

Management of Peyronie's Disease by Dermal Grafting

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ABSTRACT

Purpose: To evaluate the results of plaque excision and dermal grafting in Peyronie's disease.

Materials and Methods: Twenty seven patients were scheduled to undergo plaque excision and dermal grafting for Peyronie's disease. Potency, bending of erected penis, and having painful erection were evaluated in patients before and after operation. To evaluate erectile dysfunction, we used International Index of Erectile Function (IIEF) by interviewing the patients and filling questionnaires by their partners. Doppler ultrasonography was used to determine the vascular competence of penis before and after operation in 15 patients.

Results: The disease was more prevalent between the ages of 40 and 60 years. Plaques were located as follows: dorsal in 18, right lateral in 6 and left lateral in 3. Mean plaque size was 11 (range 5 to 18) mm. After plaque excision and dermal grafting, penile deformity, erectile dysfunction, and painful erection had remained yet in 4 (15%) out of 27, 3 (16%) out of 19, and 3 (14%) out of 22, respectively. Doppler ultrasonographic study in 15 patients revealed improvement in peak systolic velocity ($p < 0.01$). In addition, a decrease in end diastolic velocity was noted also that was not significant statistically ($p = 0.26$). Resistive index did not improve after operation.

Conclusion: This procedure showed significant improvement in penile deformity (85% of cases), erectile dysfunction (84% of cases) and painful erection (86% of cases). We recommend plaque excision and dermal grafting as an effective procedure in treating Peyronie's disease.

KEY WORDS: impotence, dermal grafting, Peyronie's disease

Introduction

The incidence of symptomatic Peyronie's disease is estimated to be 1% and its asymptomatic prevalence is between 0.4% and 1%. In 100 autopsies from previously asymptomatic individuals, 22 cases of Peyronie's like lesions were found. Moreover, it seems that the incidence of the disease is in progress.⁽¹⁾ Thus, finding an appropriate therapy is getting more crucial.

It is suggested that trauma is the trigger event.⁽²⁾ The result is a plaque formation, which impede dilation of tunica albuginea during the erection.⁽¹⁾ Changes in the appearance and the tissue of tunica albuginea is the characteristic pathology. Induration may occur within the tunica albuginea with or without lymphocyte infiltration.⁽³⁾ This disease can lead to painful erection,

bending of erected penis, and in advanced stages, erectile dysfunction (43%).⁽⁴⁾ According to various studies, improvement occurs spontaneously in 13% of the patients. In 47%, complications persist and in 40% progress gradually.⁽⁵⁾ Several therapeutic options are available: medical treatments such as Orgotein (an anti-inflammatory drug)⁽⁶⁾, vitamin E⁽⁷⁾, Tamoxifen⁽⁸⁾, Verapamil⁽⁹⁾, Cholchicine⁽¹⁰⁾, and intralesional Triamcinolone⁽¹¹⁾ and even radiotherapy or surgical approaches.

Various surgical procedures have been used to date. One of the increasingly accepted methods is dermal grafting.⁽¹⁾ In a study of 20 patients who underwent plaque excision and dermal grafting, ample erection for satisfactory intercourse was achieved postoperatively in 4 of 4 patients (100%) with erectile dysfunction.⁽¹²⁾ Considering the high prevalence of Peyronie's disease and its impact on

patients' quality of life, and regarding the outcomes of the studies on dermal grafting in other countries, we decided to investigate the results of plaque excision and dermal grafting in Iranian patients.

Materials and Methods

Thirty five patients were evaluated between September 1992 and February 1998 at Sina hospital. Twenty-four of them had the indication for surgery and underwent plaque excision with dermal grafting by a single surgeon. We used a hairless area in the superio-lateral side of iliac crest of the abdominal skin for obtaining dermis. Epidermis was removed and derma was grafted. Mean follow-up was 12 (range 9 to 72) months. Each patient who met these criteria was included: a minimum of 1-year unsuccessful medical treatment, age of less than 65, and the location of plaque on the inferior or lateral surface of penis. A written consent was signed by the patients preceded with explaining the procedure and its complications. Patients who were over 65, had no plaque, were not interested in surgical therapy, or were given medical treatment less than one year were excluded. Data were collected through interview, questionnaires filled out by the patient and his sexual partner, and physical examination before and after the procedure. Erectile dysfunction, painful erection, and bending erected penis were evaluated using International Index of Erectile Function (IIEF).

In order to quantify postoperative symptoms, we graded the patients based on the surgeon and patient's point of view as follows:

Grade 1: only one symptom resolved or all the symptoms remained.

Grade 2: two symptoms were relieved.

Grade 3: no symptom remained.

Statistical analysis was performed by SPSS software, using Paired t test. The P value of less than 0.05 was regarded significant.

Results

Twenty seven out of 35 were selected to undergo the operation. They were classified by age (table 1). Mean age was 56 (range 36 to 64) years. Similar to the results of other studies, Peyronie's disease was more prevalent in the patients between 40 and 60 years old.

