Iberoamerican Plastic Surgery

Plaque Disruption and Biostimulation Technique for Peyronie's Disease: Retrospective Analysis of 325 Patients

--Manuscript Draft--

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Full Title:	Plaque Disruption and Biostimulation Technique for Peyronie's Disease: Retrospective Analysis of 325 Patients
Abstract:	Background: Peyronie's disease remains difficult to treat when established fibrosis compromises penile straightening and erectile function. Conventional surgery is effective, but shortening procedures may reduce penile length and grafting procedures may increase the risk of postoperative erectile dysfunction.Methods: We performed a retrospective review of 325 consecutive men with Peyronie's disease treated between January 1, 2020, and December 31, 2024, using the plaque disruption and biostimulation technique. Eligible patients were 30-60 years old and had penile curvature between 5 and 90 degrees. The technique combines partial circumferential fascial release, tangential mechanical plaque disruption, and adjunctive autologous nanofat grafting. Clinical success at 12 months was defined as residual curvature below 5 degrees with recovery of erectile function to the pre-disease baseline.Results: Single-stage success was achieved in 68% of patients. A second procedure was required in 28% and a third in 10%. The most common complications were ecchymosis (28%), cutaneous scar alterations (16%), and superficial skin lesions (6%). Complications were generally minor and self-limited.Conclusions: In this retrospective series, the technique provides a reproducible, tissue-preserving surgical option for Peyronie's disease with acceptable morbidity and a clinically meaningful rate of penile straightening after a first procedure.
Keywords:	Keywords: Peyronie's disease; penile fibrosis; plaque disruption; nanofat; reconstructive surgery; tissue remodeling
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Sincerely,

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Title: Plaque Disruption and Biostimulation Technique for Peyronie's Disease:

Retrospective Analysis of 325 Patients

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Abstract

Introduction:

Peyronie’s disease remains a challenging condition, particularly in patients with established fibrosis, where current surgical options often involve trade-offs between penile straightening, length preservation, and erectile function. The aim of this study was to evaluate the efficacy and safety of a novel minimally invasive approach, the Plaque Disruption and Biostimulation Technique (PD-BT).

Methods:

A retrospective analysis of 325 consecutive patients with Peyronie’s disease treated between January 2020 and December 2024 was performed. Inclusion criteria included penile curvature between 5° and 90° in patients aged 30–60 years. The PD-BT technique involves circumferential fascial release, controlled mechanical disruption of fibrotic plaques using specialized cannulas, and autologous adipose tissue grafting. Clinical outcomes were assessed at 12 months.

Results:

At 12 months, complete penile straightening (residual curvature <5°) was achieved in 68% of patients after a single procedure. A second intervention was required in 28% of cases, and a third procedure in 10%. The most frequent complications were ecchymosis (28%), cutaneous scar alterations (16%), and superficial skin lesions (6%). No severe procedure-related erectile dysfunction was observed.

Conclusions:

The PD-BT technique is a feasible and effective minimally invasive approach for the treatment of Peyronie’s disease, achieving satisfactory rates of penile straightening while preserving erectile function and maintaining a favorable safety profile.

Keywords: Peyronie’s disease; penile curvature; penis reconstructive surgery, adipose tissue grafting.

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Title: Plaque Disruption and Biostimulation Technique for Peyronie's Disease: Retrospective Analysis of 325 Patients

INTRODUCTION

Peyronie's disease is an acquired disorder of the penis characterized by fibrotic plaque formation within the tunica albuginea, leading to penile deformity, pain during erection, and, in a substantial proportion of patients, erectile dysfunction.[1]

Its reported prevalence ranges from approximately 3% to 9%, although population-based data suggest that the disease is frequently underdiagnosed and undertreated because many patients delay consultation because of embarrassment, stigma, or fear of diagnosis.[1,2]

From a pathophysiological standpoint, Peyronie's disease is generally understood as an aberrant wound-healing response in predisposed individuals after repetitive microtrauma, with disorganized collagen deposition, persistent fibrosis, and progressive tunical inelasticity.[3,4]

Current management remains challenging. Conservative strategies, penile traction, intralesional therapies, and surgery all have roles depending on disease phase and

deformity severity, but no single option completely resolves the competing goals of straightening, length preservation, and maintenance of erectile function.[5,6]

When surgery is required, tunical plication, plaque incision or excision with grafting, and penile prosthesis implantation remain the most established options.[5,6,7]

However, plication techniques commonly shorten the penis, whereas grafting procedures are more complex and may compromise erectile function.[6,7]

The present study addresses this unmet need by describing a tissue-preserving surgical strategy based on circumferential fascial release, tangential mechanical plaque disruption, and adjunctive autologous nanofat grafting. Our objective is to report the technique in sufficient detail for reproducibility and to present the clinical outcomes, complications, and reintervention rates observed in a consecutive series of 325 patients.

