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# FUNCTIONAL STUDY OF CICATRICIAL STRICTURES OF THE ANORECTAL REGION IN CHILDREN

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**Abstract**
According to the literature, cicatricial stenosis of the anorectal region is the most common complication after surgery for anal and rectal atresia in children. The authors examined, examined, and analyzed 84 pediatric patients who underwent surgery for anorectal malformations and experienced complications with cicatricial strictures of the anorectal region in the postoperative period. The study group consisted of 47 patients who underwent new methods for the examination and treatment of cicatricial strictures of the anorectal region, which we developed. The control group consisted of 37 patients who underwent traditional, previously used methods for the examination and treatment of cicatricial strictures of the anorectal region.
The study showed that the examination methods used - myography and sphincter muscle training by inserting a closed tube into the end of an enema bulb for cicatricial strictures of the anorectal area - were less traumatic and less expensive, and yielded comparatively good results.

**Keywords:**Anorectal defects, cicatricial stenosis, examination, children, myography, external sphincter.

## Introduction

According to the lyiterature, many authors believe that cicatricial stenosis of the anorectal region is the most common complication after surgery for anal and rectal atresia in children.

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The operation performed in this area depends on the technical and tactical error of the surgeon , and in children, regenerative processes are much more highly developed than in adults, therefore, after the operation, many children experience complications - cicatricial strictures of the anorectal area, the development of II - megacolon, chronic constipation, and sometimes fecal incontinence.

**Objectives and tasks**: The objective of our study is that many functional examination methods for cicatricial anorectal strictures in children sometimes fail to yield the expected results. To determine the strength of external sphincter muscle contraction during preoperative preparation for choosing a treatment method for cicatricial anorectal strictures in children, myography is used.

**Materials and methods:** We scientifically studied , examined and analyzed 84% of children operated on for anorectal malformations and complicated with cicatricial strictures of the anorectal region in the planned departments of the Tashkent Pediatric Medical Institute and the 2nd City Children's Clinical Hospital of Tashkent from 2002 to 2016. Of these, 50 - 60% of patients underwent primary surgery in different surgical hospitals of the Republic of Uzbekistan, 17 - 20% in the Tashkent Pediatric Medical Institute and 17-20% in the 2nd Tashkent City Children's Clinical Hospital. Of these, 54-64% are boys and 30-36% are girls.
The method of functional research we used - determining the force of contraction of the muscles of the external sphincter - myography for cicatricial strictures of the anorectal region allows us to determine the choice of treatment method in preoperative preparation depending on the force of contraction of the muscles of the external sphincter.

**Results and discussion.** We divided patients into two groups based on the examination methods used: study and control.
**The study group comprised 47–100** % of patients who underwent our new methods for the examination and treatment of cicatricial strictures of the anorectal region. Of these, 28–60% underwent primary surgery at various surgical hospitals

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in the Republic of Uzbekistan, and 19–40% at our clinic. Of these, 31–66% were boys and 16–34% were girls.

**The control group consisted of** 37–100% patients who underwent traditional, previously used methods of examination and treatment for cicatricial anorectal strictures. Of these, 22–59% underwent primary surgery at various surgical hospitals in the Republic of Uzbekistan, and 15–41% at our clinic. Of these, 23–62% were boys and 14–38% were girls.

**Table 1. Distribution of patients by gender.**

| **boys** | | **girls** | |
|---|---|---|---|
| **Main group** | **Control group** | **Main group** | **Control group** |
| 31 | 23 | 16 | 14 |
| 54 – 64% | | 30 – 36% | |

We divided these patients by age according to the generally accepted classification.

**Table 2. Distribution of patients by age.**

| **0-1 years** | | **from 1 to 3 years old** | | **from 3 to 7 years old** | | **from 7 to 14 years old** | |
|---|---|---|---|---|---|---|---|
| **37 – 44%** | | **26 – 31%** | | **14 – 17%** | | **7 – 8%** | |
| osn . | cont . | osn . | cont . | osn . | cont . | osn . | cont . |
| 23 | 14 | 16 | 10 | 5 | 9 | 3 | 4 |

**The main group of 47** – 100% of patients, along with bougienage , training and siphon enemas and others, underwent training of the sphincter muscles by putting on the end of the enema bulb closed tube, as well as Hydrocortisone was injected into the scarred area of the rectum or into the scarred area of the internal and external sphincters at a dose of 5-10 mg/kg for 5-7 days. Following these procedures, a myographic study was performed before surgery to determine the contraction strength of the external sphincter muscles. When the enema bulb is pressed, the end of the tube expands and presses on the sphincter muscles, causing sphincter muscle hypertrophy. This procedure can even be performed at home . The risk of tissue rupture in the scarred area of the anorectal area is reduced, and

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the internal and external sphincter muscles become denser and hypertrophic. The contraction strength of the external sphincter muscles, as measured by myographic data, is normalized.

