American Journal of Medicine and Medical Sciences 2022, 12(3): 330-332
DOI: 10.5923/j.ajmms.20221203.20

Modern Methods of Radiation Diagnosis of Varicocele in Adolescents

Kodirov Nizomiddin Daminovich[1], Shodieva Nodira Egamberdievna[2], Yusupov Shukhrat Abdurasulovich[3]

[1]Department of Pharmacognosy and Pharmaceutical Technologies of the Samarkand State Medical Institute, Uzbekistan
[2]Department of Medical Radiology, Faculty of Postgraduate Education, Samarkand State Medical Institute, Uzbekistan
[3]Department of Pediatric Surgery No. 1 of the Samarkand State Medical Institute, Uzbekistan

Abstract Varicocele in teenagers. around the testicles in men are the veins of the pampiniform plexus, which can be subject to varicose veins. this condition is called a varicocele. quite often, varicocele develops in adolescents. in most cases, the disease does not manifest itself for a long time and is discovered by chance, during preventive examinations, for example, when passing the draft board. causes of varicocele in teenagers. the most common cause of varicocele is the special structure of the veins of the small pelvis. they are prone to stagnation of blood, as a result of which varicose veins occur. most often, varicocele develops on the left. in adolescents, the disease begins at 11-13 years of age, but visible symptoms appear after two to three years.

Keywords Varicocele develops, Visible symptoms, Adolescents, Radiation diagnosis

1. Introduction

Varicocele - varicose veins of the spermatic cord. This disease is most often detected at a young age (15-20 years). The main complaints are: heaviness and pain in the left testicle, aggravated after physical activity and prolonged standing in an upright position, the presence of enlarged (sometimes painful) venous plexuses near the left testicle. In adulthood, in most cases, the disease is asymptomatic and the main reason for visiting a doctor -specialist, as a rule, is male infertility. The fact is that the dilated veins of the spermatic cord move over the testicle (usually the left one) from above and warm it to body temperature, while normal spermatogenesis is possible only at lower temperatures (about 35.5 degrees Celsius). In addition, the outflow of venous blood from the testicle is disturbed, which leads to congestion in the organ and hypoxia. These changes are reflected in the parameters of sperm: the concentration of spermatozoa decreases, an increased number of pathological and immobile spermatozoa is observed, which leads to the loss of their fertilizing ability. Despite the fact that varicocele manifests itself in 95% of cases on the left, in the right testicle, spermatogenesis is almost always reactively disturbed.

There are three main types of varicocele surgery:

Ivanissevich's operation - the incision and isolation of the vein is performed over the inguinal ligament. It can be performed under local anesthesia. Disadvantages of this operation: a large incision of the skin (4-5 cm), a high probability of developing dropsy of the testicular membranes in the late postoperative period.

Laparoscopic surgery is performed through three punctures of the anterior abdominal wall and only under general (endotracheal) anesthesia. Isolation and ligation of the vein is performed from the abdominal cavity.

Microsurgical surgery (according to Marmara) is performed through a small (3 cm) incision in the groin area (in the area of pubic hair growth), after the operation the scar is practically not visible. It is performed under local anesthesia using special microsurgical glasses. All the veins of the cluster plexus are precisely sequentially tied and intersected (there are usually from 3 to 6 of them in this part of the spermatic cord). At the same time, there is no traumatization of the lymphatic vessels of the spermatic cord, which significantly reduces the risk of dropsy. The period of stay in the hospital is 1-2 days.

Primary diagnosis of left-sided varicocele by pediatric surgeons, pediatricians and related doctors is carried out in medical and educational institutions based on complaints, visual assessment and palpation data of the scrotum with a Valsalva test. The vast majority of children and adolescents with varicocele do not make any complaints, and only a part of the patients note an increase in the scrotum in volume, pulling pains in the inguinal region on the left with irradiation to the scrotum. More often, pain occurs after prolonged or heavy physical exertion. Visually, depending

Received: Feb. 24, 2022; Accepted: Mar. 11, 2022; Published: Mar. 17, 2022
Published online at http://journal.sapub.org/ajmms

on the degree of development of the disease, a different increase in the volume of the left half of the scrotum is determined, its tuberous surface, cyanotic nodular formations appear through the skin of the scrotum. On palpation, dense in the form of "clusters" of formations are determined, which increase with tension of the abdominal muscles (Valsalva test).

