

Some Issues on Surgical Correction and Diagnostics of Congenital Malformations of Anus and Rectum in Children

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Abstract

There were 54 patients under study, which have been operated on (protoplast) and suffered from insufficiency of anal aperture, due to congenital malformations of anus and rectum. On the basis of analysis of our own material we came to a conclusion that complications - chronic constriction and fecal incontinence have been caused by tactical and technical mistakes of the surgical correction of congenital malformation of anus and rectum. The tactical mistakes (17) were caused by erroneous definition of the height of rectal atresia and period of operation and by incorrect assessment of the congenital malformation. The technical mistakes (37) have been as follows: the large intestine was taken out on the perineum out the sphincters; intra-operative injury of muscles of external sphincters and pelvis bottom; the atresial intestine was taken down out the m. puborectalis; the atresial intestine was not sufficiently separated from the surrounding tissues.

Keywords: *anus, rectal region, malformations, operations, technical mistakes*

Introduction

One of the most complicated problems of pediatric surgery is one operational treatment of congenital malformations at anus and rectum region. In spite of the fact that recently certain success has been achieved at the correction of this pathology, death rate is still high and according to different authors its quality fluctuates from 10% to 40%, and from the group of children, which have been operated on, 11%-15% [2,4,5] of them have obtained unsatisfactory functional results. This has been caused by errors made during the surgical operational problems of muscle constrictor of rectum - namely, chronic constriction and fecal incontinence. During the re-operations it doesn't always become possible to restore anatomic formations of structurally destroyed perineum and children remain serious invalids [3,6,7].

Proceeding from the above, we aim to define peculiarities of those typical errors made during operations and to provide methods for their prevention.

Materials and Methods

We observed 54 patients who were operated on due to congenital malformations at the anus and rectum region, namely - protoplast and resulting from that suffer from problems - chronic constipation and fecal incontinence. Age of the patients - from 1 month to 14 years, with 33 boys and 21 girls among them.

Low atresia was revealed at 42 patients from 54, though high atresia at 9. In 8 cases at pronouns in 3 of them at urethra, was accompanied by aperture - tubes: in 5 cases it has opened at vagina, in 8 cases at pronouns in

3 of them at urethra, in 1 at bladder, and in 3 at perineum region. In 3 cases ectopia of anal aperture took place.

As approached from the side of perineum, 45 parties have been operated on protoplast and 9 of them approached from the abdominal cavity-perineum.

Results

After the elaboration of histories of illnesses, detailed collection of anamnesis, study of functional condition of muscle constrictor of rectum and X-ray examination, it has been revealed that after the surgical correction of congenital anomalies of anus and rectum malformations, obtained unsatisfied functional results were provided by surgical errors, namely:

In 6 cases, height of operation, that been erroneously defined before operation, that caused wrong selection of operational method and during a high atresia, protoplast was done from the premium side. Resulting from surgical operation, distal extremity of mobilized large intestine has been sewn with skin of anal aperture at projective region with strong tension. The strained replaced intestine has cut threads and gone up. Circular wound has taken place at pelvic cavity, which started suppurating due to excremental infection.

As a result, on the ground of secondary healing, perineum deformation took place, by destruction of intestines sphincteral function and fecal incontinence.

In 13 cases an intestine has been brought down at perineum in such way, that the atresial rectum was not complementally mobilized from surrounding tissues. Constant traction of remained tissues and muscles, caused cutting of stitches on skin, raising of an intestine at 2-3 cm, cicatriced contraction of anal aperture, chronic constipation.

In 9 cases fecal incontinence took place due to defection of rectum sphincter and pelvis. Violation of safety of rectum muscle constrictor was provided by rude manipulations at perineum wound and large cut at anal projective region that had caused intersection of upper and lower poles of external sphincter of rectum and fecal incontinence.

In 3 cases atresial intestine, was taken out the puborectum muscle, that executes very important function at the system of perineum constrictor by pulling the rectum forward and closing its opening forward-backwards. As a result all 3 patients suffered from fecal incontinence. Such mistakes were done during the high atresia, when distal extremity of atresial intestine was above the pubo-rectum muscle. At this moment the muscle itself was contracted and moved forward to the pubis.

In 15 cases rectum at perineum region was taken out the rectum sphincters. Analysis of anal reflexes has shown that tone contraction of sphincteral muscles was revealed at upper or lower pole of distocial anal aperture. In 3 cases rectum and anal malformations has been incorrectly assessed, namely ectopia of anal aperture was regarded as rectal atresia with rectally vestibular fistula. It has provided inadequate erroneous selection of operational periods may cause different complication at the post-operational period that finally will negatively affect the result of the operation. Selection of the operational period defends upon the form of malformation that is frequently ignored by surgeons who operate on their patients within 1 hours or months from birth, whereas it may be done at the more grown-up age.

Urgent surgical operation within the first 24 hours from birth shall be done at the vital evidences during the all forms of complete atresia and in case of the fistullar forms of atresiae at the urinal system.

In case of the fistullar forms of rectal atresiae at the pronaus or vagina and perineum fistular, radical surgical treatment should be conducted on 1-2 years-old patients.

Results of the surgical treatment significantly depend upon the rational selection of the operational method. Protoplastics from the perineum side should be done in case of low complete atresiae of rectum, when the atresial extremity is separated from the anus projective region at not more than 2 cm, during the fistullar forms of the rectovestibullar and perineum.

