THE BURCH COLPOSUSPENSION OPERATION FOR STRESS URINARY INCONTINENCE

P H C Lim, A D G Brown, G D Chisholm

ABSTRACT

One hundred and thirteen patients with genuine stress incontinence were treated by a modified Burch Colposuspension after having failed an adequate trial with medical management. Three-quarters of patients were evaluated with pre-operative video-cystometry (video-C.M.G.) while a third underwent post-operative video-cystometry. Flow rates were generally lower after surgery with 3 of the 113 patients developing post-surgery bladder instability. Previous incontinence surgery and higher parity produced statistically a greater number of failures. The overall subjective success of the operation was 80% with another 12% improved at 2 years. A 5 year long-term questionnaire follow-up did not demonstrate marked changes in these figures. The operation itself carries a 16% incidence of significant early complications, while late complications totalled 23%, the latter being primarily minor conditions. Patients left hospital after an average of 10 days.

Keywords: Colposuspension, Burch, Stress incontinence, Results.

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INTRODUCTION

Many studies (1-4) have been conducted to evaluate the Burch Colposuspension Operation since it was popularised by Burch in 1961 (5). Although there is a trend towards performing the currently available endoscopic needle suspension operations (6-8), the Joint Incontinence Clinic of the University Department of Urology, Western General Hospital, has relied heavily on the Burch procedure for the treatment of detrusor stable incontinence in female patients because of its proven short and long term reliability. Between the years June 1982 and June 1986, 113 modified Burch operations were performed. This paper is intended to review the presentation, pre-operative evaluation, the indications for surgical intervention, important details of the operative technique and the results of this operation in respect of complications and cures for genuine stress incontinence at 2 and 5 years post-surgery.

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PATIENTS & METHOD

One hundred and thirteen female patients with GSI were selected for the Burch procedure. They were mainly in the third, fourth and fifth decades of life (Fig 1). Pre-operative evaluation consisted of a full history and clinical examination, culture and sensitivity of a mid-stream specimen of urine and video-cystometry in the majority. They were offered the operative procedure after an adequate trial with medical measures had failed (Table I). Most of the patients were at least 2 years post-surgery before they were clinically evaluated for this review (Fig 2). A 5 year post-surgery long-term follow-up was done by means of a questionnaire sent by mail to all the 113 patients who were operated upon by the same consultant.

Fig 1
Age Distribution

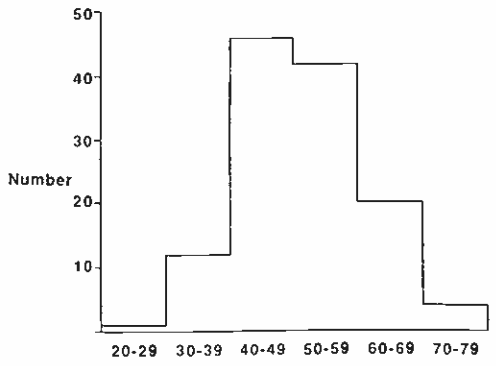


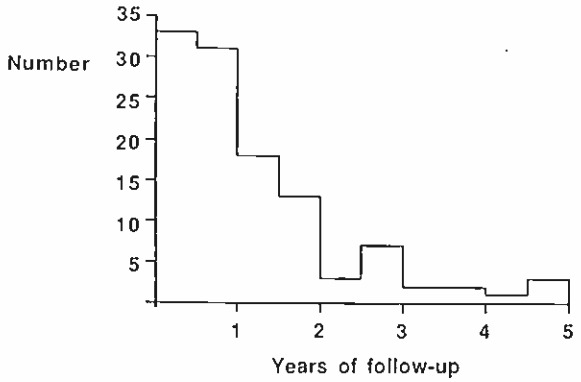
Table I
When to Operate

Never ab initio

Always try – pelvic floor exercises
– diminish fluid intake
– reduce weight, etc, etc,

Only when – very severe incontinence
– lifestyle severely curtailed
– failed adequate trial of conservative therapy

Fig 2
LENGTH OF FOLLOW-UP



The Operative Technique
The operation is essentially a slight modification of Burch (1961). The cuff of vagina on each side of the urethra is hitched up to the obturator fascia. It is considered not essential by this author for urethrovaginal fixation to Cooper's ligament as originally advised. Also the choice of suture material is different ie. only vicryl or dexon sutures are used and 3 are placed on either side. Non-absorbable material is avoided. After the operation a redivac suction drain is left in because of the retropubic dissection and a temporary suprapubic catheter is left in for a few days.

