

Plaque Excision and Corporoplasty with Buccal Mucosal Graft in Peyronie's Disease: Case Report

Peyronie Hastalığında Bukkal Mukozal Greft ile Plak Eksizyonu ve Korporoplasti: Olgu Sunumu

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ABSTRACT Peyronie's disease (PD) is defined as a disease characterized by penile deformities that can be seen with curvature and shortening, often accompanied by a palpable plaque. There are medical and surgical treatment options for PD. Despite significant advances in medical and conservative treatment modalities, surgical reconstruction remains the gold standard treatment for chronic stable phase in PD. Today's practice, the most popular surgical technique stands out as plate incision and grafting. In order to achieve the best functional result with the lowest complication rate, many graft materials have been tried, but no consensus has been reached about the ideal graft. In this case report, it is aimed to evaluate the efficacy and safety of buccal mucosal graft with tunica incision in a patient with stable phase PD.

Keywords: Penile induration; urogenital diseases; buccal mucosa; transplants

ÖZET Peyronie hastalığı (PH), eğrilik ve kısalma ile görülebilen, sıklıkla ele gelen bir plağın eşlik ettiği penil deformitelerle karakterize bir hastalık olarak tanımlanmaktadır. PH için tıbbi ve cerrahi tedavi seçenekleri mevcuttur. Tıbbi ve konservatif tedavi yöntemlerindeki önemli ilerlemelere rağmen PH'de kronik stabil fazın tedavisinde cerrahi rekonstrüksiyon altın standart tedavi olmaya devam etmektedir. Günümüz pratiğinde en popüler cerrahi teknik, plak eksizyonu ve greftleme olarak öne çıkmaktadır. En düşük komplikasyon oranıyla en iyi fonksiyonel sonucu elde etmek amacıyla birçok greft materyali denenmiş ancak ideal greft konusunda fikir birliğine varılamamıştır. Bu olgu sunumunda, stabil faz PH'li bir hastada bukkal mukozal greftin etkinliği ve güvenilirliğinin değerlendirilmesi amaçlanmaktadır.

Anahtar Kelimeler: Penis sertleşmesi; ürogenital hastalıklar; bukkal mukoza; transplantlar

Peyronie's disease (PD) is a benign condition that presents with a palpable fibrous plaque, penile pain, penile curvature and sexual dysfunction.^{1,2} Peyronie's "plaque" (scar) results from abnormal extracellular matrix (ECM) production.³ PD is differentiated into 2 phases; an acute inflammatory phase which present with penile pain and progressive penile curvature and a chronic stable phase which stable penile curvature without acute symptoms at least 12 months.⁴ The non-surgical treatment approach seems to be "multimodal therapy" in scientific literature. While oral medications and topical treatment usually treatment of chose at acute phase;

for stabile phase, surgery represent the gold standard of treatment. There are multiple surgical approaches with surgical goal is to restore satisfactory and comfortable erection for both patient and partner.⁵ The most preferred techniques are plication or plaque excision with grafting. Currently available graft materials classified as autologous tissues, ECM tissues, and synthetic materials. While saphenous vein grafts are the most widely used among autologous grafts it seems other graft materials include buccal mucosal graft, which most favored graft for urethroplasty is increasingly preferred today's practice.⁶

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Peer review under responsibility of Journal of Reconstructive Urology.

Received: 25 Sep 2023

Accepted: 16 Oct 2023

Available online: 19 Oct 2023

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CASE REPORT

In the physical examination of the 56-year-old patient who applied with the complaints of penile curvature and difficulty in intercourse for 2 years, approximately 2 cm plaque was palpated in the dorsal mid-line of the penis. Pain was absent and there was no arterial insufficiency on penile duplex ultrasound. It was learned that the patient had received colchicine and vitamin therapy for about 1 year after his complaint that started spontaneously, and that the curvature had been the same for the last 1.5 years and did not progress. After intracavernosal injection of 0.05 g of papaverine, an erection was achieved. It was observed that there was approximately 80 degrees of dorsal-right directional curvature. Her international erectile function form (IIEF-5) score was 16. Plaque excision and buccal mucosal graft application were decided after giving information about the operation methods and risks after the test. An informed consent form was obtained from the patient.