The first stage of the examination allows diagnosing the degree of varicocele in children and adolescents; for this purpose, the most optimal classification is M. Bomalaski et al. The second stage of diagnosing the disease includes the mandatory conduct of ultrasound, dopplerography. A significant proportion of patients with third-degree varicocele, according to ultrasound, are indicated for venography [3], as well as measuring pressure in the renotesticular venous system and determining indicators of the acid-base state of the blood. Scanning in the "gray" scale mode allows you to determine the volume of the testicles, the diameter of the veins of the pampiniform plexus of the testis, the diameter of the main trunk of the testicular vein and satellite veins, the diameter of the renal vein at the hilum of the kidney and the anteroposterior dimension in the area of the aortomesenteric "forceps" to determine the degree of compression of the vein. Along with this, the size, shape, position and structure of both kidneys are determined. The use of Doppler mapping colors makes it possible to detect retrograde and antegrade blood flow through the testicular veins. In addition, the speed indicators of venous blood flow are determined by pulse Doppler in the renal vein at the hilum of the kidney and in the area of the aortomesenteric "tweezers".

General characteristics: • Best diagnostic criterion: o Dilated tortuous veins behind the superior pole of the testis are seen on color Doppler ultrasonography o Distension of the veins due to retrograde flow that occurs during the Valsalva maneuver • Localization: o Dilation of the venous plexus of the levator testis muscle, vein of the vas deferens, internal testicular artery • Size: o Multiple veins of the pampiniform plexus >2-3 mm, ↑ of their size during the Valsalva maneuver • Morphology: o Tortuous vascular channels (dilated veins)

2. Ultrasound: • B-mode: o Tortuous vessels of the tubules, posterior to testis

• Color Doppler: o Noticeable color flow in vessels during Valsalva maneuver due to retrograde flow

3. Test protocol tips: • Best diagnostic method: o Color Doppler ultrasound • Test protocol tips: o Color Doppler of epididymis at rest and Valsalva maneuver

The main cause of varicose veins of the scrotum is a defect in the valves of the veins. Normally, they should prevent the reverse flow of blood. If, for any reason, the valves do not cope with this task or cope with it poorly, the constant increased pressure due to the reverse flow of blood leads to weakness of the vascular wall and varicose veins.

As a result, dilated veins surround the testicle with a kind of network. Stagnation of blood in the vessels leads to an increase in testicular temperature (normally, it should be below the average body temperature) and, as a result, a violation of spermatogenesis. Factors provoking the development of varicocele are congestion in the pelvis, constipation, irregular sex life, overweight, hard physical labor.

In most cases, in the initial stages, varicocele occurs without any tangible manifestations, but is considered dangerous for a number of reasons. The overall severity of clinical symptoms varies depending on the degree of varicose veins. In some cases, there may be a slowdown in the growth of the left testicle during puberty, the development of infertility or loss of fertility.

The main symptoms of varicocele:

- pain and discomfort in the scrotum;
- discomfort when walking;
- burning in the scrotum;
- heavy sweating;
- inactivity, sagging testicle;
- asymmetry of the scrotum.

