

Posterior sagittal rectopexy in the treatment of recurrent rectal prolapse in children

Amel Abd Eltwab Hashish

Background/purpose Several surgical techniques have been described to treat recurrent rectal prolapse in children after failure of initial surgical treatment. The aim of this study was to evaluate the safety and efficacy of posterior sagittal rectopexy (PSR) in children with recurrent rectal prolapse.

Patients and methods Twenty-two patients aged between 1 and 7 years presented with recurrent rectal prolapse after failure of initial surgical treatment. Conservative management was successful in four cases. Eighteen were treated with PSR. The procedure included plication of the dilated rectum and fixation of the rectum to the sacrum. The follow-up ranged between 4 and 18 months.

Results Superficial wound infection occurred in two cases, and both healed without any further consequences. Constipation improved in seven out of 12 patients, who had history of constipation before surgery. Partial mucosal prolapse recurrence occurred in three patients. Two

improved conservatively after 5 months and 7 months, respectively, and one required mucosal trimming. Normal anorectal continence was noted in all patients older than 3 years at follow-up.

Conclusion PSR is a good option in cases of recurrent rectal prolapse in children. The technique is both safe and effective. It is associated with satisfactory functional results. *Ann Pediatr Surg* 7:101–104 © 2011 Annals of Pediatric Surgery

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Department of Pediatric Surgery, Faculty of Medicine, Tanta University, Tanta, Egypt

Correspondence to Amel Abd Eltwab Hashish, Department of Pediatric Surgery, Faculty of Medicine, Tanta University Hospital, Elgish Street, Tanta, 31111, Egypt
Tel: +20 40 333 5695, +20 12 331 5309; fax: +20 40 341 2127;
e-mail: amelhashish@gmail.com

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Introduction

Rectal prolapse in children is usually a self-limited condition, but its recurrence usually causes great distress to the child and his parents. Most cases of rectal prolapse occur in children younger than 4 years, with the highest incidence during the first year of life. It develops usually secondary to prolonged time spent on the pot with or without constipation, prolonged diarrhea, malnutrition, parasitosis, and/or laxative abuse [1–4].

Many treatment modalities have been tried for recurrent cases, such as conservative treatment by regulation of toilet habit and modulation of diet [5], injection of sclerotherapy [1,6–8], and linear cauterization [9]. Surgery is usually required for persistent and recurrent cases. Many surgical operations have been described in the literature, such as encircling the anus [10,11], transanal resection [12], abdominal rectopexy [13], and posterior repair and suspension [3,5]. Each one of these techniques has its advantages and limitations.

The aim of this study was to evaluate the safety and efficacy of posterior sagittal rectopexy (PSR) in children with recurrent rectal prolapse.

Patients and methods

This is a retrospective file review study conducted on children admitted to the Pediatric Surgery Unit, Tanta University Hospital (Egypt) and affiliated hospitals in the period 2007 to 2010, for management of recurrent rectal prolapse. All children had complete rectal prolapse (Figs 1 and 2).

Structured charts were designed to retrieve the following data from files: age at initial presentation, nature of previous operation, age at presentation by recurrence, clinical features (history for predisposing factors, frequency of prolapse, perineal excoriation, rectal bleeding and ulceration), duration and nature of conservative management done and whether successful or not, age at surgical intervention, operative notes, postoperative management, postoperative complications and their management, the plan for follow-up outpatient clinic

Fig. 1



Recurrent rectal prolapse in a 4-year-old child after failure of a previous non successful twice circlage surgical operations.

visits, and findings in these visits (bowel habits, recurrence, incontinence).

Primary outcomes were change in bowel habits, incontinence, and recurrence rates, whereas secondary outcomes were operative time, bleeding, and postoperative complications.

Surgical technique

All patients had preoperative bowel cleaning enema. The operation was performed under general anesthesia. The patient was placed in the prone Jackknife position. The

Fig. 2



Recurrent rectal prolapse after failure of previous circulage due to large rectal polyp.

buttocks, sacral, and perineal regions were cleaned with povidone iodine. Skin was incised at the natal cleft from just above the coccyx down to but not through the external anal sphincter complex. The levator muscles and para sagittal fibers were divided exactly in the midline using a diathermy. The coccyx was removed to facilitate exposure. The posterior and lateral walls of the rectum were then dissected well for a length of approximately 10–15 cm.

