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Laparoscopic posterior rectopexy (Well's procedure) for full-thickness rectal prolapse following laparoscopic repair of an anorectal malformation: A case report

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ABSTRACT

INTRODUCTION: Intractable full-thickness rectal prolapse (IRP) unresponsive to conservative treatment remains a major problem after anorectoplasty for high or intermediate anorectal malformation (ARM). Surgical management must aim for a permanent fixation of the rectum to the presacral fascia. While in children with IRP following ARM repair the optimal procedure has not been established yet, laparoscopic posterior mesh-rectopexy (Well's procedure) has demonstrated efficacy in adults.

PRESENTATION OF CASE: A male infant with intermediate ARM received laparoscopic-assisted anorectal pull-through at the age of 4 months. Three months later he developed mucosal prolapse and received multimodal conservative treatment. Because of progression into a full-thickness RP with ulcerations, the parents opted for surgical management. Well's procedure was performed at the age of 4 years. Using four ports, the rectum was circumferentially mobilized down to the pelvic floor and pulled inside. A 5×5 cm prolene mesh was tacked to the sacrum, enveloped posteriorly 270° around the rectum, fixed with interrupted prolene sutures on both edges and carefully covered with peritoneum. Any redundant external mucosa was excised from a perineal approach. There were no intra- and postoperative complications. Within 1.5 years of follow-up the boy had voluntary bowel movements and was toilet trained. No prolapse recurrence could be observed nor provoked.

DISCUSSION: We present the first pediatric case of IRP secondary to laparoscopic ARM repair which has been successfully treated by combined Well's procedure and perineal mucosal resection.

CONCLUSION: Well's procedure is a successful technique and should be further explored in children with ARM and IRP.

1. Introduction

Rectal prolapse (RP) can be classified into a pediatric type which usually presents with mucosal prolapse only and an adult type showing full-thickness protrusion [1,2]. It may be graded as minimal when the rectal mucosa is visible only with Valsalva maneuver, moderate when the prolapse is less than 5 mm without Valsalva maneuver and evident when the prolapse exceeds 5 mm without Valsalva maneuver [3].

In children with anorectal malformations (ARM), RP is a well-known postoperative complication after ARM repair. Amongst others, a colostomy created in the neonatal period for high or intermediate forms and the laparoscopic-assisted anorectal pull-through (LAARP) have been described as risk factors [3].

The first-line management of RP remains conservative applying stool softeners and/or laxatives, bowel management and avoidance of prolonged straining [4]. However, RP of more than 5 mm has been associated with severe clinical implications, as it can lead to excessive mucous production, has a tendency to erode and bleed and may interfere with anal canal sensation compromising fecal continence and the patient's quality of life [5].

Decision for surgical correction after failed conservative management is mainly based on the anatomy of the RP. While in mucosal prolapse the aim is to form an adhesion between the mucosa and the muscular layer of the rectum, e.g. with sclerotherapy, a full-thickness RP requires a fixation of the rectum to the presacral fascia.

We present a male patient who developed an intractable full-thickness RP after being treated by LAARP for imperforate anus without a fistula. The local ethical committee approved the study (reference number 30-023 ex 17/18) and informed consent was

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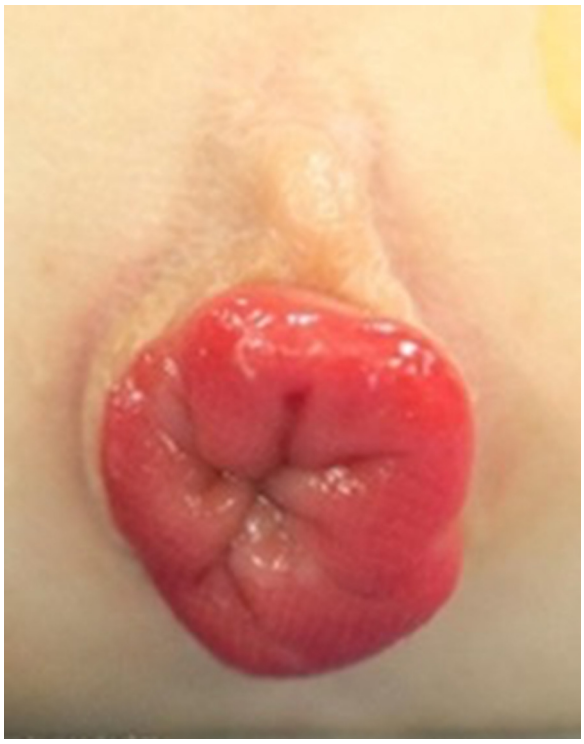

Fig. 1. Rectal prolapse of 2 cm three years following LAARP.

given by the guardian. The case report has been reported in line with the SCARE criteria [6].