Operation performed under general anesthesia, after penile degloving, the Bucks fascia was carefully divided under clear vision, the dorsal neurovascular bundle was mobilized, and an intraoperative erection was created by injecting 0.9% NaCl into the corpus cavernosum with a 23 G butterfly needle until an erection was achieved (Figure 1). After an H-shaped incision of the plate in the region of maximal curvature, the penis was manually stretched to examine the underlying cavernous tissue and measure the size of the cavity to be filled with buccal mucosa. Afterwards, 3.5 cm of free buccal mucosa was removed from the cheek. The defect in the cheek was closed with Ethicon 2-0 PGA Vicryl® SH Needle 27 (Violet Braided, USA). The graft was prepared to be 30% larger than the incision in the tunica albuginea. The buccal mucosal graft was continuously sutured to the tunica albuginea of the incised corpus cavernosum with Ethicon PDS II (Polydioxanone) sutures (4/0, USA) (Figure 2). Then, to evaluate the angle of curvature, artificial erection was achieved again with a 23 G butterfly needle with 0.9% NaCl, and the curvature was corrected (Figure 3). Separate intermittent catgut sutures were applied to the edges of Buck's fascia. The skin was closed with rapid vicryl. Coban tape (Usmed Octacare Coban

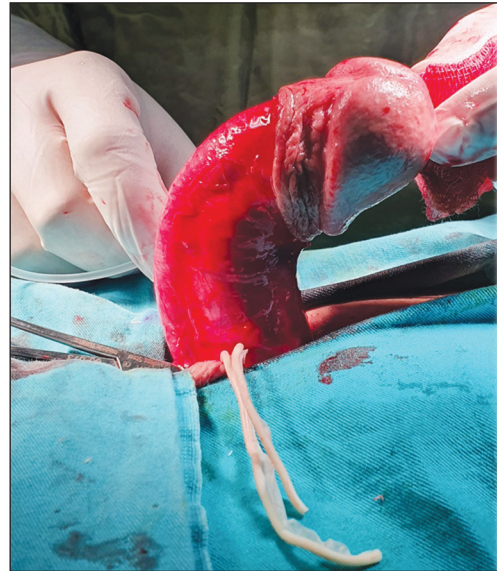


FIGURE 1: Appearance of the affected side during artificial erection.



FIGURE 2: Buccal mucosal and cavity grafting after H-shaped cutting of the plate in the region of maximal curvature and careful separation of the tunica albuginea from the underlying cavernous tissue.

Bandage, Türkiye) was applied on the penile dressing. The surgical procedure was completed in approximately 100 minutes.

The patient was discharged on the postoperative 1st day, and outpatient control was planned at the 3rd and 6th months after the operation. The patient was prescribed tadalafil 5 mg to start 1 week after surgery and use for 2 months. Penile length and residual cur-



FIGURE 3: Postoperative view with artificial erection showing that the curvature is corrected.

vature were measured during the erection triggered by 0.05 g papaverine at the outpatient clinic control at the 3rd month. It was observed that the angle was <15% and the length increase on the affected side of the penis was 2 cm. IIEF-5 scores were found to be 22 points at 3 months and 24 points at 6 months. It was understood that the satisfaction of the sexual partner was satisfactory at the 3rd and 6th month controls.

DISCUSSION

PD is a challenging condition for both patients and healthcare providers due to its impact on sexual function and overall quality of life. In our case report, we describe a successful surgical intervention involving plaque excision and corporoplasty with a buccal mucosal graft, highlighting the promising outcomes for this technique in the management of PD.

When it comes to managing PD, the selection of a surgical approach becomes a pivotal decision due to the potential variations in outcomes. While procedures such as tunical wedge resection and plication have long been recognized as conventional methods for addressing PD, they have been associated with the potential side effect of penile shortening, a significant concern expressed by many patients.⁷ In contrast,

plaque excision and grafting offer an alternative that can potentially avoid this complication. Our case exemplifies the advantages of this approach in achieving not only functional but also aesthetic results.