METHODS

Study design

This manuscript combines a technical description of the operative method with a retrospective review of 325 consecutive patients treated by our surgical team between January 1, 2020, and December 31, 2024.

Study population

The study population consisted of adult male patients with a clinical diagnosis of Peyronie's disease who underwent surgery with the plaque disruption and biostimulation technique during the study period.

Inclusion criteria were age between 30 and 60 years, clinical diagnosis of Peyronie's disease, and penile curvature between 5 and 90 degrees, irrespective of direction.

Exclusion criteria were connective tissue disease, autoimmune disease, previous surgery for Peyronie's disease, previous penile or genital surgery, human immunodeficiency virus infection, and prior penile filler treatment with hyaluronic acid, silicone, or similar substances.

Preoperative assessment

Patients underwent standard clinical evaluation including medical history, physical examination, and documentation of penile deformity. In routine practice, imaging was used selectively when needed to define plaque location or calcification; however, imaging variables were not systematically captured as study endpoints in the present retrospective review.[5,6]

Surgical technique

The plaque disruption and biostimulation technique is designed to release the fascial planes surrounding the penis, separate the tunica albuginea from adjacent tissues, mechanically disrupt fibrotic plaques, and maintain separation of disrupted tissue with autologous nanofat grafting.

The procedure begins with an inverted V-shaped suprapubic incision to expose the suspensory ligament and adjacent anatomy. Through lateral access points alongside the ligament, the superficial fascial planes are entered using controlled blunt dissection.

Once the tunica albuginea is identified by its pearly white appearance, an initial supratunical release is performed. Saline solution with epinephrine at a dilution of 1:100,000 is then infiltrated to facilitate hydrodissection and reduce intraoperative bleeding.

Subalbugineal access is subsequently obtained through small additional fascial openings at the penile base, typically positioned at the 3 and 9 o'clock locations. Dissection is performed with spear-shaped periosteal elevators, which are advanced in a controlled fashion to separate the tunica albuginea from the surrounding fascial planes.

Release is carried out in a partial circumferential manner, avoiding direct dissection in the mid-dorsal and mid-ventral planes in order to protect the neurovascular bundle and urethra. In practical terms, the working corridors usually extend from approximately 2 to 5 o'clock and from 7 to 11 o'clock.

In cases of uncertainty regarding penile curvature, and to avoid the need for preoperative erect penile photographs—given the potential sensitivity of such requests—an artificial erection was induced intraoperatively. This was achieved via intracavernosal saline injection after placement of a constrictive tourniquet at the penile base to restrict venous outflow. (Figure 1)

When plaques are predominantly dorsal, the initial treatment is performed from the lateral planes rather than by direct central dorsal entry, thereby minimizing the risk of injury to the dorsal neurovascular structures. In selected cases with persistent dorsal disease, direct dorsal treatment may be considered in a later procedure.

After the fascial planes have been released, additional saline infiltration is used to optimize separation of tissue layers. Specialized fibrosis-release cannulas with blunt, duck-bill tips and partial cutting capability are then introduced through multiple access points. These cannulas are used to perform controlled tangential disruption of the fibrotic plaques.

The maneuver is not restricted to the clinically dominant plaque. Instead, the disruption is extended circumferentially along the shaft from the balanopreputial sulcus to the pubic

region. This strategy reflects the clinical impression that secondary fibrotic bands may coexist with the main plaque and may contribute to medium-term recurrence if left untreated.

After plaque disruption, autologous nanofat is infiltrated to help maintain physical separation between disrupted fibrotic fragments and to provide a cell-rich adipose substrate intended to support tissue remodeling. The average injected nanofat volume was 10 mL.[8,9,10]

Postoperative management

Early ambulation was encouraged from the first postoperative day, and patients were advised to resume normal daily activities progressively as tolerated.

