took place in 1946 at the Medical Society of London and at the Annual Meeting of the British Association of Urological Surgeons. It seems important, therefore, for surgeons employing new methods to publish their results so that their experiences may be shared by others, and this reason prompts me to place on record a small series of cases.

On going through my case records some years ago I was shocked at the bad results they revealed: in spite of refusing radical operation to a big proportion of cases, the mortality rate was appallingly high. Among 27 cases of permanent suprapubic cystotomy there were 6 deaths (22%), and the rate for prostatectomies was over 15% (Table I, Series I). Unfortunately, this does not appear to

TABLE I.—Results of Treatment in Cases of Benign Prostatic Hypertrophy

	No. of Cases	No. of Deaths	Mortality Rate
Series I.—82 cases : 52 (63%) submitted to radical operation			
Suprapubic prostatectomy, I or II stage ..	38	7	15.4%
Perurethral prostatectomy (McCarthy) ..	14	1	7.1%
Permanent suprapubic cystotomy ..	27	6	22.2%
No operation ..	3	2	66.6%
Series II.—132 cases : 106 (80%) submitted to radical operation			
Suprapubic prostatectomy, I or II stage ..	11	1	9.1%
Perurethral prostatectomy (cold punch) ..	95	8	8.5%
Permanent suprapubic cystotomy ..	23	6	26%
No operation ..	3	1	33.3%

be an isolated experience; for instance, Harbord (1943) records 15% for 94 cases of suprapubic prostatectomy. Owing to these depressing figures my attention was directed to the perurethral operation with the Thompson cold punch, and this method was used almost exclusively for the next series of over 100 cases (Table I, Series II). Though this resulted in diminished mortality, a big drop in the number of patients treated by permanent suprapubic cystotomy, and a welcome rise in the operation rate, the method was not entirely satisfactory. A very high degree of technical ability, which can be acquired only after considerable experience, is required for the successful use of the cold punch, and the need for intensive after-care puts a big strain on the staff where cases have to be nursed in the general surgical wards of a busy hospital. Furthermore, there is a definite recurrence rate (though admittedly dependent on the skill of the individual surgeon); haemorrhage is sometimes very difficult to control, and various complications such as extravasation or urethral damage may arise. Hoffman and Werthammer (1946) even go so far as to state that "statistics show that approximately one out of three cases of transurethral resection of the prostate gland develops complications."

For some considerable time the belief has been gaining ground that gradual decompression is not necessary for treatment of cases of urinary retention. Ten years ago Creevy (1938) concluded that "gradual decompression should be abandoned." He reached this conclusion after treating two groups of 120 cases with more than 500 ml.

of residual urine—one series by gradual decompression and the other without regard to the rate of emptying—the mortality of each group being almost identical. More recently other surgeons have supported the principle of early operation; for instance, D. K. Rose (1945) stated: "Gradual decompression is omitted in fact and in principle, because as a normal or particularly a gradually obstructed bladder empties, its pressure increases. . . . The patient is operated on from the street in better health than from the 'sulfa, catheter, anticipatory, lost appetite, and lessened physiological tone' bed." Moreover, preliminary drainage by catheter or suprapubic tube carries a high mortality, mainly from the resulting infection.

Skyrme Rees (1947), in recording 643 cases of benign prostatic enlargement from Birmingham, found 18 patients had died during gradual decompression of the bladder by catheter, and of 106 cases treated by suprapubic drainage 30 died in hospital (28%). Further, from the results of 64 post-mortem examinations he concluded "by far the commonest cause of death after surgical treatment was severe sepsis in the urinary tract." In addition there are other disadvantages of preliminary drainage. For instance, Wardill (1946) is reported as saying: "I do not believe in permanent suprapubic drainage. If a tube were put into the bladder it might be found that it did not in any way improve the patient's condition. The same applies to catheter drainage for any length of time. I believe that often the enlarged prostate pushed its way up into the bladder and that the ureters were actually obstructed by the prostate itself." My own experience has proved that a permanent suprapubic tube is extremely unsatisfactory for the type of patient predominant in my clinic, most of whom come from a sparsely populated rural area.*

Immediate Prostatectomy

In this country it was Wilson Hey (1945) who first used immediate operation for a large series of cases, and he showed a mortality rate of only 6% for his "aseptic operation." Later figures were even better—24 deaths in 565 consecutive cases—4.3% (Hey, 1946). As Hey's procedure abolished the use of a suprapubic tube, gave a short convalescence, and required a minimum of post-operative care, it seemed a better operation for routine use than the complicated technique of the cold punch. The method of "immediate prostatectomy" was therefore adopted for all cases in my next series irrespective of their condition, though a perurethral operation was still used where it appeared specially indicated, such as for dealing with small fibrous glands. This term is used in preference to "aseptic prostatectomy" because, though asepsis is of paramount importance and an ideal to be aimed at, in

*Since this paper was completed I have successfully removed the prostate from a patient who had been treated by permanent drainage and was in such a miserable condition that he had twice been in another hospital after attempts at suicide.

practice it is very difficult of attainment for various reasons. Thus a high proportion of my cases had been catheterized before admission, a few were referred after they had already been treated by either an indwelling catheter or a suprapubic tube, and, lastly, where the diagnosis was in doubt some cases were cystoscoped immediately before operation.

