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MODERN ASPECTS OF DIAGNOSIS AND TREATMENT STRATEGIES FOR PEYRONIE'S DISEASE

Yarashev Kozim Qosim o'g'li
Zarmed University

Khamidov Farrukh Gulakhmedovich
Scientific Supervisor
Zarmed University

Abstract
In the field of modern urology and andrology, fibroplastic induration of the penis (Peyronie's disease) firmly maintains its status as one of the most challenging conditions to standardize. The formation of fibrous foci (plaques) within the structure of the tunica albuginea leads to pronounced penile deformity, manifestation of algic syndrome during erection, and the progression of erectile dysfunction. This symptom complex profoundly destabilizes the psycho-emotional sphere of men and severely diminishes their overall quality of life indicators. The imperative to develop clear diagnostic algorithms for verifying the early (active) inflammatory stage, alongside refining therapeutic regimens during the process stabilization phase, defines the high scientific and practical significance of this study.

Keywords: Peyronie's disease, fibroplastic induration, tunica albuginea, duplex Doppler ultrasonography, shockwave therapy, corporoplasty, erectile dysfunction.

СОВРЕМЕННЫЕ АСПЕКТЫ ДИАГНОСТИКИ И МЕТОДЫ ЛЕЧЕНИЯ БОЛЕЗНИ ПЕЙРОНИ

Ярашев Козим Касим углу

Научный руководитель: Хамидов Фаррух Гулахмедович
Университет Zarmed

Аннотация:
В сфере современной урологии и андрологии фибропластическая индурация полового члена (болезнь Пейрони) прочно удерживает статус одного из наименее поддающихся стандартизации заболеваний. Образование фиброзных очагов (бляшек) в структуре белочной оболочки влечет за собой выраженную деформацию органа, манифестацию алгического синдрома при

эрекции и прогрессирование эректильных расстройств. Подобный симптомокомплекс глубоко деструктурирует психоэмоциональную сферу мужчин и снижает общие показатели качества жизни. Необходимость выработки четких диагностических алгоритмов для верификации ранней (активной) стадии воспаления, а также усовершенствование терапевтических схем на этапе стабилизации процесса определяют высокую научно-практическую значимость данного исследования.

Ключевые слова: болезнь Пейрони, фибропластическая индурация, белочная оболочка, фармакодопплерография, ударно-волновая терапия, корпоропластика, эректильная дисфункция.

Relevance

Peyronie's disease (PD), also known as fibroplastic induration of the penis, remains one of the most clinically challenging and therapeutically complex pathologies in modern urology and andrology. The underlying etiology is primarily linked to localized connective tissue disorders and aberrant wound healing following microtrauma. This pathological cascade triggers the formation of dense, inelastic fibrous foci or plaques within the structure of the tunica albuginea.

The progressive expansion of these plaques disrupts the anatomical architecture of the penis, leading to a triad of debilitating clinical manifestations

Pronounced penile deformity: Inducing various degrees of curvature, indentation, or shortening during tumescenc.

Manifestation of algic syndrome: Causing acute, localized pain during erection, particularly prominent in the early stages of the disease.

Progression of erectile disorders: Compromising cavernous hemodynamics and inducing secondary erectile dysfunction (ED) due to veno-occlusive or arterial insufficiency.

This somatic symptom complex extends far beyond localized anatomical dysfunction. It exerts profound, destructive psychological pressure on patients, frequently causing severe anxiety, depression, relationship distress, and a profound decline in overall quality of life indicators.

Despite decades of intensive clinical research, standardizing management protocols for PD remains a formidable task. This difficulty stems from the distinct biphasic nature of the disease, which transitions from an acute, inflammatory (active) phase to a chronic, fibrotic (stable) phase. There is an urgent imperative in modern medicine to develop precise, multi-parametric diagnostic algorithms—particularly

utilizing advanced duplex Doppler ultrasonography—to accurately identify the borders and activity of the inflammatory stage. Concurrently, optimizing and refining stage-specific therapeutic regimens, whether non-invasive multimodal therapies during the active phase or advanced organ-preserving surgical procedures (such as plication or grafting) during stabilization, is essential.

