Peyronie's Disease: Patient Satisfaction Post Plaque Excision with Dermal Grafting

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Abstract

Research Question

This project aims to address the question, "In men with Peyronie's disease, does plaque excision with autologous dermal grafting with or without tunica plication provide superior results to tunica plication alone?"

Background, Significance, and Rationale

Peyronie's Disease is an acquired disorder of the penis that results in penile deformity, pain, mass, and in some, erectile dysfunction. Severe fibrosis in Peyronie's Disease can be treated with surgery. Two common surgical methods, plaque excision and tunica plication, have been shown to successfully straighten the penile curvature associated with Peyronie's disease. It has been suggested that the risk of worsening erectile dysfunction is greater with plaque excision than with the plication surgery. The association between erectile dysfunction and either surgical technique remains unclear. Therefore, this misconception that plaque excision with dermal grafting is associated with a greater risk of worsening erectile dysfunction is misleading and potentially hinders patient care. Although there are other non-surgical options for treatment, many of which aim to reduce symptoms, surgery provides a cure for Peyronie's disease by correcting curvature and, of great importance, increasing the patient's self-confidence. The primary focus of this research aimed to investigate these claims and measure the effectiveness of plaque excision with dermal grafting surgery.

Materials and Methods

Patient satisfaction was assessed with the outcome of surgery regarding erectile dysfunction, penile curvature, and perception of a successful reconstructive penile surgery. Under the direction of Dr. Charles L. Secrest, and in accordance with Baylor Scott and White Institutional Review Board, information from patient charts regarding patient satisfaction, penile curvature, and erectile dysfunction pre- and post-surgery was collected and analyzed using statistical analysis.

Results

Twenty-three percent of the sample experienced no change in curvature and 77% experienced an improvement in curvature. No patients experienced an increase in curvature. With regard to the Sexual Health Inventory in Men (SHIM) questionnaire scores: whereas there was a small positive mean increase over time, this increase was not statistically significant. The paired-sample t-test comparing the pretest numeric curvature scores to their posttest numeric curvature scores showed a difference that was negative and significant, $t(19) = 8.12$, $p<.001$. The effect size for this mean difference was large, $d=1.80$. This means the sample experienced a statistically significant decrease in curvature from pre- to post-operation.

Conclusion

In conclusion, these statistically significant results support the hypothesis that plaque excision with dermal grafting is an effective surgery to reduce curvature and increase patient satisfaction.

Research Question

The research question addressed in this project is, “In men with Peyronie's disease, does plaque excision with autologous dermal grafting with or without tunica plication provide superior results to tunica plication alone?” We investigated this question by comparing pre-and post-operation erectile function and curvature. The study explored the contemporary outcomes of plaque excision with dermal grafting by measuring and comparing the pre- and post-operation variables of patient satisfaction. The data was then considered in the context of existing literature and studies regarding surgical management of Peyronie’s Disease.

Introduction, Significance, and Rationale

Severe penile fibrosis in Peyronie's Disease can be treated with physical therapy, plaque injection, or surgery. Two common surgical methods, plaque excision with autologous dermal grafting and tunica plication of the unaffected side, have been shown to successfully straighten the penile curvature associated with Peyronie's disease. It has been suggested that the plaque excision with autologous dermal grafting method is associated with risks related to erectile dysfunction and that the tunica plication procedure is the preferred and safer method. The primary focus of our research involved investigating and measuring the results and effectiveness of the plaque excision with grafting method.

Peyronie's Disease is relatively common in the United States according to a population-based study in the United States that sampled men 18 years and older. The study established a prevalence of .5% for men who had been diagnosed with Peyronie's Disease.[1] However, another research study in the United States of men 40 years and older that screened for prostate cancer reported a prevalence of 8.5%.[2] These widely differing values suggest that Peyronie's Disease may be underrated.

Certain aspects of the treatment algorithm for Peyronie's Disease may have the opportunity for revision and improvement. Current management options come with risks and benefits, which must be weighed. The use of intralesional collagenase has been reported to have a high percentage of adverse effects, the most severe being corporal rupture and penile hematoma.[3] Surgical management options may result in penile shortening, erectile dysfunction, and penile hematoma. Regarding surgical techniques, this research will investigate the suggestion that the plaque excision with dermal grafting technique is associated with increased risks related to erectile dysfunction compared to the tunica plication technique. The indeterminate and inconclusive relationship between each procedure and penile function potentially prevents the patient from receiving the best care possible. Additionally, the potential risks of surgery and use of intralesional collagenase should be carefully considered in the Peyronie's Disease treatment algorithm in order to ensure safe and successful patient outcomes.

