

METHODS OF DIAGNOSTICS AND TECHNOLOGIES

Scientific Article

UDC 616.66-089.31

DOI: 10.17816/pmj41280-86

MINIMALLY INVASIVE METHOD OF SURGICAL TREATMENT OF PEYRONIE'S DISEASE

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МАЛОИНВАЗИВНЫЙ СПОСОБ ХИРУРГИЧЕСКОГО ЛЕЧЕНИЯ БОЛЕЗНИ ПЕЙРОНИ

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Objective. To improve the results of surgical treatment of Peyronie's disease.

Materials and methods. 20 patients with Peyronie's disease aged 22 to 60 were treated in the urological departments of the Private Clinical Hospital "Russian Railways Medicine" and Astrakhan City Clinical Hospital

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No. 3 named after. C.M. Kirov. A method of surgical treatment of Peyronie's disease using a shortening technique without opening the tunica albuginea includes the application of a pressure tourniquet to the base of the penis, puncture of the cavernous bodies, injection of sterile saline into them until an erection is achieved, determination of the angle of curvature of the penis, removal of the tourniquet and surgery to eliminate curvature of the penis.

Results. Neither postoperative complications nor formation of hematomas were observed. The patients were discharged on the 4th day in satisfactory condition. 1.5 years` observation showed no progression of angular deformation of the penis which could impede sexual intercourse. The mobility of the skin of the penis was preserved.

Conclusions. In addition to the correction of penile deformity, our method eliminates the need for extensive incisions and preserves the physiological functions of the penis. As a result of using this surgical method, the following goals are achieved: minimal trauma to tissues in the surgical area, absence of scar processes in the plastic area and preservation of the skin of the penis mobility, absence of pronounced postoperative tissue edema, no need to drain the wound, reduction of the duration of the operation and minimal blood loss, short postoperative and rehabilitation period.

Keywords. Peyronie's disease, erectile dysfunction, penile deformity, surgical treatment.

Цель. Улучшение результатов хирургического лечения болезни Пейрони.

Материалы и методы. Пролечено 20 пациентов с болезнью Пейрони в урологическом стационаре ЧУЗ «КБ «РЖД-Медицина»» города Астрахань» и ГБУЗ Астраханской области «ГКБ № 3 им. С.М. Кирова». Возраст больных – от 22 до 60 лет. Способ хирургической коррекции болезни Пейрони по укорачивающей методике без вскрытия белочной оболочки включает в себя сдавление турникетом у основания полового члена, инъекцию в кавернозные тела стерильного физиологического раствора до достижения эрекции, расчет угла искривления полового члена, снятие турникета и операцию по устранению искривления полового члена.

Результаты. Осложнений после операции не наблюдалось. Не отмечалось образования гематом. Пациенты в удовлетворительном состоянии были выписаны на четвертые сутки. Отдаленные результаты в течение 1,5 лет показали отсутствие прогрессирования угловой деформации полового члена, затрудняющей проведение полового акта. Сохранялась мобильность кожи полового члена.

Выводы. Предложенный метод, помимо коррекции деформации полового члена, устраняет необходимость в обширных разрезах и сохраняет физиологические функции полового члена. В результате использования данного оперативного способа достигаются следующие цели: минимальная травматизация тканей в зоне оперативного вмешательства, отсутствие рубцовых процессов в зоне пластики и сохранение мобильности кожи полового члена, отсутствие выраженного послеоперационного отека тканей, отсутствие необходимости дренирования раны, сокращение длительности операции и минимальная кровопотеря, короткий послеоперационный и реабилитационный периоды.

Ключевые слова. Болезнь Пейрони, эректильная дисфункция, деформация полового члена, хирургическое лечение.

INTRODUCTION

The incidence of Peyronie's disease (PD), according to various researchers, ranges from 0.5 to 13 % [1–5], with men over 45 suffering more often. According to the data presented by P.A. Shcheplev, the PD prevalence in Russia ranges from 3 to

8 %, and according to autopsy data, it reaches 25 % [16]. To date, there is no consensus among authors on the pathogenesis of Peyronie's disease, so work continues in this direction, since there is no final verdict on the causes of the disease.

