

# CORRECTING POSTOPERATIVE ANAL INCONTINENCE IN CHILDREN

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**Abstract.** : 61 patients aged 3 to 14 years were treated with a diagnosis of postoperative anal incontinence (AI). Gel plastic surgery of the anal canal in patients with postoperative AI is the method of choice and is an alternative to reconstructive plastic interventions. During the operation, the creation of an internal nephosphincter from a bypass muscle coupling is advisable to perform with preliminary stomatization of the colon. The final result is largely determined by the quality and timing of rehabilitation measures in the near and remote postoperative period.

**Keywords:** anorectal malformation; anal incontinence; gel plastic; sphincteroplasty; children; treatment.

## **Relevance.**

Anal incontinence (AI) does not threaten the patient's life, but it is a serious problem for children and their parents, complicates the development of personality and limits the patient's contacts with the outside world to a much greater extent than other diseases. Anal incontinence in children is still an urgent problem, which is not only medical, but also social, significantly worsening the quality of life. The most difficult group are children after correction of anorectal malformations and malformations of the colon, Hirschsprung disease, with neurogenic pelvic floor dysfunctions [1, 2, 5, 8, 11, 13-16].

An analysis of the literature shows that despite the enormous experience in proctoplastics, the proportion of unsatisfactory results of primary radical surgical interventions in various clinics and countries around the world remains quite high and ranges from 10 to 60% [1, 6, 7, 9, 10, 18].

In the treatment of organic (postoperative) anal incontinence in children, many bulking agents with polyacrylamide gel "Bulkamid" [19], modified collagen with glutaraldehyde - "GAX-collagen", porcine collagen "Permacol" [17], silicone biomaterial "PTQ" [20] and in order to increase pressure in the anal canal the drug Durasphere [12] are used. According to Komissarov I.A. (2010) in order to eliminate low pressure in the anal canal in children with fecal incontinence, it is possible to use the «DAM +» polyacrylamide gel. The introduction of this implant must be carried out in the submucosal layer of the anal canal. The phenomena of anal incontinence decreased in all cases, completely regressed in 50% of cases [3, 4].

Thus, there are many different methods for correcting postoperative anal incontinence, but many questions regarding the choice of treatment tactics remain debatable. From that

point of view, in this direction it is still necessary to continue scientific research to solve unresolved problems.

### **Purpose.**

Improving the results of treatment of postoperative anal incontinence in children.

### **Material and methods.**

An analysis of the results of surgical treatment of 61 patients aged 3 to 18 years with a diagnosis of postoperative anal incontinence for the period 2017-2020 in the Tashkent Pediatric Medical Institute clinic was performed. All patients underwent examination according to the developed algorithm: local examination, ultrasound scan of the muscles of the external anal sphincter, balloon proctography to determine the functional consistency of the puborectal muscle, anorectal angle, to determine the anatomical integrity of small pelvic muscles MSCT was performed. Based on the developed algorithm for the selection of AI treatment tactics, an individual treatment method was determined for each patient individually.

23 patients underwent injection treatment (gel plastic) of the anal canal with the volume forming the “Noltrex” polyacrylamide gel, 7 children underwent restoration of the anterior portion of the external anal sphincter with preliminary stomatization of the colon, 5 patients underwent perineal proctoplasty with restoration of the anterior portion of the external anal sphincter, in 17 patients, excision of the rectal mucosa. And in 9 cases, perineal proctoplasty with excision of cicatricial stenosis of the anus. From the anamnesis, these patients underwent reconstructive plastic surgery for anorectal malformation and abdominal-perineal proctoplasty for Hirschsprung’s disease (Table -1).

Table – 1.: Distribution of patients with anal incontinence depending on the initial and repeated corrective operations.

