Fecal Incontinence after Posterior Sagittal Anorectoplasty - Follow up of 2 years

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Abstract

After an anorectal malformation (ARM) is repaired, the goal is fecal continence of the patient. Toilet training is not complete in children below 4 years of age. Manometric and radiological studies need cooperation of the child, and are therefore of little value during the critical preschool years. In this present study, we used only clinical criteria to assess the child for constipation and incontinence after definitive operation. We included all patients of ARM wef 01 April 1998 to 31 March 2000. Only 2 children had crossed 4 years of age at the time of this assessment and therefore it was not possible to assess total continence postoperatively. We found that the incidence of incontinence was less in low anomalies and more in high or intermediate anomalies, while the incidence of constipation was higher in low anomalies and less in high and intermediate anomalies. 31% of all patients born with anorectal malformations and subjected to posterior sagittal anorectoplasty (PSARP) approach were totally continent, 38% suffered with soiling of faeces while 31% had problems of constipation. The higher incidence of constipation as well as incontinence in our study is because of a short follow-up and secondly, these problems are known to improve with passage of time. The purpose of this article is to highlight the problems of bowel control even after the definitive operation and still much more is required to improve the quality of life of these unfortunate children.

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Key Words : Anorectal malformations; Constipation; Incontinence; Posterior sagittal anorectoplasty

Introduction

Anorectal malformations represent a spectrum of defects, which may be benign, noncomplex with a good functional prognosis, to more severe malformations involving the genitourinary system with poor prognosis for bowel and urinary function. The anal canal is absent in most types of anorectal malformations, therefore one can not expect "normal" bowel functions in most cases of anorectal malformations. Many patients achieve very satisfactory bowel and urinary control, whereas others either remain fecally incontinent or suffer from functional disorders. The treatment of anorectal malformations has been a difficult challenge for pediatric surgeons for several generations. The fecal incontinence after repair of anorectal malformations has troubled many of the unfortunate children born with these malformations. We present a small series of the entity with short follow-up to assess the child for incontinence and constipation after definitive surgery.

Material and Methods

This study was conducted at a large, teaching hospital and 30 cases of anorectal malformations were managed between April 1998 to March 2000. The patients were registered for study at the time of diagnosis and were followed up to definitive treatment and fortnightly intervals subsequently. In all high and intermediate type of malformations colostomy was performed within 48 hours. In a few high and intermediate lesions right transverse

colostomy had been performed at a peripheral hospital before sending the patient to this centre. A pre-operative distal colostogram was performed 3 to 4 weeks following colostomy to define the anatomy of the distal bowel and establish the site of fistulous connection with the genitourinary tract. All the patients were subjected to sonography of the abdomen and roentgenograms of lumbosacral spine to look for associated anomalies. An intravenous urogram and micturating cystourethrogram was also performed in cases where urological anomalies were detected in ultrasonogram or suspected on clinical grounds. A majority of cases with low type of defect were taken up for definitive surgery at age of 3-4 months and high and intermediate type at age of 6 months to one year. The surgical approach used in our centre for the definitive repair was PSARP. In low defects, minimal PSARP or limited PSARP was done. During follow-up all the patients underwent rectal examination to assess the sphincter tone, presence of any posterior shelving or tight anal ring. Specific questions were asked to the parents about incontinence and constipation. All operated patients underwent anal dilatation programme for 6 months but the patients of constipation group continued regular anal dilatation for further duration of time, while the patients of incontinence group were started on 'bowel management programme'. The assessment for incontinence and constipation was started 6 months after the rigorous anal dilatation programme.

Results

In our study 16 patients were males and 14 patients were females. A rectobulbourethral fistula was the commonest

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defect in males (44%). Anovestibular fistula (43%) was noted as the most common defect in females. 50% of females had low defects as compared to a preponderance of high lesions in males (63%, Table 1). The genitourinary and skeletal anomalies (30% each) were the most frequent associated anomalies encountered (Table 2). In skeletal anomalies, the sacral abnormalities were present in 78% of patients (Table 3). The classical PSARP operation was done in 45% of cases while in rest of the cases limited PSARP or PSARP with laparotomy were performed (Table 4). Out of 30 patients, one patient was excluded from the study because that baby died due to ventricular septal defect and other severe associated anomalies. In 29 patients, 11 patients (38%) had incontinence and most of these patients were of high type (82%, Table 5). They were managed by advising the parents to clean the colon at least once a day with the use of suppositories, enemas or high colonic irrigations. In few patients, low dose loperamide was supplemented to keep the colon quiet. 9 patients (31%) had problems of constipation and majority of these patients had low defects (Table 6). These patients were managed with enemas, suppositories, or laxatives. Overall, 12 patients (41%) had poor control of bowel function after PSARP due to severe incontinence and/or intractable constipation, 8 patients had satisfactory control (28%) and 9 patients (31%) were totally continent (Table 7). Most of the patients of poor control group were of the high / intermediate type of lesion.