All the patients underwent plaque excision with dermal grafting. Plaque was located right-laterally

TABLE 1. *Patients' age distribution*

Age	Number (percent)
<40 years	3 (11.3%)
40-60 years	18 (66.4%)
>60 years	6 (22.3%)
Total	27 (100%)

in 6, posteriorly in 18, and left laterally in 34. Mean plaque size was 11 (range 5 to 18) mm. Nineteen patients had erectile dysfunction (70%), based on the IIEF scoring, 22 (81%) had painful erection, and all of the cases (100%) suffered from bending erected penis. Postoperatively, penile deformity, erectile dysfunction, and painful erection were found in 4 (15%) out of 27, 3 (16%) out of 19, and 3 (14%) out of 22, respectively (tables 2,3). The remainder were improved ($p<0.001$). Doppler ultrasonography was performed in 15 cases; Peak Systolic Velocity increased significantly ($p<0.01$) and End Diastolic Velocity had slight decrease which was not statistically significant ($p=0.26$). Resistive index did not improve after the surgery (table 4). According to our grading, 23 patients had no unresolved symptom (grade 3). One case of bending erected penis remained unresolved (grade 2) and 3 patients still had painful erection, erectile dysfunction, and bending erected penis (grade 1).

Discussion

Peyronie's disease is not a rare condition. Despite of its self-limiting nature and the availability of a series of non-invasive treatments, in some cases with failure of conservative therapies and

TABLE 2. *IIEF results before and after dermal grafting in 27 patients underwent the surgery*

Erectile Dysfunction intensity	Before the Operation	After the Operation
	Number (percent)	Number (percent)
Mild	3 (16%)	0 (0%)
Moderate	7 (37%)	2 (66.7%)
Severe	9 (47%)	1 (33.3%)

Mild: 5-7 scores, Moderate: 8-16 scores, Severe: 17-21 scores

TABLE 3. *The effect of plaque excision and dermal grafting on painful erection, erectile dysfunction, and erected penis bending*

	Painful Erection	Erectile Dysfunction	Erected Penis Bending
Before the Operation	22 (87%)	19 (70%)	27 (100%)
After the Operation	3 (11%)	3 (11%)	4 (15%)
P value	<0.001	<0.001	<0.001

TABLE 4. Doppler ultrasonographic results before and after dermal grafting in 15 patients with Peyronie's disease

	Before the Operation	After the Operation	P value
PSV	22 cm/sec	38 cm/sec	<0.01
EDV	8 cm/sec	3 cm/sec	0.26
RI	102 cm/sec	101 cm/sec	

PSV: peak systolic velocity, EDV: end diastolic velocity, RI: resistive index

severe deformity and erectile dysfunction, surgical correction would be warranted. The most common surgical methods are Nesbit's Tucking technique, its excision-plication type, and Free Dermal Grafting introduced by Devine and Horton.⁽¹³⁾ In this study, 27 patients needed surgical intervention and dermal grafting of whom 70% had erectile dysfunction, similar to those in previous reports.⁽¹⁴⁻¹⁶⁾ The rate of erectile dysfunction was reduced to 11% (3 cases) after the procedure ($p < 0.001$). The frequency of painful erection and bending erected penis improved significantly after the surgery; painful erection was reduced from 81% to 11% and bending erected penis had a decline from 100% to 15% (table 3) ($p < 0.001$). It means that plaque excision and dermal grafting has encouraging outcomes in the resolving of bending erected penis (85% of cases), sexual dysfunction (84%), and painful erection (86%) ($p < 0.001$). Regarding Horton and Devine study⁽¹⁷⁾, dermal grafting is effective in relieving pain and deformity (84%) that is comparable with our study. Similarly, O'Brien and Hicks have shown a 75% improvement of the patient's symptoms. However, Bystorm et al have reported desirable primary results, but the long-term outcomes had been satisfactory only in 6 out of 17 cases.⁽¹⁹⁾ We followed up the patients for an average of 12 (range 9 to 72) months and further follow-up to obtain more accurate results is in process.

Twenty three patients had complete resolution (grade 3), one had a relative improvement (grade 2), and 3 had no response to this operative approach (grade 1). Hence, this procedure yielded eligible outcomes without any remained symptom in 85% of the cases.

According to this study, Peyronie's disease can be manifested with erectile dysfunction (70%), but it may be accompanied by other causes of erectile dysfunction (11%). Venous leakage before and after plaque excision and dermal grafting is the main cause of sexual dysfunction in these patients.⁽²⁰⁾ To date, Nesbit's and even modified

Nesbit's techniques are the procedures of choice in patients not responding to conservative methods^(21,22); however, we can recommend plaque excision and dermal grafting as an alternative therapy in patients who have not responded to medical treatment.

Conclusion

According to our findings, plaque excision and dermal grafting has eligible outcomes in ameliorating erectile dysfunction, bending erected penis, and painful erection. We recommend this approach as one of the treatments of choice in Peyronie's disease.

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Editorial Comment

The authors are to be commended on certain aspects of the study design, including objective pretreatment and post treatment of penile curvature with intracavernous injection and measurement of curvature by a blinded person. Penile duplex scanning should be used to identify patients with preoperative abnormalities of either

arterial inflow or venous outflow. These are patients at significant risk for spontaneous postoperative erectile dysfunction. These should have been discussed in details.

In this study 84% of the patients had satisfactory intercourse after surgery. The definition of sexual function is vague in this study. The author's should also be commended for very high successful results and very low complication rates. The complication rate after plaque excision and dermal grafting is high,(1) and the success rate is not as good as reported by authors. Unfortunately the authors have not explained which questions of the IIEF were used. It is can be well recognized the patients under- and over-report certain symptoms to the physician after surgical procedures or medical treatments.

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Reply By Author

First, it is necessary to remember that in all patients who had erectile dysfunction before operation, we did perform Doppler ultrasonography to rule out vascular impotence. Second, IIEF-5 questionnaire was used for scoring the patients. Details are shown in table 2.

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