№	Types of interventions for the correction of anal incontinence	Amount	Primary operation	
			Perineal proctoplasty	Abdominal perineal proctoplasty
1.	Gel plastic of the anal canal	23	14	9
2.	Creation of an internal neosphincter	7	-	7
3.	Perineoplasty with sphincter restoration	5	3	2
4.	Excision of mucosa	17	11	6
5.	Perineal proctoplasty with excision of cicatricial stenosis	9	6	3
<b>Total</b>		<b>61</b>	<b>34</b>	<b>27</b>

### **Results and discussion.**

The analysis of the conducted researches has shown that 18 (78,3%) patients after a single injection of the polyacrylamide gel "Noltrex", which is a combination of polyacrylamide gel, had a complete closure of the anus and normal continence was achieved. The pressure in the anal canal in these patients was from 42 to 65% of the age norm. Follow-up data 12 months after the introduction of the gel indicated the immutability of the strength of the anal canal.

In 5 (21.7%) cases, the basal pressure of the anal canal was reduced to 55%, which required repeated gel plastic surgery of the anal canal, which resulted in a satisfactory result with an average basal pressure of up to 69%.

Taking into account the small experience in application of the polyacrylamide pooling gel, we would like to note that the results of treatment in our observations were marked as good and satisfactory, no suppuration and other complications were revealed in any observation, at that 17 (73,9%) patients had full anal retention, and 6 (26,1%) had anal incontinence frequency decreasing in 2 and 3 times, at the same time the sense of call for the defecation act increased.

During gel plastic surgery of the anal canal, the volume of the "Noltrex" polyacrylamide gel-forming gel was used, the volume of the forming agent (polyacrylamide gel "Noltrex") was introduced by the dial from 3, 6, 9, and 12 hours until the anal hole was completely closed (Fig. 1-3).



Fig. 1 The anal hole gaping before the procedure.



Fig. 2. Moment of introduction of polyacrylamide gel.



Fig. 3. Anus is closed. After the procedure.

In 7 children, cicatricial deformity of the anal canal and damage to the external and part of the internal sphincter of the rectum were noted. Given this condition in this category of patients, we consider the preliminary application of a preventive stoma to prevent infection of the perineal wound and successful primary healing. In all cases, the anatomical integrity of the obturator apparatus of the rectum was restored. Of these, 3 restored the anterior portion of the external anal sphincter, 3 formed a smooth muscle internal sphincter, and in one, restoration of the anterior levator of the rectum. In 5 cases (71.4%), good and satisfactory results were obtained.

The technique of creating an internal anal sphincter from the reduced intestine was performed as follows: a circular incision around the anus, departing from its edge by 1.5-2.0 cm, from the bottom up, circular excision of the muscle layer of the intestinal wall and anal canal. The lower edge of the selected muscle layer is wrapped up and fixed with separate sutures, creating a double muscle sleeve (Fig. 4). The edges of the skin wound are sutured to the lower edge of the muscular sleeve and the intestinal mucosa is sutured (Fig. 13). This surgery is aimed at correcting the insufficiency of the anal sphincter, as a smooth muscle internal sphincter is formed. An application for invention was filed at IAP RUz (registration number of application No. IAP 2019 0467 dated 11/22/2019)