Table 1

Incidence

Sex → Defect ↓	Male		Female	
	No of cases	%	No of cases	%
Low	3	18.75	7	50
Intermediate	3	18.75	4	28.50
High	10	62.50	3	21.50
Total	16	100	14	100

Table 2

Associated anomalies

System	No of cases	%
Genitourinary	9	30
Skeletal	9	30
Cardiovascular	2	7
Gastrointestinal	1	3
Nervous	1	3

Table 3

Anomalies of skeletal system

Morphology	No of cases
Agenesis of sacrum	1
Absence of 2 or more sacral vertebrae	3
Absence of 1 sacral vertebrae	3
Spinal dysraphism	1
Hemivertebrae of L1	1
Total	9

Table 4

Definitive surgical procedure

Operative procedure	No of cases	%
Anoplasty	1	3.44
Limited PSARP	10	34.48
PSARP	14	48.27
PSARP + Laparotomy	4	13.79
Total	29*	100

*One patient died due to severe associated anomalies

PSARP - Posterior sagittal anorectoplasty

Table 5

Soiling and type of defect

Defect	Cases	Grade 1	Grade>1	Total	%
Anocutaneous fistula	4	0	0	0	0
Anal stenosis	1	0	0	0	0
Vestibular fistula	6	2	0	2	33
Perineal canal	1	0	0	0	0
Bulbar fistula	3	1	1	2	67
Vaginal fistula	3	0	1	1	33
Prostatic fistula	7	1	2	3	43
Bladder neck fistula	1	0	1	1	100
Cloaca	1	0	1	1	100
Imperforate anus without fistula	1	0	0	0	0
Pouch colon	1	0	1	1	100
Total	29*	4	7	11	38

*One patient died due to severe associated anomalies. Grade 1 : Non disturbing event and considered normal by parents; Grade > 1 : Problem for both child and parents

Table 6

Constipation and type of defect

Defect	Cases	Grade 1	Grade > 1	Total	%
Anal stenosis	1	0	1	1	100
Anocutaneous fistula	4	1	1	2	50
Vestibular fistula	6	2	0	2	33
Perineal canal	1	0	0	0	0
Bulbar fistula	3	0	1	1	33
Vaginal fistula	3	0	0	0	00
Prostatic fistula	7	0	2	2	29
Bladder neck fistula	1	0	0	0	0
Cloaca	1	0	0	0	0
Imperforate anus without fistula	1	1	0	1	0
Pouch colon	1	0	0	0	0
Total	29*	4	5	9	31

*One patient died due to severe associated anomalies.

Grade 1 : Constipation manageable with diet alone; Grade > 1 : More severe form of constipation

Table 7

Subjective evaluation for bowel function

Outcome	No of cases	%
Poor	12	41
Satisfactory	8	28
Good	9	31
Total	29	100

Discussion

Anorectal malformations encompass multiple congenital defects or urinary and/or sexual structures with varying degrees of complexity that require different types of treatment. Patients operated for these malformations may achieve bowel control or may suffer different degrees of fecal incontinence. The indicators of good prognosis of bowel control are normal sacrum, prominent midline groove (good muscles), rectal atresia, vestibular fistula and low defects. The indicators of poor prognosis of bowel control are abnormal sacrum (more than 2 vertebrae missing), flat perineum (poor muscles) and high defects [1].

Bowel continence depends on the integrity and normal function of three important elements : sensation, sphincters and colonic or rectosigmoid motility. The recent evidence seems to indicate that the most distal part of the blind rectum that communicates with the urinary tract (urinary fistula) seems to have a circular smooth muscle layer that may behave as an internal sphincter and therefore, it would be desirable to preserve that part of the rectum as much as possible [2,3].

Constipation has often been annoying in the early years and this problem appears more often after correction of low lesions. Nixon and Puri [4] reported that one third of patients with low lesions in their series experienced troublesome constipation. Similarly, in a series of 792 patients with anorectal malformation, Alberto Pena [5] found that 43% of patients suffered from constipation, out of which, most of them were of low lesions (61% of patients with vestibular fistula) while the high type suffered only in 18% of cases. We found comparable results in our series with higher incidence of constipation in patients of anal stenosis, anocutaneous fistula and vestibular fistula. Constipation was quantified as grade 1 when the patient was manageable by changes in diet; grade 2 when the patient required laxatives, and grade 3 when the patient required enemas.

A patient born with an anorectal malformation having a good muscle mechanism and a good sacrum, is likely to have a reasonably good bowel control, although the patient may not be entirely normal. The long-term studies suggest that good bowel control can be achieved after correction of low anomalies in about 90% of patient's [6]. Pena in his series found that 42% of all patients born with imperforate anus and subjected to a posterior sagittal approach were totally continent, while 57% of them suffered from some degree of incontinence, out of which 19% suffered from grade 1 and 38% suffered a more severe degree of incontinence [5]. We also have similar results, though our series is small and follow up is short. The incontinence is graded as grade 1, when soiling occurs occasionally in minimal amounts and gives

no social problems to the patients. Grade 2 refers to soiling that occurs every day but does not cause any social problems. When the soiling is constant and represents a social problem to the patient, it is labelled as grade 3 [5].

Traditionally, it has been said that one has to wait 12 to 13 years before one can have a real evaluation of patients subjected to a repair of an anorectal malformation, but Kiely and Pena do not believe that children have better fecal control as time passes. They say that future continence may be predicted within weeks of stoma closure in most patients [7]. Langemeijer and Molenaar reviewed 50 patients between 1 and 7 years after surgery for high anorectal anomalies. They concluded that no patient achieved continence in their series and 20 to 23 achieved 'pseudocontinence' with the use of daily enemas [8]. Thus, many patients of anorectal malformations achieve very satisfactory bowel control, whereas others either remain fecally incontinent or suffer from important functional disorders. The problem of incontinence imposes considerable strain on the child and the parents. These patients suffer from a life-long handicap and they need support and follow-up.

To conclude, the post operative continence could not be assessed properly because most children were in the age group, which was not toilet trainable, but still the early indication is favourable and encouraging. It is essential to define the type of anorectal malformations, associated sacral anomalies and status of perineal muscles at the time of definitive surgery to assess the final outcome.

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