2. Presentation of case

The male patient was born with imperforate anus without fistula in the 37th + 4 gestational week with a birth weight of 3430 g. A diverting colostomy at the level of the descending colon was created on the second day of life. Further investigation with ultrasound, cystography, contrast enema of the distal stoma and MRI suggested a high anorectal malformation with imperforate anus without fistula. The terminal rectum reached just below the hypoplastic levator ani musculature with a distance between the rectal pouch and perineum of approximately 3 cm. Additionally, a polysplenia was recorded.

At the age of 4 months, the anorectal malformation was corrected by LAARP according to Georgeson et al. The colostomy was closed three weeks later. Three months after the LAARP a mucosal protrusion was observed on the left hemi-circumference of the anus. However, 9 months later at an age of 1.5 years a circumferential mucosal prolapse was evident. Despite therapy with laxatives, the prolapse progressed over two years from mucosal to persistent full-thickness RP of 2 cm (Fig. 1). Diagnostic work-up with anorectomanometry performed without sedation showed a high-pressure zone of 3 cm length with an anal canal resting pressure of <20 mmHg. MRI revealed a tubular anorectum without any signs of sphincteric tonisation and a weakly developed pelvic floor musculature (Fig. 2). Video urodynamic investigation documented a normal bladder function without any signs of neurogenic bladder dysfunction.

Because of persistent, intractable full-thickness RP of about 2 cm despite pelvic floor training and bowel management, laparoscopic posterior mesh rectopexy was performed at the age of four years. Four ports (two 3 mm, one 5 mm and one 10 mm ports) were used to mobilize the rectum close to the pelvic floor. After freeing the rectum completely down to the pelvic floor and pulling it back into

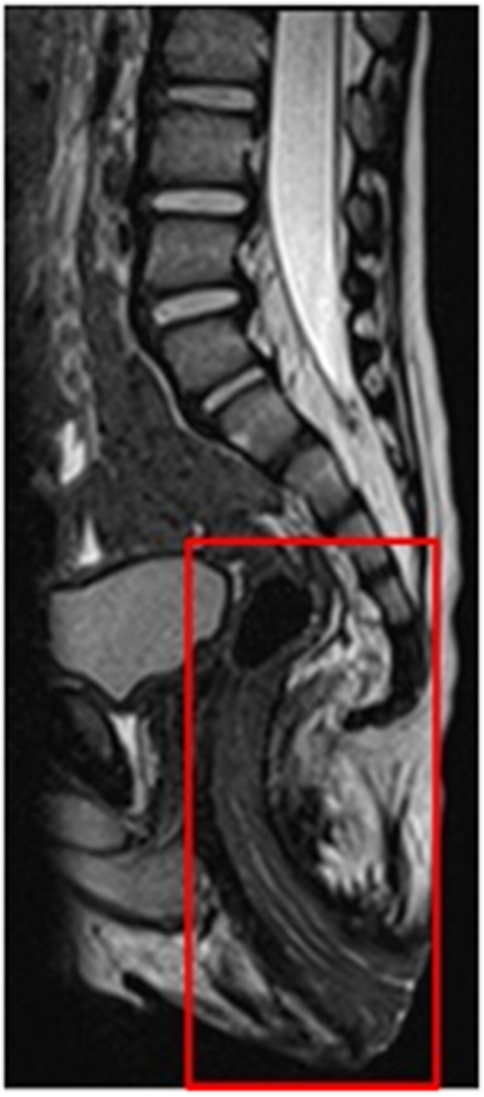

Fig. 2. MRI showing the tubular anorectum (red box) without any signs of sphincteric tonisation. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

the abdomen, a 5 × 5 cm prolene mesh was tacked to the sacrum, wrapped posteriorly 270° around the rectum and fixed to the rectum with three interrupted prolene sutures on each side (Fig. 3). The peritoneal fold was closed afterwards to avoid fistulation, intestinal adhesions and prerectal pelvic hernia. Thereafter, redundant mucosa was excised according to Peña, as described by Belizonet et al. [5]. The intra- and postoperative course was uneventful.

During further follow-up visits the boy became toilet-trained and had regular bowel movements. A postoperatively started anal dilatation program was continued for six months. At the last follow-up visit, 1.5 years after the operation, the anus displayed a good cosmetic result with no signs of prolapse recurrence. As the patient showed a chronic constipation behavior, bowel management program using transanal irrigation was started resulting in social continence.

3. Discussion

We report the case of a four-year-old male patient with intractable full-thickness RP following LAARP for imperforate anus. The prolapse was successfully treated with laparoscopic posterior mesh rectopexy (Well's procedure).