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Optimization of Diagnosis, Treatment and Evaluation of Long-Term Results of Acute Testicular Diseases in Children

Yusupov Shukhrat Abdurasulovich[1], Shamsiev Zhamshed Azamatovich[2], Atakulov Zhamshed Ostonokulovich[3], Shakhriev Abdikodir Kamalbaevich[4], Ibragimov Abbosazhan Sabirzhan Ugli[5], Bazarova Sabina Akmalovna[6]

[1]Doctor of Medical Sciences, Professor, Head of the Department of Pediatric Surgery No. 1 of the Samarkand State Medical Institute
[2]Doctor of Medical Sciences, Professor Head of the Department of Pediatric Surgery and Anesthesiology - Resuscitation of the Faculty of Postgraduate Education of the Samarkand State Medical Institute
[3]Doctor of Medical Sciences, Professor of the Department of Pediatric Surgery No. 1 of the Samarkand State Medical Institute
[4]Candidate of Medical Sciences, Associate Professor of the Department of Pediatric Surgery No. 1 of the Samarkand State Medical Institute
[5]Resident of the magistracy of the Department of Pediatric Surgery No. 1 of the Samarkand State Medical Institute
[6]Assistant of the Department of Radiation Diagnostics and Therapy, Samarkand State Medical Institute

Abstract The problem of acute testicular disease in children is one of the most urgent in pediatric surgery, accounting for up to 20% of all urgent childhood pathology. The presence of the syndrome of "edematous - hyperemic scrotum" greatly complicates the differentiation between various acute testicular pathologies.

Keywords Acute testicular disease, Pediatric surgery, Physical development in adulthood, Scrotum, Pediatric surgeons and urologists

1. Introduction

At the same time, the introduction of ultrasound and Doppler studies into clinical practice made it possible to establish an accurate nosologically diagnosis without resorting to exploratory surgery. Often the causes of future infertility manifest themselves in childhood and adolescence. Among them, acute testicular diseases suffered in childhood can often be the causes of impaired reproductive function and lag in physical development in adulthood.

Surgical diseases of the scrotum are constantly the subject of close attention of pediatric surgeons and urologists. This is due to the difficulty of diagnosis, the low effectiveness of conservative treatment, often leading to the death of such an important organ as the testicle. It is important to note that in 20-60% of cases the cause of male infertility cannot be established.

Until recently, OIEs were referred to as "acute non-specific orchitis", which were usually treated conservatively. However, as scientific studies have shown, non-infectious lesions of the pendants (Morgagni's hydatid), volvulus of the testicle and spermatic cord, trauma, infringement, gonadal infarction, etc. were hidden under the mask of acute orchitis. All these diseases require urgent surgical intervention. The use of active surgical tactics can reduce the frequency of organ atrophy on the side of the lesion by 4 times. In recent years, the literature has practically not covered the issues of early diagnosis and a differentiated approach to the treatment of OZA, as well as specific recommendations for the rehabilitation of patients with this pathology, depending on the duration of the disease. Of all the listed nosological forms of OID, the most dangerous in terms of endocrine testicular dysfunction are hydatid torsion and testicular torsion (up to 80%).'

In the early 2000s, almost all pediatric surgeons switched to active tactics for OZA, and the use of ultrasound and doppler decanter significantly improved the results of timely diagnosis and treatment in both acute and long-term periods. However, a fairly high number of diagnostic errors with ultrasound, more precise echographic criteria for diagnosing acute testicular diseases in children are required.

In the study of patients of the main group of 37 (59.7%), we noted the heterogeneity of the clinical manifestations of the disease. In 17 (45.9%) patients, there was unexpressed pain in the region of the upper pole of the testicle, which was described as "pain on touch or movement." Patients sought medical help in the first 2-3 days of illness. In these patients, there was no edema and hyperemia of the affected half of the scrotum, only palpation tenderness was detected at the site of typical localization of the hydatid (at the upper pole of the

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testicle). In 7 (41.2%) of them, it was possible to identify a dark, painful, rounded or oval formation translucent through the skin (a symptom of the "dark spot"). In the rest of the patients of the main group 20 (54.1%), in addition to pain in the scrotum, there was swelling of half of the scrotum and hyperemia.