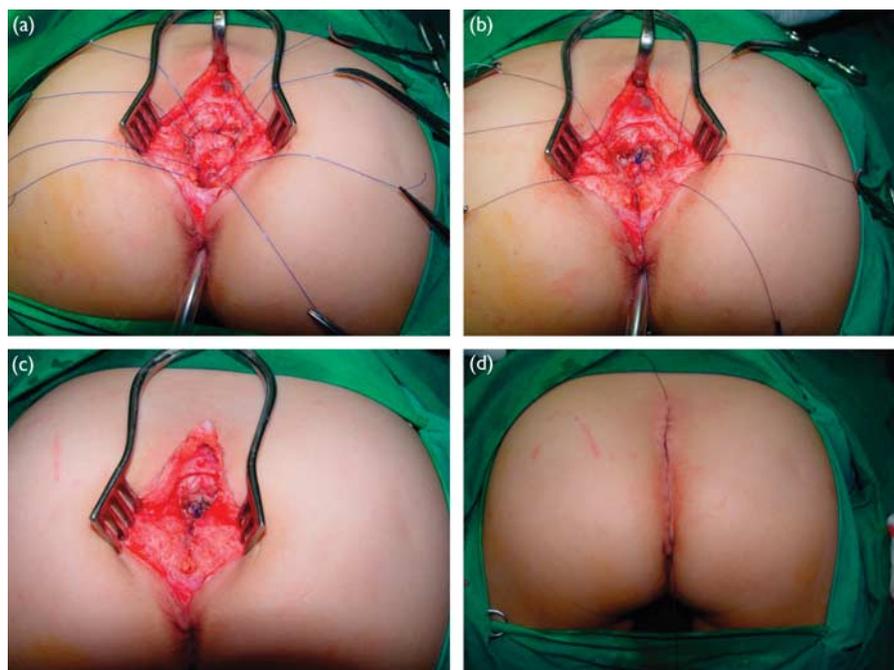
Horizontal plication of the rectum using 3/0 Prolene sutures (Ethicon, Johnson & Johnson, Somerville, New Jersey, USA) was then passed in the seromuscular coat of the rectum passing in one side, then in the back, and then in the opposite side of the dilated rectum. These sutures were tied on the assistant's finger or on an appropriate-size Hegar dilator that was placed in the anus to avoid excess narrowing of the rectum. The proximal two or three sutures were fixed to the sacrum. The levators and parasagittal muscles of both sides were then approximated in the midline by interrupted vicryl 3/0 (Ethicon, Johnson & Johnson) sutures that passed through the seromuscular coat of the back of the rectum to fix it. Lastly, skin incision was closed without drain (Fig. 3).

Laxative, milk or soft diet was used in the postoperative period, to avoid constipation and excessive straining during defecations. All patients were discharged home after 24 h. Analgesics and antibiotics were used for 3 days.

Results

This study included 22 patients with recurrent rectal prolapse after previous intervention. Conservative management was done through instruction and training of the parents to do manual reduction, modulation of the diet by

Fig. 3



(a) Posterior sagittal approach, excision of the coccyx to improve exposure of the rectum, and horizontal placcation of the rectum. (b) Suspension and fixation of the rectum to the sacrum by fixing the proximal three sutures to the sacrum. (c) Approximation of the levator ani in the midline. (d) Closure of the skin using running subcuticular suture.

increasing the fiber and fluid intake and prevention of all seeds, regulation of the bowel habit, treatment of any existing dysentery or constipation, and instruction for proper positioning of the child during defecation. Conservative management was successful in four cases within 3–5 months.

Eighteen patients (11 male and seven female) who did not respond to conservative treatment were treated with PSR. Their ages ranged from 1 to 7 years. The duration of the recurrent prolapse ranged from 7 to 15 months.

All patients had routine laboratory investigations and complete stool analysis to exclude any parasitic infestation before surgery.

The clinical presentation is shown in Table 1.