The selection of an appropriate graft material is a critical decision in plaque excision and corporoplasty. Autologous grafts, ECM tissues, and synthetic materials all have their merits, but each presents its own set of challenges. Among autologous grafts, options such as the saphenous vein, tunica vaginalis, fascia lata, rectus fascia, and buccal mucosa have been explored.⁶ The buccal mucosal graft, which is more commonly associated with urological procedures like urethroplasty and redo hypospadias surgery, has gained traction in the context of PD surgery. Recent studies have demonstrated an increased interest in buccal grafts, underscoring their potential benefits.⁷

The buccal mucosa possesses several characteristics that make it an attractive choice for grafting in PD surgery. Its durability, thick epithelium, thin lamina propria, and dense panlaminar vascular plexus make it relatively easy to excise and prepare. Additionally, the buccal mucosa offers early tissue compatibility, which can be crucial for successful graft integration. Notably, preclinical studies have suggested that the buccal mucosa is associated with less fibrosis than skin grafts.⁸ Our case report aligns with these findings, as we observed structural and functional improvements in our patient, corroborating the positive outcomes reported in the existing literature.

This case adds to the growing body of evidence supporting the safety and efficacy of buccal mucosal grafting in PD. The patient's postoperative outcomes, including a significant reduction in curvature angle, an increase in penile length, and improved erectile function (as measured by IIEF-5 scores), highlight the potential advantages of this surgical approach. Furthermore, the satisfaction of both the patient and their sexual partner underscores the importance of addressing not only the physical but also the psychological aspects of PD.

In conclusion, plaque excision and corporoplasty with a buccal mucosal graft represent a promising surgical option for managing PD. This case report

contributes to the growing body of evidence supporting the use of buccal mucosa as a graft material in PD surgery. While further research and long-term follow-up studies are needed, our findings suggest that this approach can result in both structural and functional improvements, ultimately enhancing the overall quality of life for patients with PD.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Halil İbrahim İvelik, İbrahim Güven Kartal; **Design:** Halil İbrahim İvelik, Okan Alkış; **Control/Supervision:** Bekir Aras, İbrahim Güven Kartal; **Data Collection and/or Processing:** Şeref Coşer, Halil İbrahim İvelik; **Analysis and/or Interpretation:** Mahmut Sevim; **Literature Review:** Halil İbrahim İvelik, Şeref Coşer; **Materials:** Şeref Coşer.

REFERENCES

1. Jalkut M, Gonzalez-Cadavid N, Rajfer J. Peyronie's disease: a review. *Rev Urol.* 2003;5(3):142-8. [[PubMed](#)] [[PMC](#)]
2. Fabiani A, Servi L, Fioretti F, Maurelli V, Tombolini F, Filosa A, et al. Buccal mucosa is a promising graft in Peyronie's disease surgery. Our experience and a brief literature review on autologous grafting materials. *Arch Ital Urol Androl.* 2016;88(2):115-21. [[Crossref](#)] [[PubMed](#)]
3. Ziegelmann MJ, Bajic P, Levine LA. Peyronie's disease: Contemporary evaluation and management. *Int J Urol.* 2020;27(6):504-16. [[Crossref](#)] [[PubMed](#)]
4. Nehra A, Alterowitz R, Culkin DJ, Faraday MM, Hakim LS, Heidelbaugh JJ, et al; American Urological Association Education and Research, Inc., Peyronie's Disease: AUA Guideline. *J Urol.* 2015;194(3):745-53. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
5. Nelson CJ, Mulhall JP. Psychological impact of Peyronie's disease: a review. *J Sex Med.* 2013;10(3):653-60. [[Crossref](#)] [[PubMed](#)]
6. Kadioglu A, Sanli O, Akman T, Ersay A, Guven S, Mammadov F. Graft materials in Peyronie's disease surgery: a comprehensive review. *J Sex Med.* 2007;4(3):581-95. [[Crossref](#)] [[PubMed](#)]
7. Ainayev Y, Zhanbyrbekuly U, Gaipov A, Suleiman M, Kadyrzhanuly K, Kissamedenov N, et al. Surgical reconstruction of penile curvature due to Peyronie's disease by plaque incision and buccal mucosa Graft. *J Sex Med.* 2021;18(7):1308-16. [[Crossref](#)] [[PubMed](#)]
8. Horiguchi A. Substitution urethroplasty using oral mucosa graft for male anterior urethral stricture disease: Current topics and reviews. *Int J Urol.* 2017;24(7):493-503. [[Crossref](#)] [[PubMed](#)]