Testicular torsion - from 2000 to 2007, only 27 (26.47%) patients with testicular torsion out of 102 patients with OZA were treated in the clinic. The comparison group consisted of 10 (37.03%) patients, the main group - 17 (62.97%) patients. The largest proportion of patients with testicular torsion were patients in the age group 11-15 years - 13 (48.1%). The age group up to 3 years was 2 (7.5%) patients. In patients under the age of 3 years, supra-thecal torsion was detected, and in patients aged 11-14 years - intrathecal torsion.

The clinical picture of testicular torsion in all patients was characterized by a significantly pronounced pain syndrome and a violation of the general condition. In 10 (76.9%) patients aged 10-15 years, there was an acute onset of the disease, a sharp pain in the testicles, 2 (15.4%) of them complained of abdominal pain, which made it difficult to diagnose the underlying cause pain. In the process of dynamic observation for 2-8 hours, local changes in the scrotum were revealed in them and testicles were suspected to be perverted.

It is generally accepted that during testicular torsion (PT), acute ischemia within 6-10 hours leads to pronounced changes: necrosis of the seminiferous tubules, diffuse hemorrhages in the stroma. After 10-12 hours from the onset of the PU, total necrosis of the organ occurs. Testicular atrophy in such patients reaches 90%. Therefore, even with the slightest suspicion of PU, it is customary to carry out urgent surgical intervention. All patients who have this diagnosis are subject to urgent surgery. There are reports of closed manual detorsion of a torsion testis. Torsion of the testicle, as a rule, has a certain pattern: the right testicle rotates from outside to inside, in the medial direction clockwise, and the left - on the contrary. Conservative treatment consists in unwinding the testicle in the opposite direction under local anesthesia (Novocain blockade of the spermatic cord). The testicle with scrotal tissues is grasped by hand, slightly pulled down and rotated 180° in the direction opposite to the torsion from the median skin suture of the scrotum. Such manipulation with short breaks is performed 2-3 times for 1-2 minutes.

In younger children, it is advisable to use inguinal access, at an older age - transscrotal. In all cases, it is necessary to expose the testicle to the albuginea, which allows not only to assess the degree of circulatory disorders in the testicle, but also to identify volvulus inside the cavity of the vaginal process. The testicle is exposed, the spermatic cord is untwisted. Novocain blockade of the spermatic cord is carried out along M.Yu. Lorin-Epstein. If within 15-20 minutes the testicle remains black or dark blue, there is no pulsation of the vessels of the albuginea, there is no bleeding when the own membrane and parenchyma of the testis are cut - this indicates the death of the organ. A.T. Pulatov (2001) considers a testicle to be viable, taking on its natural (pink) color. In the presence of dry necrosis or destructive changes in the organ up to an amorphous state, sometimes with signs of an attached secondary infection, the testicle is not viable. The viability of the testicle is doubtful if it remains cyanotic, dull in appearance, with no noticeable signs of improved blood circulation. A necrotized testicle is an indication for orchiectomy.

The most common disease in the structure of the acute scrotum syndrome in children is torsion and necrosis of the hydatids of the testis or epididymis Hydatids are vestiges of the genitourinary system of the embryo, they are also called Morgagni's hydatids, testicular suspension (epithelitis), testicular appendix (epididy). Hydatid torsion occurs with a frequency of 47% to 55% more often on the left side]. The pathology of testicular hydatids is much more common - in 92% of cases after a certain period of time and simultaneous torsion of the hydatids on both sides]. Age-related changes in the period of puberty matter. They appear in a looser arrangement of the hydatid associated with flattening of the adnexal sinus; increased growth of the testicle and an increase in the size of the hydatid; growth disproportions, formation of cysts in hydatids at the age of 7-14 years. Venous hypertension in the left testicle can lead to damage to the hydatids, which correlates with more frequent pathology of the hydatids of the left half of the scrotum. The cause of acute pathology of the hydatids may be an injury or microtrauma of the hydatid, which causes disturbances in blood and lymph circulation. Hydatids may also be affected by infection or inflammation. Violation of the blood circulation of the hydatid occurs as a result of torsion of the leg from the influence of inertial forces arising from the movement of the testicle.