RESULTS
History Taking (Fig 3) and Clinical Examination (Table II)
A positive history of pure stress incontinence is low ie. about 20%. The ability to demonstrate stress incontinence was affected by the artificial and suboptimal conditions in the clinic being positive in only 1/3 of the cases.

Fig 3
Patients (%) in Each Symptom Category

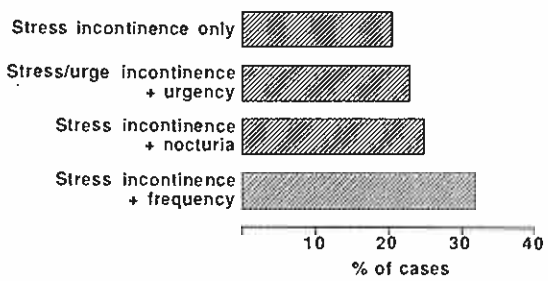


Table II
Clinical Examination

Stress incontinence	=	42/113 (37%)
Cystocoele/urethrocoele	=	27/113 (24%)
Rectocoele	=	17/113 (15%)
Vaginal squeeze	=	19/113 (17%)*

*incompletely documented

Pre-operative Investigations

Mid-stream urine specimens excluded infection. Although on historical and clinical grounds all the patients had detrusor stable incontinence, Video-cystometry (Table III) was advised preoperatively and 72.6% of cases (82/113) agreed to this investigation prior to operation. Post-operatively, however, only 36 patients (31.9%) agreed to Video-cystometry for assessment of the effect of the operation on bladder urodynamics. Of those who were evaluated by Video-CMG all had stable bladders pre-operatively.

Table III
Time of Videocystometry

	No. of patients
Before surgery	51
After surgery	5
Before & After surgery	31

Intra-operative Difficulties (Table IV)
There was some dissection difficulty in 2 patients who were undergoing the Burch operation as a salvage procedure after a previous failed anterior repair. The vascular retropubic area caused significant bleeding which was controlled with some difficulty with suture ligature. Finally, in the one case where the S/P catheter penetrated into the vagina, this was corrected by simple withdrawal into the bladder.

Table IV
Intra-Operative Problems

Difficult dissection due to adhesions	2
Bleeding from peri-vesical veins	3
Puncture of S/P catheter into vagina	1

Duration of S/P Catheter and Hospitalisation (Table V)
After surgery, the S/P catheter was maintained for about 4 days while patients stayed in hospital for about 10 days.

Early & Late Post-operative Complications (Table VI)
If urinary tract infections be excluded (because this was made on the basis of a routine urine culture in asymptomatic patients) then the percentage of early post-operative complications is only 18/113 (15.9%). When even the minor problems are included then the late complications numbered 26 (23%).

Table V
Duration of S/P Catheter & Hospitalisation

	S/P Catheter	Hospitalisation
Mean No. of days	4.2	10.1
Range in days	3-27	6-27

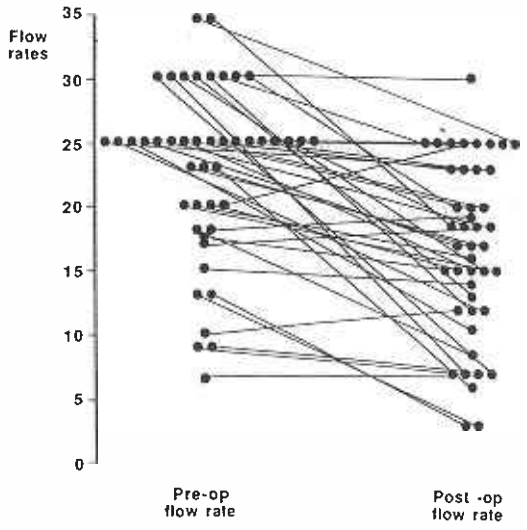
Table VI
Post-Operative Complications In 113 Patients

Early:	**No.**
Subcutaneous haematoma	2
Inflamed/Infected wound	12
Cardiovascular (hypovolaemia/Infarction)	2
Cerebrovascular accident	1
Urinary tract infections	59
Acute retention	1
Late:	
Dyspareunia	1
Voiding difficulty	5
Incisional hernia	6
Rectocoele made worse	12
Deep Lt sided pelvic pain	2

Post-operative Investigations

In the 45 patients where flow rates were studied pre and post operation, 80% had a fall post-surgery (Fig 4). Among the 31 patients who had pre and post-operative Video-CMG's, 3 patients with mild symptoms of voiding difficulty underwent cystometric conversion from detrusor stability to detrusor instability (Table VII).

