ABSTRACT

**Introduction:** Peyronie’s disease (PD) is a progressive fibrotic tissue disorder of the penile tunica albuginea. PD can cause the formation of fibrous plaques, penile deformity, pain during erection, penile curvature, and erectile dysfunction (ED). Surgical treatment is the gold standard in PD because it is a fast and reliable therapy. There are many surgical options for PD such as plication procedures, incision and grafting procedures, and implantation of penile prosthesis. There are three types of graft material have been reported: autologous graft, xenograft and synthetic graft. Considering the higher rate of infections, inflammatory reactions and allergies, synthetic grafts are rarely used. Autologous graft is currently widely used because of the incidence of inflammatory reactions and low allergic reactions. Tunica vaginalis grafts are rarely used widely. Testicular tunica vaginalis was first reported as an autologous graft in 1980.

**Case Report:** A 53-year-old man comes to the urology clinic at Sidowaras Hospital complaining of pain during erection and erection cannot be straight. This complaint has been felt since a few months ago but the patient ignored it. An assessment of ED with International Index of Erectile Function (IIEF)-5 score obtained a score of 12 (mild-moderate dysfunction). Physical examination found a curvature of the penis around 70° and in palpation there was a hard lump on the dorsal penis. After the diagnosis was made, testicular tunica vaginalis grafting procedure was performed on this patient. At a 6-month re-evaluation after surgery, patient-reported reduced penile pain on erection with improved erectile function score (IIEF)-5 score 21 (mild dysfunction).

**Conclusion:** Testicular tunica vaginalis grafting was chosen because it is feasible and safe for patient with PD. Testicular tunica vaginalis grafting used due to their easy incorporation into host tissue and few incidences of local inflammatory reaction.

**Keywords:** Peyronie’s disease, grafting, erectile dysfunction

**Cite this Article:** Husein, R., Pratanu, A. 2020. Testicular tunica vaginalis grafting for the treatment of Peyronie’s disease: a case report. *Intisari Sains Medis* 11(1): 137-139. DOI: 10.15562/ism.v11i1.612

INTRODUCTION

Peyronie’s disease (PD) is a progressive fibrotic tissue disorder of the penile tunica albuginea. PD can cause fibrous plaque formation, penile deformity, erectile pain, penile curvature, and erectile dysfunction (DE). PD contains two inflammatory phase: acute and chronic phase. Medical therapy is used for the acute phase or those unfit for surgery. Surgery is the gold standard in PD because it is a fast and reliable therapy. There are many surgical options for PD such as plication procedures, incision and grafting procedures, and implantation of penile prosthesis. There are three types of graft material have been reported: autologous graft, xenograft and synthetic graft. Considering the higher rate of infections, inflammatory reactions and allergies, synthetic grafts are rarely used. Autologous graft is currently widely used because of the incidence of inflammatory reactions and low allergic reactions. Tunica vaginalis grafts are rarely used widely. Testicular tunica vaginalis was first reported as an autologous graft in 1980.

CASE REPORT

A 53-year-old man comes to the urology clinic at Sidowaras Hospital complaining of pain during erection and erection cannot be straight. This complaint has been felt since a few months ago but the patient ignored it. There was no prior trauma to the penile shaft and no previous history of penile or perineal surgery. He had no urethral instrumentation or catheterisation in the past and his urinary stream was normal. He has no history of diabetes and hypertension. An assessment of ED with International Index of Erectile Function (IIEF)-5 score obtained a score of 12 (mild-moderate dysfunction). He has a body mass index of 20.76 kg/m². Physical examination found a curvature of the penis around 70° and in palpation there was a hard lump on the dorsal penis (Figure 1).

After the diagnosis was made, tunica vaginalis grafting procedure was performed on this patient. A circumferential skin incision was made around the coronary sulcus to deglove penile shaft to the base of penis. Lateral dissection was performed and neurovascular bundle mobilization. Plaque size of about 2x1.5 cm was obtained (Figure 2). A longitudinal incision was made at the anterior wall
CASE REPORT

Published by DiscoverSys | Intisari Sains Medis 2020; 11(1): 137-139 | doi: 10.15562/ism.v11i1.612

Figure 1 Curvature of penis

Figure 2 Degloving the penis

Figure 3 Tunica defect

Figure 4 Graft Suture into Buck’s fascia

of the scrotum. The parietal wall of tunica vaginalis was exposed for entry of the tunica cavity. The tunical defect was then measured and a graft was constructed 10% larger to accommodate possible graft contracture during the healing process (Figure 3). The graft was sutured into the defect in a watertight manner and Buck’s fascia was then reapproximated (Figure 4). Artificial erection was induced by injecting saline into the corpus penis to assess penile curvature and potential vascular leakage. Lastly, the penile skin was sutured with interrupted sutures.

After the operation, ciprofloxacin oral was used. The catheter was removed within 24 h. During the follow-up, the patient received interview and physical examination every month. On re-evaluation 6 months after surgery, patient’s reported complaints of pain when the erection was reduced and there was an increase in the International Index of Erectile Function (IIEF) -5 score of 21 (mild dysfunction).

