

## Immediate and long term results of surgical management of low imperforate anus in girls

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### **ABSTRACT**

**Background:** Surgical management of low imperforate anus in girls continues to develop. Two common surgical procedures are applied cutback anoplasty and Potts transfer anoplasty. After cutback, several reports suggest problems with continence.

**Aim of the work:** the purpose of the study was to characterize the nature of anorectal malformation in order to perform the suitable surgical procedures, then recording immediate and long term outcome in girls with low imperforate anus.

**Methods:** This study reviewed 23 girls with low imperforate anus operated upon by cutback anoplasty and Potts transfer anoplasty in Sohag university hospital, department of surgery from May 1998 to May 2004.

**Results:** All patients had low anomalies and anal fistulae. Ten patients (43.5%) had anovestibular fistula, 8 (34.8%) had anoperineal fistula and 5 (21.7%) had anovulvar fistula. Cutback anoplasty was performed in 10 patients, 8 had anoperineal fistula and 2 had anovulvar fistula. Potts transfer anoplasty was performed in 13 patients (56.5%), 3 had anovulvar fistula and 10 had anovestibular fistula. Early post operative complications included wound infection in 10 patients and wound dehiscence in 6. Late complications included anal stenosis in 6 patients, constipation in 18 and recurrent fistula in 2 patients who were repaired again by Potts transfer anoplasty.

### **Conclusion:**

Low imperforate anus in girls can be successfully treated by using surgical procedures without colostomy. Potts transfer anoplasty (anal transposition) is easy to perform, perfect, safe and has less postoperative complications. It has good long term anal function and accepted rate of continence. Also no recurrence was recorded in Potts transfer anoplasty during period of follow up.

**Keywords:** Imperforate anus, anorectal malformation, congenital anomalies, Potts transfer anoplasty, Cutback technique.

### **INTRODUCTION :**

Imperforate anus occurs in one of 5000 live births (*Kumar et al, 2005*). Although the condition is more common in some areas, this may be an underestimate because delayed diagnosis is not unusual for some low anomalies. Some families have a genetic predisposition (*Potts et al, 1954*). Most babies with imperforate anus have one or more abnormalities that affect other systems. The higher abnormalities are usually associated with other malformations. Genitourinary, cardiovascular, gastrointestinal and vertebral anomalies are the most common in pediatric surgical practice (*Sawicka, 2005*).

Where routine systemic examination of newborns is the rule, anorectal anomalies are detected early in life. Some types are not so readily detected and may be presented later (*Stephen, 1984*). It is reported that the majority of girls with imperforate anus will have a lesion of the low variety with a fistula to the perineum, forchette, or vestibule. Two common surgical procedures were done and included cutback anoplasty and Potts transfer anoplasty (*Kumar et al, 2005 and Stephen, 1984*). Although surgery for girls with low imperforate anus have been considered to have good results, several reports suggest problems with continence (*Uba et al, 2006*).

The aim of this work was to evaluate and characterize the nature of anorectal malformation in order to perform the suitable surgical procedures, then recording immediate and long term outcome in girls with low imperforate anus.

### **PATIENTS AND METHODS:**

This study included all girls with low imperforate anus admitted and treated in Sohag University Hospital in the period from May 1998 to May 2004. Data included fistula location, associated anomalies, surgical procedures, postoperative complications and

quality of continence measured by scoring system determined by *Sawicka (2005)* and *Uba et al (2006)* and electromyography study.

Location of the anal fistula was determined by using the Wingspread conference classification of anorectal malformations which was reported by *Bill et al (1975)* and *Stephens (1984)*. They stratified the location of fistula as follow:

- A- Anovestibular fistula located within labia minora but external to the hymen (Fig 1).
- B- Anovulvar fistula located between labia minora and labia majora
- C- Anoperineal fistula which is an opening at any point posterior to the posterior margin of the labia majora and anterior to the normal site of the external anus.

In this study, all girls had undergone complete physical examination and local examination of the perineum to define site of the fistula. If there is an obvious fistula opening in the region of the perineal body, this usually indicates a low imperforate anus and anoperineal fistula. In the absence of an obvious fistula in the perineum, we did inspection to the posterior edge of the vulva and usually we found the vestibule just distal to the hymen.

Routine investigations were done including blood picture, chest x ray, liver, kidney functions tests and urine analysis. Plain X-ray abdomen and pelvis and abdominal ultrasound were done to all patients.

### **SURGICAL TECHNIQUES:**

#### **1-CUTBACK ANOPLASTY:**

The anaesthetized patient was held in the lithotomy position by a nurse. The fistula was laid open to posterior margin of the anus by pointed straight scissor along the length of the fistula. The posterior end of the skin incision was made Y shaped to allow a flap to

be turned up into the sagittally opened anal canal. The mucous membrane and skin edge were sutured with absorbable material (Fig. 2) this method was done by *Stephen and Smith (1971)*, *Edward and Alverto (2004)* and *Sawicka (2005)*.