The postoperative protocol included controlled penile stimulation intended to induce partial or complete erections. The rationale of this protocol was to help maintain separation of disrupted fibrotic tissue and to reduce the possibility of early reorganization. Repeated erectile activity may also favor local hemodynamic changes that could support remodeling processes.[8]

This protocol was usually started 7 days after surgery, once the suprapubic wound showed satisfactory early healing. In selected patients with more severe disease, earlier initiation could be considered under close medical supervision.

Outcome measures and statistical analysis

Clinical outcomes were evaluated at 12 months postoperatively. Therapeutic success was defined a priori as complete penile straightening, operationalized as residual curvature below 5 degrees, together with restoration of erectile function to the level reported before onset of Peyronie's disease.

Because the present dataset was structured as a retrospective consecutive series without a comparator group, the statistical analysis was descriptive. Categorical variables are reported as counts and percentages. Continuous summary statistics beyond eligibility ranges were not consistently available in the source dataset provided for the present manuscript and therefore are not overinterpreted.

Ethics and data availability

The study was conducted in accordance with the principles of the Declaration of Helsinki.[11]

All patients provided written informed consent to participate in data analysis and for the publication of anonymized clinical information.

Data availability statement: The datasets generated and analyzed during the current study are not publicly available because they contain potentially identifiable clinical information, but anonymized data can be made available from the corresponding author on reasonable request and subject to institutional and ethical restrictions.

RESULTS

A total of 325 patients met the study criteria and were included in the analysis. At 12 months, single-procedure therapeutic success was achieved in 221 of 325 patients (68%). A second procedure was required in 91 patients (28%), and a third procedure was required in 33 patients (10%). Before-and-after images at 1 year postoperatively should be included as Figures 2 to 5.

The most frequently observed postoperative complications were ecchymosis in 91 patients (28%) (Figure 6), cutaneous scar alterations in 52 patients (16%) (Figure7), and superficial skin lesions in 20 patients (6%). Most skin injuries were minor and were observed more often when superficial or calcified plaques were treated.

Additionally, localized fibrotic nodules or indurations were observed in 5 patients, predominantly along the lateral aspects of the penile shaft, likely related to the passage of the cannula during plaque disruption. Two cases of seroma were identified, both of which resolved with conservative management. Intraoperative bleeding occurred in 2 cases and was successfully controlled during the procedure without further complications.

No major intraoperative adverse events were identified in the study dataset provided for this review.

DISCUSSION

The surgical treatment of Peyronie's disease continues to require a balance between curvature correction, preservation of penile dimensions, and preservation of erectile function. In this retrospective series, the plaque disruption and biostimulation technique provides a tissue-preserving alternative that achieves clinically meaningful straightening after a first procedure in 68% of patients, with staged revision possible in additional cases. These findings add to the current surgical literature by describing a circumferential plaque-disruption strategy that extends beyond the dominant palpable plaque and combines mechanical release with adjunctive autologous nanofat grafting. Image 1,2,3.

Conventional surgical management has relied on plication, plaque incision or excision with grafting, and penile prosthesis implantation in selected men with severe concomitant erectile dysfunction.[5,6,7]

These methods remain effective and well established, but each has limitations. Plication may shorten penile length, whereas graft-based lengthening procedures are technically more demanding and may carry a greater risk of postoperative erectile dysfunction.[6,7]

Against this background, the present technique is clinically relevant because it aims to preserve the tunica rather than shorten or excise it.

The conceptual basis of the technique is that controlled tangential fragmentation of fibrotic tissue may reduce the contractile effect of the plaque while avoiding broad tunical resection. Existing pathophysiologic literature has described Peyronie's disease as a disorder of dysregulated wound healing and extracellular matrix remodeling, which supports a mechanical-remodeling rationale for plaque release strategies.[3,4]

The circumferential extension of treatment beyond the main plaque is an additional distinctive feature of the method. Although this broader approach cannot be definitively validated by the present retrospective design, it is intended to address secondary fibrotic bands that may not be evident on palpation or routine ultrasound and that may contribute to recurrence.

The biostimulatory component of the procedure should be interpreted cautiously. Experimental and early translational studies have suggested that adipose-derived regenerative cells may modulate fibrosis and support tissue repair in Peyronie's disease models.[9,10]

At the same time, recent clinical evidence indicates that cell-based injections alone may be safe but do not necessarily produce substantial objective curvature correction.[10]

For this reason, the present findings are best interpreted as outcomes of the combined surgical strategy rather than proof of an isolated effect of nanofat.

