

A Modern Approach to The Treatment of Rectal Prolapse in Children

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Annotation. During the period from 2010 to 2022, we followed up 212 children with rectal prolapse (RPL), 135 of them were boys, 77 - girls; 11 children under 1 year of age, 134 - from 1 to 3 years, 59 - from 4 to 7 years, and 8 children older than 7 years. Stage I CAP was revealed in 69, II -y 112, III - in 31 patients. Intestinal and stomach diseases in 121 children (dysentery, dyspepsia, enterocolitis in 67, chronic constipation in 54), respiratory diseases in 22, urinary and genital diseases in 22, continuous potty sitting in 21, rectal polyps in 10, severe post disease hypotrophy in 11, gluteal trauma in 5.

Key words. rectal prolapse; rectal prolapse; children; review.

Introduction. To specify the diagnosis and develop treatment tactics, we used general clinical and radiological methods of investigation, continuous profilometry of rectoanal pressure, we studied motor function, combined electromyography and manometry of internal external sphincters of the posterior and anus, and we determined rectoanal reflex using Disa-2100 device (Denmark) [17,18].

In 17.4% of patients there was a decrease in maximal force of sphincter contraction, in the rest it was within normal limits.

Rectal pressure was reduced to (0.91 ± 0.03) kPa, or (9.31 ± 0.27) cm a.c. The maximum pressure in the rectal canal depended on the stage of the disease (Table 1) and was on average 11.3% at rest and 12.8% below the normal values during voluntary contraction of the sphincters. Decrease of maximal pressure leads to the violation of tightness and shortening of the rectal canal, change of pressure gradient in the rectum and rectal canal and reduction of the force of counteracting intrarectal pressure at the moment of defecation, which is one of the important pathogenetic aspects of the occurrence of RPL [7].

Table 1. Maximum pressure in the posterior canal (M m)

Stages of RPL	Maximum pressure kPa (cm.w.g.)	
	At rest.	In an arbitrary contraction
I	$4,15 \pm 0,13$	$5,12 \pm 0,17$
	$(42,3 \pm 1,34)$	$(52,2 \pm 1,74)$
II	$3,68 \pm 0,18$	$4,79 \pm 0,19$
	$(37,5 \pm 1,8)$	$48,9 \pm 1,92)$
III	$3,04 \pm 0,22$	$4,44 \pm 0,34$
	$(31,0 \pm 2,2)$	$(45,3 \pm 3,51)$

The length of the anal canal was reduced relative to normal values and was (1.69 ± 0.18) cm at rest, and (2.03 ± 0.28) cm during voluntary contraction of the sphincters.

Anal reflex was preserved in 81.1% of patients. Decreased or absent reflex response was observed in patients with pronounced phenomena of proctosigmoiditis accompanied by inflammatory skin reaction around the anus.

Hypokinetic type of motor activity of the distal colon was in 72,6% of patients, normokinetic - in 17,9%, hyperkinetic - in 9,5%. - Motor activity disorders were caused, on the one hand, by proctosigmoiditis phenomena, on the other hand, by overstretching and atrophy of rectum and sigmoid colon walls and their nervous elements.

Bioelectrical activity of muscle fibers of the internal sphincter was reduced by 8.3%, of the external sphincter by 2.8%. Changes in the value of biopotentials in stages I and II were insignificant, in stage III - significant (Table 2).

Table 2. Indices of bioelectrical activity of the mkB sphincter apparatus (M m)

Stages of RPL	Rear anus sphincters			
	Internal		External	
	At rest	In an arbitrary contraction	At rest	In an arbitrary contraction
I	32,3 ± 1,27	73,0 ± 3,47	50,41 ± 2,8	114,11 ± 5,31
II	30,53 ± 1,49	82,1 ± 2,05	51,19 ± 3,15	119,18 ± 7,21
III	25,5 ± 3,34	81,16 ± 7,59	45,3 ± 5,59	117,12 ± 11,62

The most characteristic of RPL in children were threshold parameters of rectoanal inhibitory reflex, which in all patients were positive: the threshold of reflex sensitivity did not deviate significantly from normal values, the threshold of subjective sensitivity was increased by 81.3%, the threshold of urge to defecation by 49.7%, the threshold of full opening of internal sphincter was decreased by 17.1%, the threshold of intolerance was increased by 14.9% relative to normal. Changes of the listed values are considered to be both of central genesis and local, caused by affection of baroreceptors and other nerve structures of rectum [19].

Increased intra-abdominal and rectal pressure, caused by pressure for defecation in constipation, rectal hypermotility, repeated frequently and for a long time cause decompensated changes of rectal muscular sheath and tendon arch of the muscle raising anus, levator-sphincter dyssynergy, which aggravates constipation in itself, and as a result - a "vicious circle" occurs. [5,14,16]. Subsequent increases in intra-abdominal pressure become an excessive load on the pelvic floor muscles, which gradually lose their functional activity [1,2,6]. Decreased tone of the rectus muscle, tendon arch of the muscle raising the anus (increased anorectal angle), pelvic floor muscles, as well as levator-sphincter dyssynergy, weakening of the ligamentous apparatus lead to RPL. As a result, not only dense fecal masses pass through the dilated sphincter, but a part of the rectum also prolapses. Subsequently, secondary sphincter insufficiency develops, which aggravates the pathological process [10,13,15].

A special place in conservative treatment was occupied by electrical stimulation of the rectum and posterior sphincter using ESL-2 apparatus with a rectal electrode developed in the clinic, producing mono- and bipolar electrical impulses with a frequency of irritating impulses of 50 Hz [3,4,8]. Course of treatment consisted of 10 daily procedures, 15 min each. For increase of anal reflexes and tonus of sphincter apparatus thermal contrast training enemas were administered for 10 days daily, massage of anterior abdominal wall, gluteal muscles, perineum area, as well as mechanical training of external sphincter of anus on a tube for 10 days.

Conclusion. In the course of treatment it is necessary to correct insufficient nutrition. Hypoproteinemia was noted in 20% of patients (total protein content 61-68 g/l), in 23% - decrease of hemoglobin content, in the majority - decrease of body weight by 15-20%. The skin-fat fold at the level of the middle third of the shoulder in 30% of patients was poorly developed, in 60% - moderately developed [9, 11, 12]. We developed and used three feeding options for children. The first variant was used in 18 children suffering from frequent constipation in order to eliminate prolonged defecation, the second - in 24 children suffering from prolonged diarrhea, in order to change frequent defecation into unifocal, and the third - in 15 malnourished children in order to correct marked metabolic disturbances. In addition, we changed the dietary regime, transferring children to six meals a day with a reduced volume of a single meal [20,21]. As a result of the correction of nutrition, the patients' body weight increased by 1.5-1.8 kg, skin and fat fold at the

level of the middle third of the shoulder increased for 10 days, and the content of total protein and protein fractions in the blood serum improved markedly.

At the complex conservative treatment 203 (95,75%) patients had good results, 7 (3,3%) - satisfactory, 2 (0,95%) - unsatisfactory. After repeated course of treatment these 2 patients had positive results.

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