A crucial aspect of improving patient outcomes is recognizing the serious psychosocial implications of Peyronie's Disease. Many men with Peyronie's Disease describe feeling upset, insecure, and depressed due to the affects this disease has on their personal well-being and sexual health. One study found that 48% of men with Peyronie's Disease have a clinically meaningful depression that would warrant medical evaluation.[4] Given this large percentage, it is imperative that physicians offer the best care and treatment possible to improve patient mental health and well-being. The impact that treatment or a cure can have on a patient's life has the potential to be life changing. Additionally, health care providers can better achieve this goal by taking a compassionate approach when eliciting and obtaining accurate information regarding expectations, results, and satisfaction when interacting with these patients. Having an accurate understanding of the patient's mental health and sexual history will better guide treatment options and outcomes.

Surgical correction via tunica plication has been shown to be a viable method of surgically correcting penile curvature in patients with Peyronie's disease and also represents the most common surgical strategy currently used to treat PD patients according to the American Urological Association (AUA).[5] The prevalence in the use of this method may be due

to the suggestion that the plaque excision with autologous dermal grafting method is associated with increased risks of complications compared to the tunica plication procedure, which can also be referred to as the Nesbit technique. In "Correction of penile curvature and Peyronie's Disease: why I prefer the Nesbit technique," Dr. John Pryor states that the complication rate after plaque excision and dermal grafting is high.[6] He found this technique to be unsatisfactory because of post-operative erectile dysfunction. Additionally, he also states that impaired blood supply would seem to explain the occurrence of and association with erectile dysfunction in the older age group, especially men in their sixth and seventh decades of life. This older age group represents the majority of patients with Peyronie's disease. Furthermore, Pryor acknowledges other studies that have shown only successful results and some studies that have not had any successful results with the plaque excision with dermal grafting method. These findings suggest that more research needs to occur to investigate the viability of the aforementioned surgical techniques.

Contrary to Pryor's findings, the research of Drs. Devine and Horton, the creators of the autologous dermal grafting surgical technique, provides encouraging results for this surgical technique. The surgery involves, "excision of the plaque and replacement of the diseased area of the tunica with a graft from the dermal layer of skin.[7]" Dr. Devine and his colleagues found that the plaque excision with autologous dermal grafting technique, "compares well with the results of other penile surgeries.[8]" This was based on the compilation and analysis of additional studies and the emphasis on the importance of evaluating patient expectations and understandings. Their research validates the potential sustainability of this surgical technique and provides a foundation in which our research will be carefully constructed from.

Since Dr. Devine's 1974 findings, limited studies have been conducted to address the outcomes of both plaque excision with dermal grafting and tunica plication. A more recent study done in 2008, by Dr. Frederick Taylor, evaluated both surgical correction methods with the purpose of reporting long-term postoperative results regarding rigidity, curvature, length, sensation, function and patient satisfaction.[9] The study reports on 142 patients who underwent tunica plication (61) or plaque excision with grafting (81). Dr. Taylor concluded that both methods are durable surgical therapies. Given the larger scale of this data, it appears that plaque excision with grafting is indeed a viable method for correcting curvature in patients with Peyronie's Disease.

The American Urological Association has developed Peyronie's Disease treatment guidelines for physicians to help determine the best route of care for patients. The AUA's guidelines are based on analysis of several data and currently indicate, "for most patients plication surgery results in curvature correction in the setting of a relatively low risk of serious adverse events." Importantly, the AUA panel also acknowledges that, "plication surgery is not a treatment for erectile dysfunction and that the consequence of plication surgery with regard to erectile function remains unclear.[5]" This interpretation does not support the previously mentioned suggestion that the tunica plication surgery is safer than autologous dermal grafting, particularly as it relates to the risk of erectile dysfunction. Similar to the treatment guidelines for tunica plication, the AUA Panel also concluded that the risks for adverse events is low post plaque excision with autologous dermal grafting and that this surgical strategy is not a treatment for erectile dysfunction, nor are the consequences of this surgery clear with regard to erectile function.[5] Even though more research has been conducted over the past several

years, the complications and superiority of either surgical procedures largely remains unclear. Our research adds to existing knowledge and brings some clarity to this medical opacity.