The theory of the development of Peyronie's disease as a consequence of the

erect penis trauma has received the greatest recognition. According to the proposed theory, hematomas in the tunica albuginea that occur after microtrauma lead to the development of plaques. It is known that the penis does not have an arterial network, but venous vessels intimately connected with the fibrous part of the tunica. With direct injuries and bruises or during active sexual intercourse, the membranes of the penis are traumatized, which leads to the development of aseptic inflammation. In turn, the inflammatory process inhibits the transformation of fibrinogen into fibrin, resulting in a decrease in the elasticity of the fibers of the protein membrane. Over the course of a year and a half, fibroplastic induration of the tissue develops, in which the degeneration of collagen cells progresses [6; 7].

Peyronie's disease is characterized by the following clinical manifestations: pain syndrome with curvature of the penis; palpated plaques or seals on the penis, erectile dysfunction.

The disease goes through two stages. In the first period, the patient is bothered by pain in the penis during and outside of erection. In the second stage, deformation and curvature of the penis occurs, making sexual intercourse difficult.

In Russia, many clinics use the classification of V.E. Mazo [8], which has four stages: Stage 1 – pain during erection, presence of plaques; Stage 2 – pain during erection and formations on the protein tunica; in the 3rd stage, denser fibers of the protein

tunica are formed, in the 4th stage, calcifications are formed.

According to the classification of S. Barra and F. Iacono, used outside of Russia, the disease occurs in three periods: up to 6 months, up to a year and more. The degree of deformation of the penis depends on the size of the plaque and the angle of curvature. Mild deformation (curvature up to 30°, plaque up to 2 cm), moderate degree (60°, plaque up to 4 cm), severe degree (more than 60°, plaque more than 4 cm [9–11].

There are many methods of PD surgical treatment: shortening operations, plication techniques, lengthening operations, grafting using transplants, penile prosthetics in various modifications [20].

The main reason for contacting a urologist is discomfort in a man's intimate life as a result of penile curvature and pain syndrome.

During examination and collection of anamnesis, attention is paid to penile injuries, concomitant diseases, the size of the plaque, localization, and degree of deformation of the penis in an erect state are taken into account [12–14].

Surgical treatment of Peyronie's disease remains the most effective method of penile curvature correcting [15; 16].

Nesbit was the first to use shortening treatment method that includes opening the tunica albuginea, removing tissue on the opposite side of the penis in the form of an ellipse, with a general satisfactory result from 67 to 100 % [17]. Despite the positive results (79–100 % effectiveness), the operation has

a number of complications. This is a shortening of the penis, while erectile dysfunction after the operation occurs in 3.25–22.9 % of cases [4], loss of sexual function, according to literary data, reaches 12 % [9]. One of the modified methods of the Nesbit operation was proposed by P.A. Shcheplev, who invaginated the tunica albuginea without excision of the cavernous bodies [16]. In the 80–90s, D. Yachia and R.J. Lemberger made longitudinal incisions up to 1.0 cm in the zone of maximum curvature without excision of the tunica albuginea and sutured the wound in the transverse direction. According to the authors themselves, the effectiveness of the method ranged from 80 to 95 % [18].

Surgery with intracavernous phalloprosthesis using three-component prostheses is indicated for severe sexual dysfunction [19]. However, the analysis did not yield satisfactory results of plastic surgery using implants, since the high cost of prostheses and the risk of infection do not allow their widespread use.

Due to the fact that the search for new technological methods in the treatment of Peyronie's disease continues, there is a need for a differentiated approach to the choice of corporoplastic surgeries that can reduce the number of postoperative complications and improve treatment results.

MATERIALS AND METHODS

20 patients with Peyronie's disease aged 22 to 60 were treated in the urological departments of the Private Clinical Hospital

“Russian Railways Medicine” and Astrakhan City Clinical Hospital No. 3 named after. C.M. Kirov from 2019 to 2022. Patients with a plaque size over 1.5 cm and an angle of curvature of the penis over 45° underwent surgical treatment.

A method of surgical treatment of Peyronie's disease using a shortening technique without opening the tunica albuginea is presented in the following stages: at the first stage a pressure tourniquet is applied to the base of the penis, a sterile saline solution (in a volume of 40–60 ml) is injected into the cavernous bodies until an erection is achieved, the angle of curvature of the penis is determined.