Fig 4
Pre and Post-op Flow Rates



Assessment of Operative Success

The assessment of cure was graded subjectively by means of a simple scheme (Table VIII). At 2 years (Table IX) therefore, there was an overall 79.6% success, a 12% improvement and an 8% failure rate. For those patients without previous incontinence surgery (Fig 5)

Table VII
Cystometric Conversions (Stability/Instability)

Pre-op stable → **Post-op unstable**			
Patient	**Flow Rate (ml/sec)**		**Symptoms**
1	17.5 →	15	Frequency & nocturia
2	15.0 →	12	Frequency & nocturia
3	20 →	15	Frequency, Noctural enuresis, stress incontinence

Table VIII
Grading of Results

Success : No incontinence/pads not required
Improved : 1-2 pads/day - damp only
Failure : 3 or more pads/day

Table IX
Overall Subjective Results - 113 Patients

	No.	%
Success	90	79.6
Improved	14	12.4
Failure	9	8.0
Total	113	100.0

Fig 5
% of Successful, Improved and Failed Cases Related to Prior Incontinence Surgery

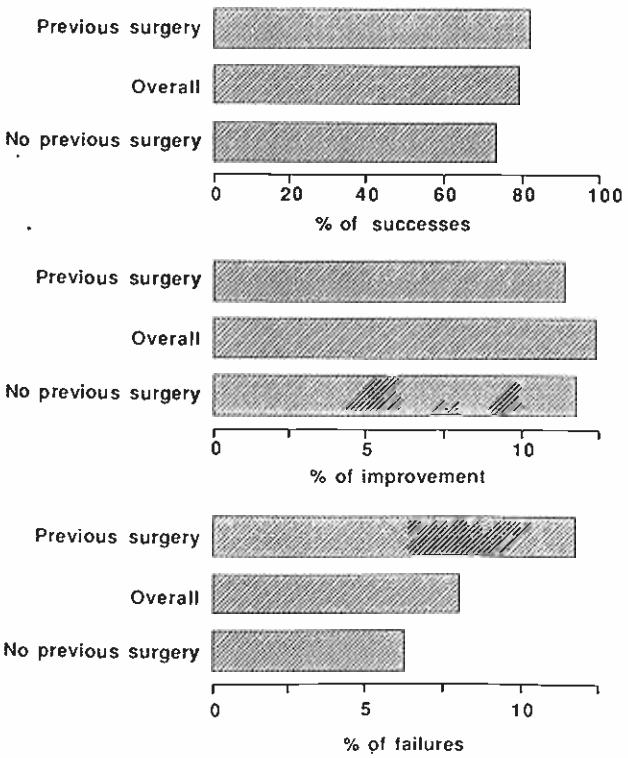


Table X
Effect of Weight on Result

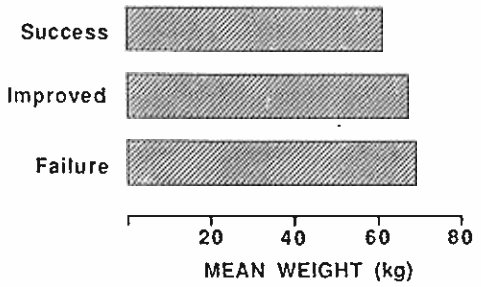
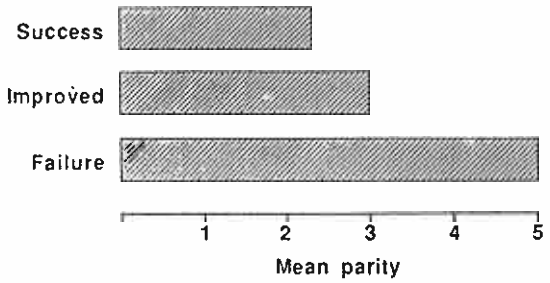


Table XI
Effect of Parity on Result



the subjective cure rate for incontinence at 2 years was 82%. With previous incontinence surgery this dropped to 74%. Because this was not statistically significant, the failure rate was computed for those without (7%) vs those with previous incontinence surgery (14%) and this was significant statistically (p=0.05). Likewise (Table X) when weight was related to results, the greater number of failures among the heavier patients was not statistically proven. However increasing parity was statistically (p=0.05) related to more failures (Table XI).