Given the significant variability in data, it is imperative to address the questions: Is tunica plication associated with shortening of the penis? Is plaque excision with grafting associated with greater risks of worsening erection function? Can we provide information to the public suggesting that one method is better than the other? Our research addressed these themes using retrospective chart review and patient questionnaires. Specifically, we show that correction of the curvature using plaque excision with autologous dermal grafting offers satisfactory results without a significant increase in new onset erectile dysfunction. These results could lead to improved patient satisfaction, outcomes, and revision of treatment protocol.

Research Materials and Methods

Our research sought to address the question, "In men with Peyronie's disease, does plaque excision with autologous dermal grafting with or without tunica plication provide superior results to tunica plication alone?" To address this question, we conducted an observational, retrospective analysis of patients with Peyronie's Disease who have underwent plaque excision with autologous dermal grafting with or without tunica plication.

Since the 1990s, Dr. Charles L. Secrest has performed over 500 surgeries involving plaque excision with dermal grafting. For this project, Dr. Secrest and I reviewed patient charts and connected with patients via mailed surveys to follow up and collect data regarding their post-operative success. All patients in this study have received treatment from Dr. Secrest, therefore we had the capacity to follow-up with them and seek their participation in this study. The rationale for reaching out to a portion of these patients was to obtain robust and current data that will add to the limited body of literature regarding the plaque excision with dermal grafting surgical technique. Penile curvature, erectile dysfunction, and patient satisfaction are the dependent variables of this study. The degree of penile curvature was both objectively and subjectively assessed by Dr. Secrest and the patient, using a modified illustration adopted from an article published in the BJU International[10]. Erectile dysfunction was measured using the SHIM questionnaire. Patient satisfaction was assessed using both variables in combination with patient commentary. These variables have been used in previous studies, which helps ensure comparability to pre-existing data.

The study contains data from patients who had the surgeries between 2019 and 2022. We reviewed patient chart records and questionnaire responses to collect the data. We then analyzed the data based on pre-operative and post-operative results. Post-operative data is reported at various time points. The data was inputted into Microsoft Excel and SPSS and analyzed using descriptive and inferential tests, such as the paired-sample t-test.

For descriptive analyses, we ran frequencies with descriptives on the major variables. We created a numeric scale for curvature based on a 6-point scale (1 = 0-15 degrees; 2 = 16-30 degrees; 3 = 31-45 degrees; 4 = 46-60 degrees; 5 = 61 – 90 degrees; 6 = 91+ degrees) for the purpose of comparing pre-operative to post-operative curvature. For post-operative time in months, we reported data in meaningful groups representing time points and displayed this information using a pie chart. We subtracted patient's posttest curvature numeric scores from their pretest curvature numeric scores to create a change in curvature variable. Doing so allowed us to quantify the percent of patients who did or did not experience a change in curvature after the surgery.

For inferential tests, we conducted paired-sample t-tests. We conducted this test to compare the means of pre-operative and post-operative total SHIM scores taken from the same individuals. We also conducted a paired-sample t-test comparing the pretest numeric curvature scores to their posttest numeric curvature scores for the same individuals. The purpose of employing this parametric test was to determine if the mean difference between the paired observations was statistically significant from zero.

At the beginning of our research, we predicted that patients would report less curvature, equal to or improved function, and improved overall satisfaction after the plaque excision with autologous dermal grafting surgery. Data from peri-operative notes was collected from patient charts and was interpreted and analyzed using SPSS statistical software. We

reported results using various graphics and included both statistically significant and insignificant findings. All analyzed variables reflect current standards of care and all variables can be found in the most pertinent and recent literature.

It is important to address ethical considerations when investigating research questions. We value and support patient autonomy, beneficence, non-maleficence, and justice in research and were fully compliant with local, state, and federal guidelines. This includes, but is not limited to, compliance with hospital policy, patient data privacy, and HIPPA law. We followed the Baylor Scott and White Institutional Review Board (IRB) process to ensure compliance with the institution's policies and to provide clear expectations for the project. We ensured patient confidentiality by identifying subjects by a unique subject identification number for study documentation. All information was kept in password protected systems accessible only by study authorized personnel. All tangible information from this research project was kept in a locked office or locked area. Digital and computerized information was kept safe from access by people who should not see it.

Furthermore, we considered the psychosocial aspect of Peyronie's Disease during our project. Accordingly, we employed an empathetic approach when communicating with patients, by creating questions that consider and reflect the sensitive nature of sexual health. We used standardized surveys and illustrations to help our patient population understand the reading materials.