The reintervention rates observed in this series, with 28% of patients requiring a second procedure and 10% requiring a third, are also informative. They indicate that Peyronie's disease remains heterogeneous in severity and response, particularly in patients with extensive fibrosis or complex plaque distribution. Rather than undermining the technique, these staged procedures reflect a pragmatic reconstructive strategy in which correction can be refined while still avoiding more aggressive tunical shortening or graft substitution in the initial operation.

The complication profile observed here is consistent with a minimally invasive, tissue-preserving approach. Ecchymosis was the most common event, whereas scar alterations and superficial skin lesions were less frequent and generally minor. The tendency toward hypertrophic or keloid scar changes may reflect altered wound-healing behavior in this patient population, but the present study was not designed to test that hypothesis.

The postoperative erection-stimulation protocol is another potentially relevant aspect of the technique. Mechanotransduction research has suggested that cyclic strain can influence cellular signaling and extracellular matrix behavior in Peyronie's disease-related tissue.[8]

Although the present study does not isolate the effect of postoperative stimulation, the protocol is biologically plausible and may help maintain tissue separation during the early remodeling phase.

This study has several limitations. First, the retrospective design introduces potential selection and information bias. Second, the study does not include a control group treated with plication, grafting, or another contemporary approach, so direct comparative effectiveness cannot be established. Third, detailed baseline demographic and functional variables were not consistently available in the source dataset provided for the present manuscript, which limits the granularity of outcome stratification. Fourth, the follow-up interval of 12 months does not fully capture long-term durability and late recurrence. Finally, because the intervention combines multiple operative components, the contribution of each individual step cannot be separated.

Despite these limitations, the study has important strengths. It reports a large consecutive clinical series, describes the operative steps in detail for reproducibility, and focuses on a surgical concept that is directly relevant to current reconstructive practice. The technique therefore expands the range of tunica-preserving options available for patients with Peyronie's disease.

CONCLUSIONS

The plaque disruption and biostimulation technique is a feasible and reproducible surgical option for Peyronie's disease.

In this retrospective series, it provides a clinically meaningful rate of penile straightening after a first procedure, allows staged correction when necessary, and is associated mainly with minor postoperative morbidity.

By combining circumferential fibrotic release with adjunctive autologous nanofat grafting, the technique contributes a tissue-preserving alternative to conventional shortening or graft-substitution procedures.

REFERENCES

1. Miner MM, Seftel AD, Nehra A, Ganz P, Kloner RA, Montorsi P, et al. Peyronie's disease: epidemiology, diagnosis, and management. Mayo Clin Proc. 2014;89(7):924-938.

2. La Pera G, Pescatori ES, Calabrese M, Boffini A, Colombo F, Andriani E, et al. Peyronie's disease: prevalence and association with cigarette smoking. A multicenter population-based study in men aged 50-69 years. Eur Urol. 2001;40(5):525-530.

3. Devine CJ Jr, Somers KD, Jordan GH, Schlossberg SM. Proposal: trauma as the cause of the Peyronie's lesion. J Urol. 1997;157(1):285-290.

4. Chi J, Bi W, Lou K, Ma J, Wu J, Cui Y. Research advances in Peyronie's disease: a comprehensive review on genomics, pathways, phenotypic manifestation, and therapeutic targets. Sex Med Rev. 2024;12(3):477-490.

5. Nehra A, Alterowitz R, Culkin DJ, Faraday MM, Hakim LS, Heidelbaugh JJ, et al. Peyronie's disease: AUA guideline. J Urol. 2015;194(3):745-753.

6. Hatzimouratidis K, Eardley I, Giuliano F, Hatzichristou D, Moncada I, Salonia A, Vardi Y, Wespes E. EAU guidelines on penile curvature. Eur Urol. 2012;62(3):543-552.

7. Segal RL, Burnett AL. Surgical management for Peyronie's disease. World J Mens Health. 2013;31(1):1-11.

8. Dellis A, Castiglione F, Ralph D, Muneer A. Stem cell therapy for the treatment of Peyronie's disease. Expert Opin Biol Ther. 2017;17(4):407-416.

9. World Medical Association. World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. JAMA. 2013;310(20):2191-2194.

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Figure 3

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Figure 5

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Figure 6

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Figure 7

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