Seven of the 18 patients who required PSR were treated initially by injection of sclerosing material, eight had previous one or more circulage procedure, and three had linear cauterization.

The average operative time ranged from 45 to 80 min (average 65 min). The early postoperative course was uneventful in all patients. Postoperative complications include superficial wound infection (two cases) and constipation in five patients.

The patients were followed for 4–18 months. Normal anorectal continence was reported in all patients aged above 3 years. Partial mucosal prolapse recurrence occurred in three patients. Two improved conservatively after 5 months and 7 months, respectively, and one required mucosal trimming.

Discussion

Rectal prolapse occurs in children due to a combination of many factors such as shallow or straight sacral curve, disorders of the sacral nerve root innervations, vertical course of the rectum, flat coccyx, poor levator support, relatively low position of the rectum in the pelvis, loss of retrorectal fat due to malnutrition, chronic constipation, and/or straining during defecation, or due to idiopathic causes [3,4,14]. The extent of the herniation varies from 1 to 2 cm to extensive prolapse that may result in incarceration of the rectal wall with vascular compromise.

Many cases of rectal prolapse in infants could be treated nonoperatively by treating predisposing conditions such as avoidance of straining at stool, squatting during defecation, and stool softeners or laxatives [15].

Several surgical techniques have been reported for treatment of rectal prolapse in children after failure of

conservative management. The number of different operations described for rectal prolapse denote absence of a uniformly effective treatment. Anal circulage is a relatively simple technique, but carries the risk of infection, suture erosion into the rectal wall, pain during defecation, and a high rate of recurrence.

Injection sclerotherapy is another option; however, a high recurrence rate that reached 36% after single injection of sclerosing material and 16% recurrence after three injections was reported [1].

Abdominal rectopexy either by conventional or laparoscopic approach still carries the risk of bladder dysfunction and impotence. Abdominal rectopexies, abdominal/perineal bowel resections, and encircling procedures carry a collective risk of recurrence of approximately 25% [10].

Laparoscopic mesh rectopexy could avoid the morbidity of a large perineal or abdominal incision. It has been reported that prosthetic materials are not necessary in all cases [16]. Some investigators reported that laparoscopic rectopexy with or without mesh is safe, rapid, and effective and can improve functional outcome without recurrence [17]. However, advanced laparoscopic techniques in children need experience and require specific settings that may not be available in all centers.

There is no consensus as regards the management of the recurrent cases. This series used a similar technique that was described by Ashcraft *et al.* in 1990 as the ‘levator repair and posterior suspension procedure’ for rectal prolapse. The technique surgically accomplishes the objectives of the other nonoperative and operative methods of treatment [3]. Although the technique was reported in other series [5], its use is not popular in many pediatric surgical centers.

PSR repair focuses on the anatomic part by fixing the retrorectal area posterior to the levator ani and muscle complex, as well as on the functional part by plication of the dilated rectum [5].

The recurrence rate after PSR is variable in different series. Saleh [18] reported no recurrence after posterior plication of the rectum in a series of 20 patients. Similarly, Tsugawa *et al.* [19] reported no recurrence in 14 patients, after fixation of the sutures of the rectal wall to the coccyx. In contrast, Laituria *et al.* reported 70% recurrence after PSR. They relate the high rate of recurrence to the anatomic origin of the prolapse because anal and perineal procedures only secure the distal rectum [16]. In this series, there was partial recurrence in three patients (16.7%); two of them responded to conservative management.

One of the major concerns about PSR is the potential damage of the levator ani and development of postoperative anorectal incontinence. This potential complication can be avoided by adherence to principles of PSR and by keeping the incision exactly in the midline, which all pediatric surgeons do in management of congenital anorectal malformation. This potential complication was not reported in any of the patients aged above 3 years in this series.

Table 1 Clinical presentation

Clinical presentation	Number
Straining and constipation	12
Pain during defecation	10
Small amount of fresh blood	8
Soiling	6
Perianal dermatitis	5
Frequent irreducibility (>1 weekly)	3
Rectal ulceration	2

Conclusion

The results of this study showed that PSR is both feasible and is a good option in cases of recurrent rectal prolapse in children. The technique is associated with excellent functional results.

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