DISCUSSION

The aetiology of PD is still unknown, but several authors have attributed different causative factors which include penile trauma associated with delaminating injuries to tunica albuginea and wound healing disorders, genetics, autoimmune disorders, connective tissue disorders (Dupuytren’s contracture), and vascular disorders.5 Hypertension, Dupuytren’s contracture, dyslipidemia, smoking, penile trauma during sexual intercourse, urethral catheterisation/manipulation, and pelvic surgeries are other proposed risk factors.5,6

PD contains two inflammatory phase; acute and chronic phase.6 The acute phase, usually occurring for 6-18 months from the onset of the disease, is characterised by increasing plaque size, penile curvature, and pain during erection.6,7 The chronic phase is characterised by absence of penile pain, unchanging penile curvature, and plaque size.6,7 Clinical presentation of PD includes painful penile erection, penile deformity, flail penis on erection, and ED.6

This patient’s International Index of Erectile Function (IIEF) -5 score is 12 (mild-moderate dysfunction). Predisposing factors to ED in patients with PD include penile deformity and pain, which may affect sexual function, performance anxiety due to penile deformity, may make intercourse less
enjoyable and embarrassment in the presence of his partner.  

Surgical treatment for PD is necessary if the patient had extensive plaque calcification, decreased sexual function related to PD, ineffective medical treatment or desire for fast and reliable results. Three surgical methods can be used for PD: penile tunica albuginea plication, grafting procedures, and penile prosthesis implantation. Tunica albuginea plication is a relatively simple surgical procedure. However, it may lead to postoperative penile shortening. Penile prosthesis implantation is technically complicated and expensive. Grafting procedures are now the focus of surgical treatment for PD. The material selection is currently controversial. Autologous graft, xenograft and synthetic graft can be used. The ideal graft material should be readily available, pliable, inexpensive, resistant to infection and able to preserve erectile function. Autologous graft is most commonly used due to their easy incorporation into host tissue and few incidences of local inflammatory reaction.

In this case, we chose the tunica vaginalis of testis for repairing PD. The first is that tunica vaginalis is relatively superficial and convenient to harvest. Tunica vaginalis has a minimal tissue reaction, resistant to infection and has minimal morbidity. Compared with synthetic graft, the autologous graft is more economical and has lower risk of graft removal due to postoperative infection. Second, tunica vaginalis has uniform thickness and good flexibility and elasticity to guarantee the penile erection. Furthermore, tunica vaginalis incision is more safe and simple than other autologous graft such as vein wall, rectus sheath, and buccal mucosa. No significant surface scars, pains, and regional complications occurred after operation.

Postoperative rehabilitation is recommended to reduce the risk of postoperative erectile dysfunction, improve recovery of erectile function, and reduce the risk of decreased penile length after surgery. During the follow-up, the patient had no recurrence of fibrotic plaque or curvature at the graft site. The benefits that most patients feel improving penis appearance and sexual satisfaction. After 6 months of evaluation there was an increase in the International Index of Erectile Function (IIEF) -5 score of 21 (mild dysfunction).

CONCLUSION

Testicular tunica vaginalis grafting was chosen because it is feasible and safe for patient with PD. Testicular tunica vaginalis Grafting used due to their easy incorporation into host tissue and few incidences of local inflammatory reaction.

CONFLICT OF INTEREST

The authors did not have conflicts of interest with any party.

ETHICAL STATEMENT

The patients had received signed inform consent regarding publication of their photograph in the journal article.

FUNDING

The authors are responsible for the study funding without the involvement of grant, scholarship, or any other resource of funding.

AUTHOR CONTRIBUTIONS

All of authors are equally contribute to the manuscript from data extraction, follow up, until data interpretation.

REFERENCES

1. Ralph D, Gonzalez-Cadavid N, Miron V, Perovic S, Sohn M, Usta M, et al. The management of Peyronie’s disease: evidence-based 2010 guidelines. J Sex Med. 2010;7:2359–74.
2. Gur S, Limin M, Hellstrom WJ. Current status of the surgical management of Peyronie’s disease: medical, minimally invasive and surgical treatment options. Expert Opin Pharmacother. 2011;12:931–44.
3. Oberlin DT, Liu JS, Hofer MD, Ilose J, Matulewicz RS, Flury SC, et al. An Analysis of Case Logs From American Urologists in the Treatment of Peyronie’s Disease. Urology. 2016 Jan. 87:205–9.
4. Das S. Peyronie’s disease: Excision and autografting with tunica vaginalis. J Urol. 1980;124:818–9.
5. Herati AS, Pastuszak AW. The Genetic Basis of Peyronie Disease: A Review. Sex Med Rev. 2016;4(1):85–94
6. Usta MF, Bivalacqua TJ, Jabren GW, Myers L, Sanabria J, Sikka SC, et al. Relationship between the severity of penile curvature and the presence of comorbidities in men with Peyronie’s disease. J Urol. 2004;171(2):775–9.
7. Ege Can Serefoglu, Wayne J. G. Hellstrom. Treatment of Peyronie’s Disease: 2012 Update. Curr Urol Rep. 2011;12:444–452.
8. Walsh PC, Retik AB, Vaughan ED, Wein AJ. Campbell’s Urology 8th ed. Philadelphia: WB Saunders; 2002: p. 722–748.
9. Ahmet Gokce, Julie C Wang, Mary K Powers, Wayne JG Hellstrom. Current and emerging treatment options for Peyronie’s disease. Research and Reports in Urology. 2013;5:17–27.
10. Bianjiang Liu, Quan Li, Gong Cheng, Ninghong Song, Min Gu, Zenglian Wang, et al. Surgical treatment of Peyronie’s disease with autologous tunica vaginalis of testis. BMC Urology. 2016;16:1.