The hypertrophied muscle of the external sphincter is used by blunt bifurcation to create a normal sphincter during surgery - sphincteroplasty .

**The control group of 37** patients had not previously used traditional methods, such as bougienage , siphon enemas, electrophoresis with lidase and potassium iodine, and others. In these cases, complications such as anorectal fissures (12-32.5%) or ruptures (7-19%), anorectal inflammation (12-32.5%), and secondary cicatricial stenosis (6-16%) were occasionally encountered. This control group had not previously used hydrocortisone injections into the scarred area of the rectum or the scarred area of the internal and external sphincters , and had not undergone sphincter muscle training by placing a closed tube over the end of an enema bulb. When this group of patients underwent myography to determine the strength of contraction of the external sphincter muscles, the results were comparatively lower than normal.

Thus, the main group of patients with cicatricial strictures of the anorectal region gave a comparatively good assessment of the results of the force of contraction of the muscles of the external sphincter - myographic data than the control group of patients.

**Table 3. Results of examination for cicatricial strictures of the anorectal region.**

| **Survey method** | **Main group** | | | |
|---|---|---|---|---|
| | **Good** | **Sat.** | **Unsatisfactory.** | **Total** |
| Myography | 28–60% | 16-34% | 3 – 6% | 47 – 100% |
| | **Control group** | | | |
| Myography | **Good** | **Sat.** | **Unsatisfactory.** | **Total** |
| | 12 – 32.5% | 12–32.5% | 13 – 35% | 37 – 100% |

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**Results: The criteria for** the examination results are based on generally accepted principles for proctological patients.

**Good** – the patient has no complaints, good general condition, good rectal and sphincter function, and good fecal and gas continence. External sphincter muscle contraction force is greater than 1111 Pa (Fig. 1).

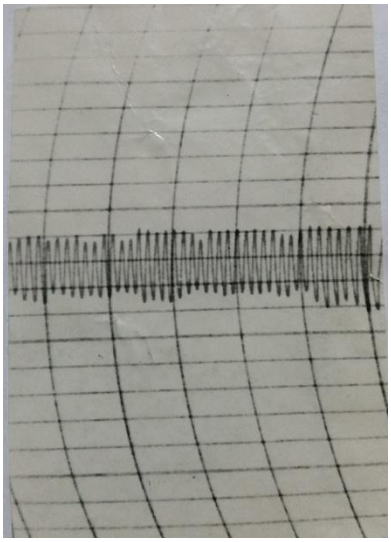

Fig. 1.

**Satisfactory** – despite the patient's good condition, rectal and sphincter function is reduced, and the patient occasionally loses feces and gas. External sphincter muscle contraction forces range from 555 Pa to 1111 Pa (Fig. 2).

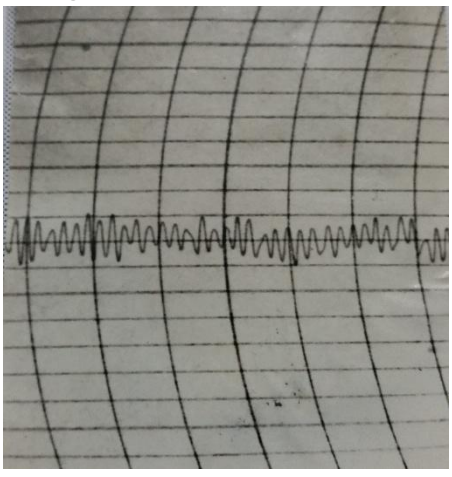

Fig. 2.

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**Unsatisfactory** – the patient has impaired rectal and sphincter function, and cannot retain feces or gas. External sphincter muscle contraction force is below 555 Pa (Fig. 3).

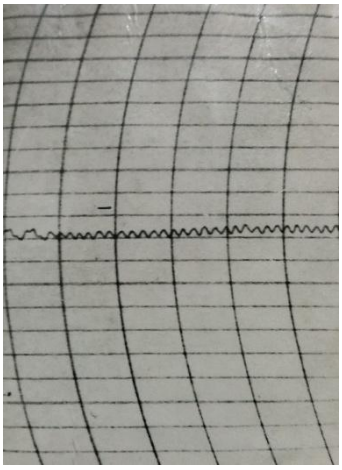

Fig. 3.

## Conclusions

1. Scientifically studying the materials, working on oneself, improving and developing new methods of examination and treatment of cicatricial strictures of the anorectal region gives good immediate results in the treatment of this complication.
2. The examination methods used are myography of the sphincter muscles, training of the sphincter muscles by putting a closed tube on the end of the enema bulb and introducing a hydrocortisone solution into the scarred area of the sphincters. in cicatricial strictures of the anorectal area, it has proven to be less traumatic and less expensive, and has yielded comparatively good results.
3. Unsatisfactory results decreased by 30% compared to traditional examination methods for cicatricial strictures of the anorectal area.

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