With testicular torsion, epididymitis, which have a similar clinical picture, there are significant differential diagnostic difficulties. The results of clinical studies indicate that the so-called contact orchiepididymitis is based on ischemia of the male gonad, which occurs as a result of an acute lesion of the hydatid. Inflammatory infiltration and pronounced edema of the parenchyma of the testicle, first near the affected hydatid, and then at a distance from it, lead to acute ischemia of the organ, which is also facilitated by the low extensibility of the albuginea. of blue color. In the later stages of the onset of the disease with hydatid torsion, puncture and removal of effusion from the testicular membranes is possible, followed by palpation of the scrotal organs.

Diaphanoscopic allows to detect a dark formation in the area of typical localization of the hydatid. Radioisotope scintigraphy is characterized by diffuse hyper perfusion, which is different from that of testicular torsion, but similar to that of epididymitis. Ultrasound captures the preservation or increase of blood circulation in the testis with hydatid torsion and epididymitis, in contrast to testicular torsion. Therefore, to improve the preoperative diagnosis of hydatid torsion and reduce the number of exploratory cordotomies, it is important to widely use ultrasound research methods. The

issues of treating children with acute hydatid lesions remain relevant, since there is no single tactical approach to solving this problem. Surgical treatment was first proposed by Ombre dan in 1913. The operation consists in revision of the scrotum organs and removal of the affected hydatid by trans scrotal access. It is recommended to resect the hydatid with an area of the unchanged part to prevent re-torsion and progression of vaginalists.

It is proposed to drain the wound cavity with a perforated vinyl chloride tube to relieve tissue edema. Failure to suture the vaginal membrane for the purpose of drainage leads to soldering of the testicle with a postoperative scar. An important point that reduces the invasiveness of the operation is the refusal to traction the testicle into the wound.

In children with PU, primary orchidectomy should not be rushed. To do this, you need to focus on the time elapsed from the onset of the disease and the degree of PU. If there is doubt about the viability of the testicle, it is necessary to carry out prolonged monitoring for the restoration of blood circulation in the untwisted testicle. In some cases, this tactic will save the organ. Preference should be given to secondary orchidectomy when testicular necrosis is undeniable.

Solving the issue of viability with its volvulus in children is a difficult task. The method of prolonged monitoring of a patient with questionable testicular viability after its expansion, proposed by A.T. Pulatov, allows to reduce the number of unjustified orchidectomies.

In the postoperative period, while maintaining the testicle, drug treatment is necessary. Drugs aimed at restoring blood circulation and improving microcirculation are recommended (blockade of the spermatic cord with 1% lidocaine, pentoxifylline, rheopolyglucin, heparin), desensitizing therapy with antihistamines, reducing the permeability of the hemato-testicular barrier - acetylsalicylic acid (aspirin), correction of metabolic disorders in the testicle (group vitamins B, vitamin E5 accurate, vitamin PP). If a testicle with doubtful viability is preserved, it is highly likely that antisperm antibodies appear in the body, which can cause degenerative changes in the contralateral organ. Some pediatric surgeons recommend primary orchidectomy in all cases of PU that lasts more than 12 hours for fear of autoimmune testicular disease. According to A.E. Tereshchenko (1986), antisperm antibodies are found in testicular torsion only in patients aged 13-14 years.

From the age of 12, with the beginning of the differentiation of germ cells in boys, the formation of antisperm autoimmunity is possible with testicular torsion. Moreover, such a pathological reaction is noted against the background of existing imbalances in immunocompetent cells (T-helpers and T-suppressors), with normal function of the immune system, the autoimmune process does not develop. In such cases, corticosteroid therapy is indicated for the purpose of immunosuppression.

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