Long-term Questionnaire Follow-up (Table XII)

A long-term questionnaire follow-up was conducted at 5 years and the results showed that the initial results noted at 2 years was for all practical purposes maintained.

Table XII
Long-Term Questionnaire Follow-up

Success	=	25	(78.2%)
Improved	=	4	(12.5%)
Failed	=	3	(9.3%)

DISCUSSION

From Fig 3 it is clear that irritative symptoms of frequency, urgency, urge incontinence and nocturia are often found in patients with urodynamically proven detrusor stable stress urinary incontinence. The presentation with the sole complaint of stress incontinence is low. This study, therefore, casts strong doubt on the merit of complete urodynamic evaluation for stress urinary incontinence except in unusual patients. In this regard, all patients with a previous failed incontinence-correction operation should have Video-CMG before proceeding to a second operation.

From the point of clinical examination, stress incontinence is seldom demonstrated in the clinic. The cause is probable that the patient has evacuated her bladder prior to being examined. There is, therefore, a strong case for instructing patients to come well hydrated to the clinic and to "hold their water" till seen.

The debate conceming the choice between absorbable or non-absorbable sutures used to hitch up the paraurethral vagina continues, but this author has found it appropriate to use No. 1 Dexon or Vicryl and to avoid non-absorbable sutures which have a reputation for causing deep-seated infection. Since Turner Warwick popularised his "Obturator Shelf Operation (9) we have begun to understand that it is not essential to bring the sutures all the way up to Cooper's Ligament, as the essential requirement is for the paraurethral vagina cuff to form inflammatory adhesions to the obturator fascia.

No serious intra-operative complications occurred although venous bleeding at operation can sometimes prove difficult to arrest. The most serious hazard of ureteric ligation/fistulae was not encountered. In 2nd or 3rd time procedures, care with dissection is emphasised. Early post-operative complications were essentially minor in nature and there was no operative mortality. The high incidence of urinary tract infections could be appreciated because of the presence of the S/P catheter and our stringent criteria for a sterile urine. Late complications can be easily explained; for instance, a rectocoele is usually made worse by a Burch operation because the anterior vagina is lifted away from the posterior wall which it normally supports. Voiding difficulty is caused by the element of outlet obstruction which is a sequel of the operation. Dyspareunia is not common as sutures are placed in the distal third of the anterior vaginal wall where the cervix is some distance away. Symptomatic rectocoeles could be prevented by approximating the uterosacral ligaments according to the procedure of Moschowitz.

The method of correction of genuine stress incontinence is dependent upon successful elevation of the bladder neck and proximal urethra to within the abdominal zone of pressure. From the post-operative flow rates studied, it appears that there is some outlet narrowing caused by the operation. However in only 5 out of 113 was this bad enough to lead to a prolonged period of voiding difficulty which took several weeks to resolve and in a further 3 patients to have caused a post-operative cystometric conversion from a stable to an unstable bladder which were resolved with drug therapy. It would be wise in future to exercise caution if patients have pre-operative symptoms of voiding difficulty or if their peak flow rates prior to surgery is less than 15ml/sec.

Despite the beliefs of Bates et al (1973) (10), we favour a subjective assessment in the routine evaluation of cures after incontinence surgery. Only one-third of our patients could be persuaded to have urodynamic assessment after their operation. In retrospect, we believe that this would be unnecessary except for the "problem patient" with persisting incontinence, persisting post-

operative symptoms or new symptoms hitherto not experienced. The overall 2 year subjective results of 80% success, 12% improved with 8% failures compare well with those of Stanton & Cardozo (1979) (86%) (2), Nielsen & Lundvall (1973) (82%) (11). In addition, we have included our primary and repeat procedures in our derivation of our results which would normally cause a fall in the figures. The 5 year long-term questionnaire follow-up simply showed that the results only dropped very slightly; albeit not all patients replied to the questionnaire.

CONCLUSION

In conclusion, we have demonstrated the continued effectiveness of the Burch Procedure or its modifications in treating genuine stress incontinence in females. It is a tried and tested method that gives an 80-90% long-term success rate. In this series, failure is related to patient selection, in particular, those with previous bladder neck surgery, patients with increased parity and to the development of post-operative bladder instability in those with pre-operative symptoms of voiding difficulty.

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