The second stage is to make three transverse skin incisions 0.3 cm long every 2 cm on the convex side of the penis on both sides of the urethra, then tunnel the subcutaneous space in the proximal direction from the coronary groove to the base of the penis above the cavernous body using a grooved Kocher probe (Fig. 1), after which a piercing needle with a non-absorbable thread (diameter 3–0) is inserted into the distal transverse skin incision, grasping the protein tunica to a depth of 3–5 mm, then this needle with the thread is punctured into the median transverse incision, then the needle with the thread is again punctured into the median transverse incision, grasping the protein tunica to a depth of 3–5 mm (Fig. 2). Then the needle with the thread is punctured into the proximal transverse incision, after which the needle is turned 180°, then the needle with the thread is passed subcutaneously through the formed tunnel to the

median transverse incision, and the free distal end of the thread is also passed to the median transverse incision through the tunnel, after which the ends of the thread are tied together, eliminating the deformation of the penis (Fig. 3), then all manipulations of the operation are repeated parallel to the first on the other cavernous body, after which all skin incisions are sutured with interrupted single sutures.

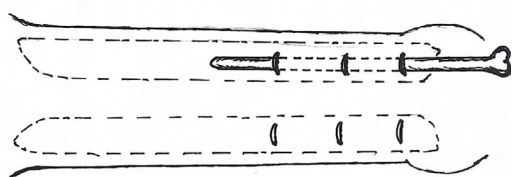


Fig. 1. Tunneling of the subcutaneous space with a grooved Kocher probe through transverse skin incisions over the cavernous body

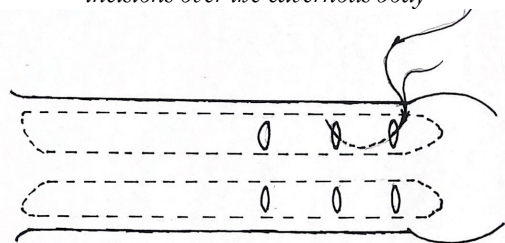


Fig. 2. Insertion of a piercing needle with a non-absorbable thread into a transverse incision of the skin with capture of the protein tunica to a depth of 3–5 mm

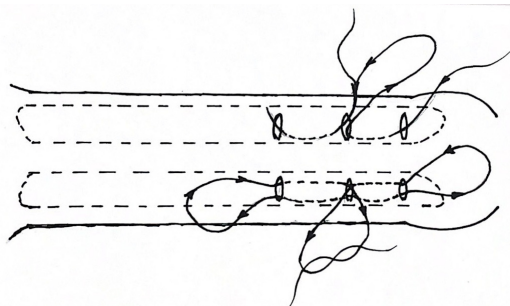


Fig. 3. Tightening and tying the ends of the thread together into a subcutaneous knot, elimination of penile deformity

RESULTS AND DISCUSSION

Neither postoperative complications nor formation of hematomas were observed. The patients were discharged on the 4th day in satisfactory condition. The patients abstained from sexual activity for 1.5 months. 1.5 years` observation showed no progression of angular deformation of the penis which could impede sexual intercourse. The mobility of the skin of the penis was preserved. The patients retained erectile function, pain syndrome during erection and curvature of the penis are absent. All patients are satisfied with the treatment results (in the form of an oral survey).

CONCLUSIONS

The proposed method (patent No. 2728937 dated August 03, 2020), in addition to the correction of penile deformity, eliminates the need for extensive incisions and preserves the physiological functions of the penis. As a result of using this surgical method, the following goals are achieved: minimal trauma to tissues in the surgical area, absence of scar processes in the plastic area and preservation of the skin of the penis mobility, absence of pronounced postoperative tissue edema, no need to drain the wound, reduction of the duration of the operation and minimal blood loss, short postoperative and rehabilitation period.

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Funding. The study had no external funding.

Conflict of interest. The authors declare no conflict of interest.

Author contributions are equivalent.

Received: 11/28/2023

Revised version received: 03/14/2023

Accepted: 03/15/2024

Please cite this article in English as: Zurnadzhlyants V.A., Kurashov D.V., Kchibekov E.A., Proskurin A.A. Minimally invasive method of surgical treatment of Peyronie's disease. *Perm Medical Journal*, 2024, vol. 41, no. 2, pp. 80-86. DOI: 10.17816/pmj41280-86