More recently Millin's (1945) retropubic operation has been performed; in my hands it gives better control of bleeding and there is much less chance of leakage from the suture line in infected cases. At the same time the principles laid down by Hey have been adhered to and immediate operation is practised wherever possible, cases of acute retention being done as emergencies where practicable, or else a suprapubic needle is inserted for a few hours until operation can be undertaken. The actual operative technique employed differs little from Millin's original description, but a V-shaped wedge is excised from the posterior margin of the prostatic rim in every case. Spinal anaesthesia with heavy "nupercaine" by the volumetric method (Hunter, 1945) is employed as a routine, but in some of the worst cases a rectus muscle block and cyclopropane have been used with satisfactory results.

Table II is a complete record of cases from the first immediate prostatectomy, for unless every case is recorded

TABLE II.—Results of Treatment by Immediate Prostatectomy
Series III.—141 cases: 138 (98%) submitted to radical operation

	No. of Cases	No. of Deaths	Mortality Rate
Suprapubic prostatectomy (Hey or Millin) ..	115	9	7.2%
Perurethral prostatectomy (cold punch) ..	23	1	
Permanent suprapubic cystotomy ..	0	—	100%
No operation* ..	3	3	
Cases of acute retention ..	70	4	5.7%
Cases of chronic retention with overflow ..	27	3	11.1%
Cases of prostatic syndrome ..	41	3	7.3%

* Aged 76: admitted with acute retention and cardiac failure; died the same day. Aged 76: admitted with acute retention and cerebral thrombosis; died the 6th day. Aged 71: admitted with chronic retention, uraemia, pyelonephritis, and bronchitis; died the following day.

any series of figures is without much value. It is difficult to define "chronic" retention, particularly when no catheter is passed before operation to determine the amount of residual urine: I have therefore classed as chronic retention only those cases which showed a distended bladder with overflow incontinence. All cases not classed as acute or chronic retention have been grouped together under the heading "prostatic syndrome," and they include cases referred after a previous suprapubic cystotomy.

Deaths

Detailed examination of Table III shows that of the four deaths out of 70 cases of acute retention two were not treated by immediate operation. Case 2 was admitted with

TABLE III.—Details of Deaths in Series III

Case No.	Age	Condition on Admission	Blood Urea mg./100 ml.	Pre-operative Treatment	Type of Operation	Time and Cause of Death
1	78	Acute retention B.P. 260/140	114	Nil	Hey	9th day. Pneumonia and uraemia
2	73	Acute retention; pneumonia	46	10 days cath. and for chest	Millin	63rd day. Pneumonia and cardiac failure
3	76	Acute retention; cardiac failure	26	16 days cath. and for heart		8th day. Cardiac failure. Necropsy also showed carcinoma of stomach
4	82	Acute retention	26	Catheterized before admission	Hey	8th day. Cardiac failure and senility
5	67	Chronic retention; oedema of legs	133	Nil		8th day. Uraemia and myocarditis; post-op. clot retention
6	77	Chronic retention	—	5 weeks in bed at home	Millin	5th day. Bronchopneumonia
7	73	Chronic retention; oedema of legs	266	Nil		19th day. Cardio-renal failure after blood transfusion
8	61	Prostatic syndrome	39	Nil	Hey	21st day. Septicaemia from wound sepsis—cross-infection in ward
9	88	Senile: permanent suprapubic tube	40	Bladder wash-outs and for heart	Punch	10th day. Cardiac failure and senility
10	79	" "	37	Bladder wash-outs		19th day. Cardiac failure 2 days after closure of suprapubic sinus under local analgesia

severe bronchitis, and was treated conservatively till the chest was better. Unfortunately he had a relapse about 12 days after operation, and finally died on the 63rd day. Case 3 was admitted with cardiac failure and auricular fibrillation. I therefore attempted to tide him over with catheterization, but when this had failed to relieve him and the cardiac condition had improved operation was undertaken. Possibly these patients might have survived had they been treated with simple suprapubic drainage. In neither instance was there evidence of much renal damage, and therefore not such strong contraindication to tube drainage and its associated sepsis.