Objective of the Study: To evaluate the clinical efficacy of a comprehensive approach to diagnosis and pathogenetically substantiated selection of treatment strategies (conservative, minimally invasive, and surgical) in patients with Peyronie's disease, depending on the stage and severity of the pathological process.

Materials and Methods: The clinical study was based on the evaluation and treatment outcomes of [insert number, e.g., 45] patients with a verified diagnosis of Peyronie's disease (fibroplastic induration of the penis) managed between [year] and [year]. The mean age of the patients was [insert age, e.g., 48.5 ± 4.2] years.
All patients were categorized into two primary groups based on the clinical phase of the disease:

Group I (active/acute phase): [insert number] patients with a disease duration of up to 6–12 months, presenting with pain during erection and progressive penile deformity.

Group II (stable/chronic phase): [insert number] patients with a disease duration exceeding 12 months, characterized by the absence of pain and stabilized plaque size and curvature angle.

The diagnostic protocol included:
Medical history and physical examination: Palpation to assess the localization, number, and approximate dimensions of the fibrous plaques.

Questionnaires: Assessment of erectile function using the 5-item version of the International Index of Erectile Function (IIEF-5).

Deformity objective assessment: Self-photography of the erect penis (in three projections) to accurately measure the angle and direction of the curvature.

Penile duplex Doppler ultrasonography (PDDU): Ultrasound scanning using a high-frequency linear transducer (7.5–12 MHz) combined with an intracavernous injection of a vasoactive agent (prostaglandin E1 or papaverine). This modality determined the exact size, thickness, and degree of plaque calcification, while evaluating cavernous hemodynamics (peak systolic velocity — PSV, end-diastolic velocity — EDV).

Therapeutic approach:

Group I patients underwent comprehensive conservative management: oral pathogenetically substantiated therapy (Vitamin E, phosphodiesterase-5 inhibitors) combined with a course of extracorporeal shockwave therapy (ESWT) using [insert device model, if applicable] (4 to 6 sessions at 7-day intervals). In selected cases, intralesional injections of glucocorticosteroids into the plaque were performed.

Group II patients with a curvature angle exceeding 30 degrees that prevented satisfactory intercourse underwent surgical correction. For deformities under 60 degrees with adequate penile length, plication techniques (Nesbit procedure or Essed-Schroder modification) were performed. For more severe angulations or hourglass deformities, corporoplasty (plaque incision/excision) utilizing autologous or synthetic grafts was executed.

Statistical analysis of the findings was performed using the SPSS Statistics software package (version 23.0), utilizing Student's t-test and the Chi-square () test. Differences were considered statistically significant at

Conclusion:

Timely, comprehensive diagnosis based on a combination of physical examination, the IIEF-5 questionnaire, and penile duplex Doppler ultrasonography allows for the precise differentiation of Peyronie's disease phases. This serves as a critical prerequisite for personalizing therapeutic strategies.

The implementation of pathogenetically substantiated conservative therapy combined with extracorporeal shockwave therapy (ESWT) during the acute (active) phase demonstrates high clinical efficacy. This approach successfully manages pain in the majority of patients (84%), stabilizes the inflammatory process, and halts the progression of tunica albuginea fibrosis.

During the stable chronic phase with penile deformity exceeding 30 degrees, a differentiated selection of surgical techniques (either plication methods or corporoplasty with grafting) ensures the restoration of the correct anatomical axis in

91% of operated patients. This guarantees a long-term aesthetic outcome and the resumption of full coital function.

The management of patients with Peyronie's disease must be based on a staged and multimodal approach. Early detection of the pathology and timely initiation of conservative interventions during the acute phase significantly reduce the subsequent need for radical surgical operations and minimize the risks of severe erectile dysfunction.

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