In case of high complete rectal atresiae and fistular atresiae at the urinal system - proctoplastics should be done from the abdominal-perineum side.

Violation of defecation, namely, fecal incontinence takes place in case of taking out the atresial intestine to the perineum beyond the sphincter. Such mistakes are usually made by surgeons when they visually define the anus projective region or by Gross method. Fecal incontinence also develops in case of violation of integrity of the external sphincters on the stage of anoplastics, namely by large and deep discussion or due to rude finger manipulations at the wound.

In order to avoid an operational trauma of rectal external sphincters, one should thoroughly investigate their location and make a discussion in the center. To achieve the above, one shall resort to electromyography method [1] or to excitation of the anus projective region by means of electrocison.

In case of the surgical correction of high atresiae, when the atresial intestine is taken down at perineum beyond the pubo-rectal muscle, fecal incontinence develops at

any case. In order to avoid such error, one should find center of the pubo-rectal muscle before taking the intestine down and creation of an artificial tunnel. To achieve it, one should put its forefinger at the abdomen from the abdominal side as close as possible towards the symphysis. After revealing of the center of pubo-rectal muscle, it is moved by special medical instrument (coretsang), widened, creating a tunnel and only after the above, one shall bring the atresial intestine down to the center of pubo-rectal muscle at the perineum. After bringing the atresial rectum down at the perineum, it is very significant not to let it cut the fixing threads on skin and move up, that is to mobilize the intestine in such way that it shall from the anus projective region at 2-3 cm, and to fix it with the surrounding tissues at the hanging condition. Surplus taken intestine should be cut off after 15-20 days.

Thus, proctoplastics does not represent an easy operation, as it may seem at first sight. It requires from the surgeon either knowledge of the anatomic structure of rectal constrictor and definite habits for execution of such operations. Therefore, if a surgeon has not acquired enough experience in execution of the above operations, it method of operation. Ectopial anal aperture, which was normally functioning and had all anatomic formations of anal aperture with sphincters among them, was replaced. In all 3 cases the fecal incontinence took place.

In 5 cases periods have been incorrectly defined and operation was done within first days of birth, it could be possible to put the operation off for more grown-up age. In 3 cases from the above 5, operation was done during fetal form of atresia of rectum and anal aperture, when fistula was opening at the pronasus. In 2 of them, operation was done when fistula was opening by aperture-tubes at perineum region.

It is generally known, that new-born seriously suffer from operation traumas and their highly restricted operational field, thin and easily injuring tissues do not always enable to change the location and put it where it belongs, during the plastic operation of anatomically incorrectly places rectum and anal aperture, so that to completely restore the function of apparatus of rectum constrictor. Finally all 5 patients suffered from the stenosis of newly created anal aperture and

deformation of defecation function at the post-operational period.

Conclusions

On the basis of analysis of our own material we came to a conclusion that complications and errors made during the surgical correction of congenital malformation of anus and rectum, were caused by tactical and technical mistakes of surgeons.

The technical mistakes (17) were caused by incorrect definition of operational periods wrong assessment of the malformation.

The technical mistakes (37) were caused by the following factor: atresial intestine was taken out on the perineum out the sphincter, intra-operative injury of pelvic muscles, the atresial intestine was taken down out the pubo-rectals; The atresial intestine was not sufficiently separated from the surrounding tissues.

Incorrect assessment of the congenital rectal malformation usually took place when the ectopy of anal aperture is regarded as rectum atresia with fistula at the perineum. In such situation, we should distinguish the ectopy of anal aperture from fistular form of atresia to achieve the correct definition of malformation namely during the finger examination of the ectopial anal aperture, positive permeability of anus and normal tone of rectum constrictor was revealed. Final diagnostics took place after analysis of anal reflexes.

Incorrect definition of atresia height, that provides erroneous selection of operational method, represents a typical mistake made either by young surgeons or even experienced specialists. It should be noted that X-ray examination of a new-born by Vangestine's method is trustworthy only after 20-24 hours from birth, by this time wind can not reach the atresial extremity and space between the wind bubble and anus projective region represented on the X-ray photograph doesn't correspond to reality.

Would be reasonable to send a patient to the profiled medical establishments, where he will be provided with vital evidences a surgeon should put artificial anus at the transverse or sigmoid.

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Некоторые вопросы диагностики и хирургического лечения врожденных Пороков развития аноректальной области у детей

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Р Е З Ю М Е

Под наблюдением авторов находились 54 детей с недостаточностью заднего прохода после проктопластики по поводу аноректальных пороков развития. Возраст больных от 1 года до 14 лет. Мальчиков было 33, девочек - 21. Анализ собственных наблюдений позволил авторам выявить тактические и технические ошибки, приведшие к хроническому запору и недержанию кишечного содержимого. Тактические ошибки (17) были обусловлены: неправильным определением высоты атрезии, неправильным определением порока развития, неправильным выбором срока оперативного вмешательства. Тактические ошибки (37) таковы: выведение кишки на промежность вне сфинктеров, повреждение наружного сфинктера и мышц тазового дна, выведение кишки вне лонно-прямокишечной мышцы, недостаточная мобилизация низведенной кишки.

Ключевые слова: *анус, ректальная область, врожденные пороки, технические ошибки*