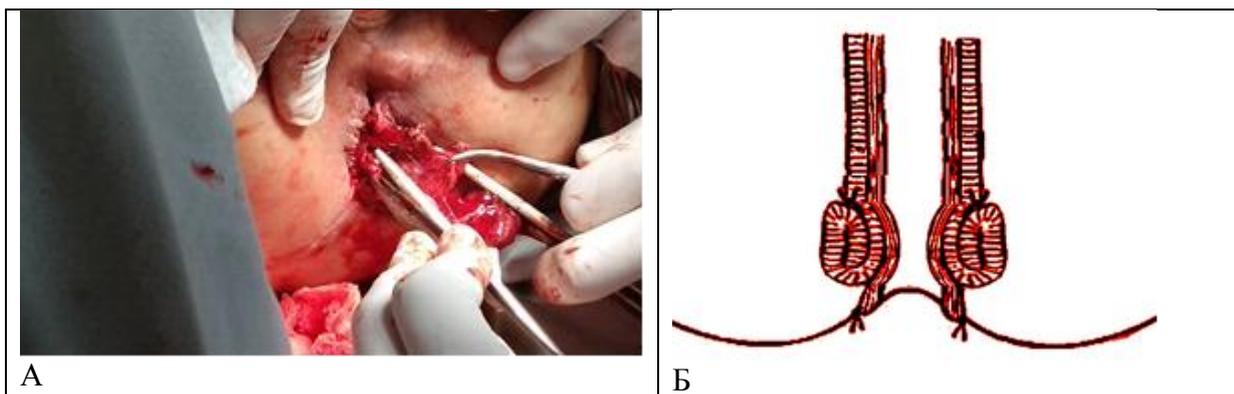


Fig. 4. (A) The lower edge of the selected muscle layer is wrapped up and fixed with separate sutures, creating a double-loop muscle sleeve. (B) schematic figure.



Fig. 5. The edges of the skin wound are sutured to the lower edge of the muscle sleeve and the intestinal mucosa is sutured on top. With the restoration of the front levators.

In 5 cases, the diagnosis of anal incontinence revealed in these patients the inferiority of the anterior portion of the external anal sphincter. Given this condition, these patients underwent perineal proctoplasty with restoration of the anatomical integrity of the external anal sphincter. In this category of patients, all after the operation and rehabilitation measures showed good results.

When the anus is gaping. There is a discrepancy in the anterior portion of the external anal sphincter (Fig. 6). The Rossolimo test is called along the lower semicircle of the anus. To restore the anterior portions of the anal sphincter, the patient had previously been placed with a preventive colostomy. Subsequently, the operation "Sphincteroplasty". The front wall of the intestine was divided and the external portion of the anal sphincter was differentiated (Fig. 7). The "II" was restored with shaped sutures in the front portion of the external anal sphincter (Fig. 8). After the operation, the anus closed and the contraction of the muscles of the external anal sphincter was checked with a low-frequency current flow (Fig. 9). The sutures were removed on day 12, the wound healed initially and the functional usefulness of the sphincter apparatus was restored (Fig. 10).



Fig. 6. The anus is gaping. Picture before operation.



Fig. 7. Differentiation of the external portion of the anal sphincter



Fig. 8. Restoration of the anterior portion of the external anal sphincter



Fig. 9. Picture after operation.



Fig. 10. View of the anal opening after 1 month.

In 17 patients with mucosal standing and without significant damage to the sphincter apparatus, excision was made of the weathered parts of the intestinal mucosa. After surgery, for all these patients, for 7 days they received UFO in the area of the postoperative wound, for the primary healing of sutures. The primary healing of a wound is largely dependent on the right thread. In our operations, we used 3/0, 4/0 absorbable sutures from «jonson-jonson». After a comprehensive rehabilitation treatment, a good result was observed in 12 (70.5%), satisfactory - in 5 (29.5%) patients.

In 9 patients with cicatricial stenosis of the anus, it was mainly observed in 6 patients after PPP surgery and in 3 after APPP. Primary bougienage did not help these patients; therefore, they had to excise a stenotic scar and perform perineal proctoplasty. To prevent restenosis, all patients on the 20th day after PPP made early bougienage of the anastomotic zone. Then for a month massage the anus once a day. Then they received physiotherapeutic measures aimed at improving nerve conduction and contractility of the muscles of the pelvis.

**Conclusion.** When choosing tactics for the treatment of postoperative anal incontinence in children, an individual approach is necessary, taking into account the reasons leading to this condition. Gel plastic surgery of the anal canal in patients with postoperative anal incontinence is the method of choice and is an alternative to reconstructive plastic interventions. However, it should be noted that it is advisable and effective in cases of absence of cicatricial changes in the anal canal. During the operation, the creation of an internal neosphincter with a bypass muscle coupling is advisable to perform with a preliminary colon stoma. The final result is largely determined by the quality and timing of rehabilitation measures in the near and remote postoperative period. Rehabilitation measures should be carried out without interruption until the newly formed rectum reaches normal function.

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