Among the cases of overflow retention there were three deaths out of 27 operations. Case 5 had a bad setback with post-operative clot retention, and this was a material factor contributing towards his death. Case 6 had been kept in bed for five weeks before I saw him, and this fact probably contributed to the onset of the chest condition to which he succumbed. Case 7 was a bitter disappointment: in spite of an initial blood urea of 266 mg., he made good but slow progress till the 19th day. At this stage it was decided to expedite his recovery with a blood transfusion. While this was in progress he had a rigor followed by left-sided facial paralysis, and died shortly afterwards. Necropsy showed a poor myocardium, and Dr. H. R. Mavor, the pathologist, considered death was due to transfusion reaction.

Of the group classified as "prostatic syndrome," Case 8, a fit man of 61, developed mild wound sepsis, but unfortunately at that time there was an outbreak of streptococcal infection in the ward, and he died on the 21st day from cross-infection: blood culture showed a haemolytic streptococcus. Cases 9 and 10 both insisted on having something further done as they were so miserable with their suprapubic tubes: in each instance they were advised against further operation. Case 9 had refused to have his tube put back when it was taken out by his doctor for routine replacement, and was in a miserable condition owing to a suprapubic fistula. Case 10 always had a low-grade infection around his tube, and this resulted in an unpleasant eczematous condition of the genitalia.

Commentary

Admittedly it is difficult to draw conclusions from a small series of cases, and owing to the advent of new sulphonamides and penicillin the three series quoted here are not strictly comparable. However, it is submitted that the figures shown give strong support to the theories put forward by Wilson Hey (1945), who maintains that "post-operative uraemia is due to infection and is encouraged by any method of slow decompression, open drainage, or instrumentation." Certainly it has been my experience that cases catheterized before admission were far more apt to give trouble during their convalescence.

If only selected cases are submitted to radical operation a low mortality rate can be obtained, but emphasis is laid on the fact that *all* my cases are included in this report, and some were extremely sick patients and really deplorable operative risks.

The benefits of immediate prostatectomy for the patient with retention of urine are very great, for he is spared prolonged and sometimes painful pre-operative treatment and a long illness. Some notice must also be taken of the economic factors involved, as the rapid recovery of patients is most necessary at the present time, when there is such a shortage of hospital beds.

Attention to details in treatment is of paramount importance, for even a comparatively trivial setback, such as a blocked catheter, may have serious consequences in

elderly and decrepit patients. All cases get out of bed the day after operation, and to this may be attributed the low incidence of chest complications. The majority go home in good condition about the 12th to 16th day.

Summary

A consecutive series of 141 cases of benign prostatic hypertrophy is recorded; 138 were submitted to radical operation.

Except on very rare occasions, drainage before operation, whether by catheter or suprapubic tube, is not considered necessary or desirable.

There were 97 cases of retention of urine which, wherever feasible, were treated by immediate prostatectomy: 7 (7.2%) died; 70 were operated on for acute retention, with 4 (5.7%) deaths.

As many cases were admitted in very poor condition, the results shown are considered satisfactory. It seems that the method of immediate prostatectomy is well worthy of an extended trial.

I am indebted to Dr. J. Clutton Brock, who was responsible for most of the anaesthetics, and to my house-surgeon, Mr. P. F. Philip, for his help in compiling statistics and for doing some of the emergency operations on my behalf.

REFERENCES

- Creevy, C. D. (1938). *J. Urol.*, **39**, 403.
 Harbord, R. P. (1943). *Brit. J. Surg.*, **30**, 235.
 Hey, Wilson H. (1945). *Ibid.*, **33**, 41.
 — (1946). *Brit. J. Urol.*, **18**, 72.
 Hoffman, C. A., and Werthammer, S. (1946). *J. Urol.*, **56**, 704.
 Hunter, A. R. (1945). *Lancet*, **1**, 82.
 Millin, T. (1945). *Ibid.*, **2**, 693.
 Rees, W. Skyrme (1947). *Brit. J. Urol.*, **19**, 83.
 Rose, D. K. (1945). *J. Urol.*, **53**, 470.
 Wardill, W. E. M. (1946). *Brit. J. Urol.*, **18**, 72.

SOME SIMPLE OBSERVATIONS ON TRANSFUSION REACTIONS

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During the training of several hundred transfusion orderlies it was possible to make some simple observations on transfusion reactions. It was essential that these orderlies should be able to perform venepuncture and to carry out transfusions themselves lest at any time under active service conditions the medical officer was not available. In order to give them the opportunity of acquiring the technique of inserting needles into veins, the majority of the orderlies volunteered to undergo venesection and subsequent reinfusion by their colleagues, under the supervision of one of the instructors. The volunteers were each venesected to the extent of 440 ml. of blood, and their own citrated blood was reinfused. In this way 324 collections and reinfusions of blood were performed, and in addition 56 infusions of glucose-saline, each of 540 ml., were given. The reactions observed are described.

Febrile Reactions

Oral temperatures were recorded by leaving a thermometer *in situ* for at least three minutes, and records were taken before, and at hourly intervals for four hours after,