#### 2-POTTS TRANSFER ANOPLASTY TECHNIQUE:

It was firstly described by *Potts et al (1954)* and included the following: Traction sutures on margin of the fistula were taken followed by saline injection between posterior vaginal wall and anterior rectal wall to facilitate the dissection and avoid injury to the vagina. The rectum was carefully mobilized on all sides. Repair of the perineal body in new position between the vagina and rectum was performed. After amputation of the distal end of the fistula, primary suture

of rectal wall to the skin at proper site of the anus over a rectal tube was done. (Fig 3, 4, 5, 6).

Two weeks after surgery, the finger anal dilatation started daily for 2 weeks then twice/week for 3 months by metallic dilators.

Follow up visit was done every month for 6 months, then every 2 months for 2 years. Follow up was performed to assess quality of bowel function and continence which included five points: frequency of defecation, stool consistency, stool soiling, urgency period and uses of diapers as done by *Patric et al (1998)* and *Kumar et al (2005)*;

- Normal: 10 points score,
- Good: 6-9 points,
- Fair: 1-5 points, and
- Poor: 0 points.

#### RESULTS

Twenty three girls with low imperforate anus were admitted to our hospital. Their mean age was 1.9 month and ranged from 9 months to 3 years.

Ten girls (43.5 %) had anovestibular fistula, eight girls (34.8 %) had anoperineal fistula, and five girls (21.7 %) had anovulvar fistula.

All patients of our study had no any associated anomalies.

Operative procedures included Potts transfer anoplasty technique 13 patients (56.5 %) (10 cases had anovestibular fistula and 3 had anovulvar fistula), while cutback anoplasty was done in the remaining 10 patients (43.5 %) (8 patients had anoperineal fistula and 2 had anovulvar fistula). (Table1).

**Table 1: Surgical procedures done according to the location of the fistula**

	Number of patients	cutback anoplasty	Potts transfer anoplasty	%
anovestibular fistula	10	-	10	43.5%
anoperineal fistula	8	8	-	34.8%
anovulvar fistula	5	2	3	21.7%
Total	23	10	13	100%

**SURGICAL COMPLICATIONS:-**

There was no operative mortality in our study.

The early postoperative complications included wound infection in 10 patients and wound dehiscence in 6. They were treated by conservative measures (systemic & local antibiotics and daily dressing). Three patients needed secondary sutures.

Late postoperative complications included constipation in most cases (18 out of 23), anal stenosis in 6 cases and persistent fistula in 2 cases. Constipation required conservative management. Nine patients had improved by biofeedback training and occasional oral laxative, 5 patients had improved with diet adjustment, and 4 patients required enema to relieve constipation. Anal stenosis responded to regular anal dilation by Hegar dilators and the patient could defecate normally within two months. There were two cases of persistent fistulae following repair of anovular fistulae by cutback anoplasty. These two cases required Potts transfer anoplasty 4 months later on.

Long term follow up from table 2, showed evaluation of continence status.

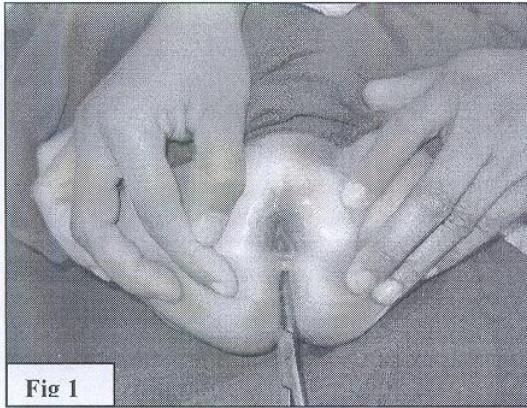
In our series, anal continence was good in 15 patients (65.2 %), fair in 6 patients (26 %) and normal in 2 patients (8.7 %).

Quality of the continence was evaluated by Electromyography study in all patients, where amplitude and frequency of contraction of the anal sphincter increased gradually during follow up period in patients operated by Potts transfer anoplasty (Fig. 7, 8).

When patients operated by cutback anoplasty, amplitude and number of the waves that reflects the contraction of the anal sphincter were unchanged during follow up period.