At a late stage in the development of the disease, the pain syndrome becomes permanent, even at rest and at night. The asymmetry of the scrotum becomes more pronounced, numerous plexuses of veins appear on the surface. Stenosis of the left renal vein in patients with left-sided varicocele is diagnosed by narrowing the diameter of the vein by more than half. Severe compression of the left renal vein in this category of patients is characterized by a sharp decrease in the intensity of contrasting of the vein in the area of pathology and a significant increase in the size of the pre-compression section of this vein. Moderate compression of the left renal vein in patients with left-sided varicocele corresponds to a decrease in the intensity of its contrasting in the area of pathology by half and an increase in its pre-compression section to 1/4 in relation to the diameter of the vein at the hilum of the kidney. Tenosis of the left renal vein is more often with aortomesenteric compression in patients left-sided varicocele was diagnosed in 22 patients, which accounted for less than 4.1% of cases. Compression of the left renal vein was found in 446 (82.6%) patients with varicocele. Compression of aortomesenteric genesis was diagnosed in 423 patients, retro-aortic genesis — in 23 patients. Severe aortomesenteric compression of the left renal vein was observed less frequently (139 patients) than moderate compression (307 patients). In the remaining 72 (13.3%) patients, compression of the left renal vein in the area of the aortomesenteric "tweezers" was not detected.

A solitary trunk of the left testicular vein was found in 425 (83.3%) of 510 patients, including those with satellite veins in 96 patients. Loose type of testicular veins in patients with varicocele was observed in 85 (16.7%) patients. The ratio of patients according to the nature of the pathology of the renal and testicular veins is presented in. In the remaining 30 (5.6%) patients with left-sided varicocele, according to angiograms, the testicular veins were not contrasted. The pressure gradient between the left renal and inferior vena

cava acquires a particularly important diagnostic value in choosing the method of surgery. Normally, it does not exceed 3 mm Hg. A higher pressure gradient characterizes venous renal hypertension and serves as a prognostic indicator for the formation of varicocele recurrence after testicular vein embolization. The pressure gradient between the left and right renal veins in patients with hypertension is more than 3 times higher than that in patients with normotension.

In patients with venous renal normotension and venous renal hypertension, a comparative assessment of pressure indicators in the left common iliac vein did not reveal significant differences. This indicates the absence of iliospermatic genesis of varicocele in the patients examined by us due to compression of the left common iliac vein by the right common iliac artery or other causes.

Dilatation of the solitary trunk of the left testicular vein more than 4 mm was detected in 202 patients, less than 3 mm in 191 patients, in the remaining 32 patients it was about 3 mm. The most pronounced dilatation of the solitary trunk of the left testicular vein, up to 10 mm, was found in the group of patients with moderate compression of the left renal vein (in 183 of 257), and with renal vein stenosis, such dilatation of the testicular vein was predominant (in 19 of 22). Patients with severe compression of the renal vein had a slight dilatation of the testicular vein, not exceeding 3 mm.

REFERENCES

[1] Pugachev A.G. Evdokimov V.V., Erasova V.I. Varicocele in children and adolescents and infertility // Urol. and nephrol. 1995.

[2] Bomalaski M.D., Mills J., Argueso L.R. et al. Iliac vein compression syndrome: an unusual cause of varicocele // J. Vasc. Surg. 1993.

[3] Lee J., Binsaleh S., Lo K, Jarvi K. Varicoceles: Diagnostic Dilemma. // J. Andrology. 2008.

[4] Strakhov S.N. Varicose veins of the pampiniform plexus and spermatic cord (varicocele). M., 2001.

[5] Lavrova T.R. Ultrasound diagnosis of varicocele in children and adolescents. Abstract dis. ... cand. honey. Sciences. M., 2002.

[6] Pogorely V.V. Predicting the occurrence of varicocele and its surgical correction in children. Abstract dis. ... Dr. med. Sciences. M., 2001.

[7] Kondakov V.T., Pykov M.I. Varicocele. M., 2000.

[8] Ishidoya S., Chiba Y, Sakai K, Oricasa S. Nutcracker phenomenon: a case with surgical treatment and its diagnostic criteria // Hinyokika Kiyo. 1994.

[9] Korznikova I.N. Endovascular sclerotherapy in the treatment of varicocele in children. Abstract dis. ... cand. honey. Sciences. M., 1988.

[10] Strakhov S.N., Burkov I.V. Renal phlebohypertension and intervenous anastomoses in varicocele // Angiology and Vascular Surgery. 2008.