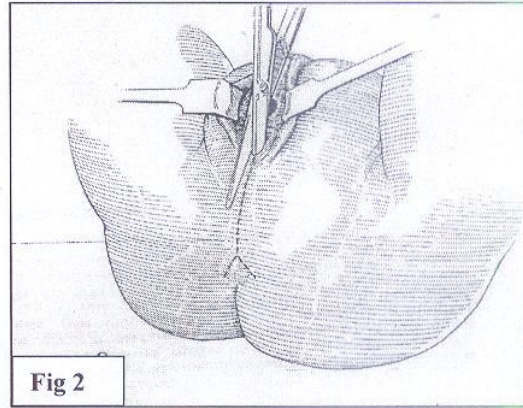
**Table 2: Evaluation of continence (Patric et al, 1998 & Hassin et al, 1998)**

PARAMETERS		SCORING	NUMBER WITH EACH SCORING
Frequency of defecation	Normal (1-2/day)	2	15
	(3-5/day)	1	6
	(>6/day)	0	2
Stool consistency	Normal	2	13
	Loose	1	6
	Liquid	0	4
Soiling	Non	2	17
	Occasional soiling	1	4
	Permanent soiling	0	2
Urgency period	Normal (minutes)	2	12
	Short (seconds)	1	10
	Absent	0	1
Requires diapers	Normal	2	12
	Not used	1	7
	Used	0	4



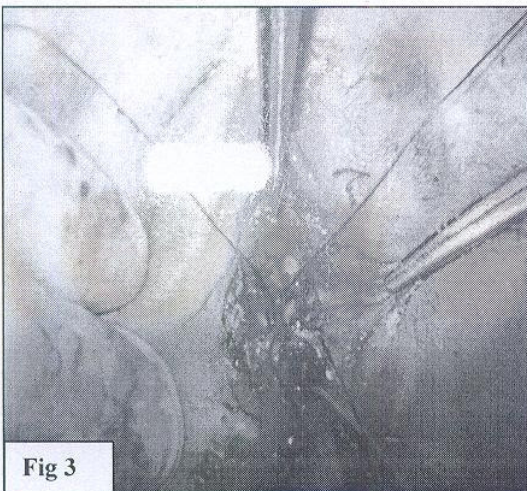
**Fig 1**

Anovestibular fistula



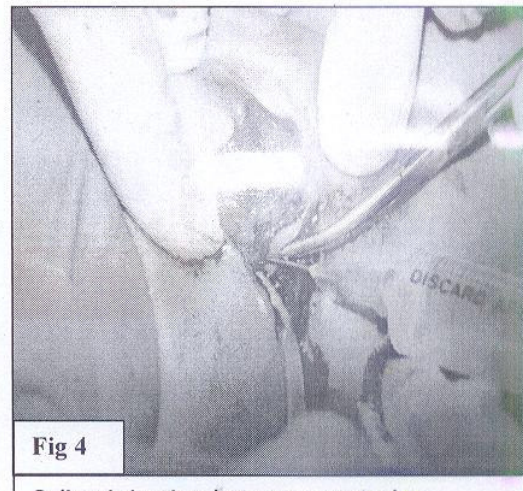
**Fig 2**

Cutback Procedure



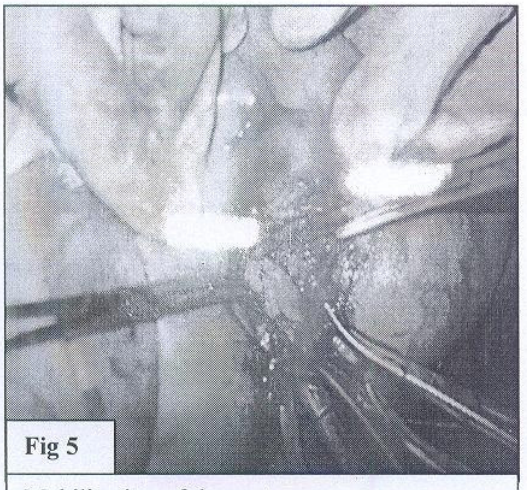
**Fig 3**

Traction sutures on the margin of the fistula



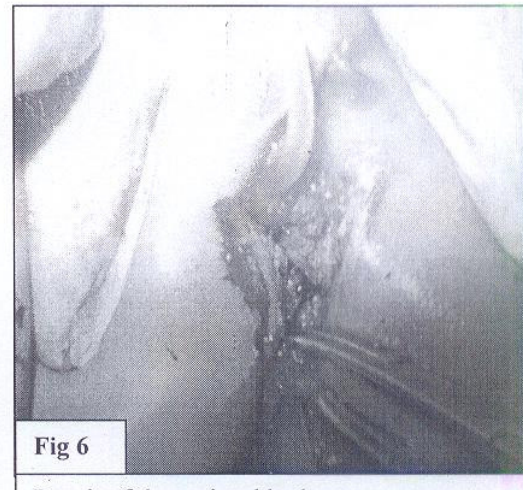
**Fig 4**

Saline injection between posterior vaginal wall and anterior rectal wall



**Fig 5**

Mobilization of the rectum



**Fig 6**

Repair of the perineal body