Results

This study sought to determine patient outcomes pertaining to erectile function, satisfaction, and curvature. We analyzed data on a total of 45 patients, although we completed analyses on a smaller subset of patients. We had both pre-operation and post-operation SHIM data on 9 patients. We had both pre-operation and post-operation curvature data on 19 patients. We analyzed this data using SPSS software.

Analyses

- Descriptive Frequencies
    - We created a numeric scale for curvature based on the 6-point scale we had patients fill out and confirm to compare pre and post curvature.
    - For post-operation time in months, we grouped patients into meaningful time periods and used a pie chart to illustrate.
    - We subtracted patients' posttest curvature numeric scores from their pretest curvature numeric scores to create a change in curvature variable. Twenty-three percent of the sample experienced no change and 77% experienced an improvement (lessening) in curvature as shown in Figure 1. No one experienced an increase in curvature.
    - We grouped patients into two groups based on post-op follow up times. In the 6-to-12-month post-op follow up group, 14.3% of patients experienced no change in curvature and 85.7% of patients experienced an improvement or lessening in curvature, as shown in figure 2.
    - In the 13-to-35-month post-op follow up group, 17% of patients experienced no change in curvature and 83% of patients experienced an improvement in curvature, as shown in figure 3.
- Inferential Tests
    - We conducted a paired-sample t-test on pre and post SHIM total scores. Whereas there was a small positive mean increase over time, this increase was not statistically significant, $t(8) = -.13$, $p = .90$, as reported in figure 4.
    - We conducted a paired-sample t-test comparing the pretest numeric curvature scores to their posttest numeric curvature scores. This difference was negative and significant, $t(19) = 8.12$, $p<.001$. The effect size for this mean difference was large, $d = 1.80$. This means the sample experienced a statistically significant decrease in curvature from pre- to post-operation, as reported in figure 5.

Figure 1: Post-Op Change in Curvature (All Patients)

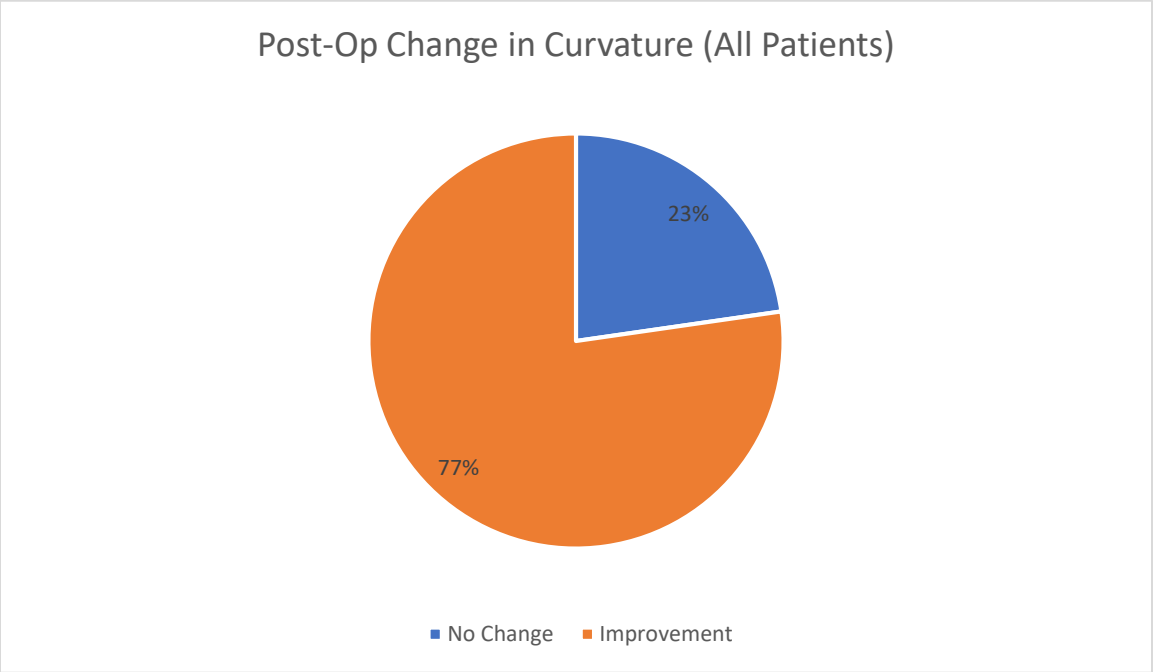

Figure 2: Post-Op Change in Curvature (6-12 months)

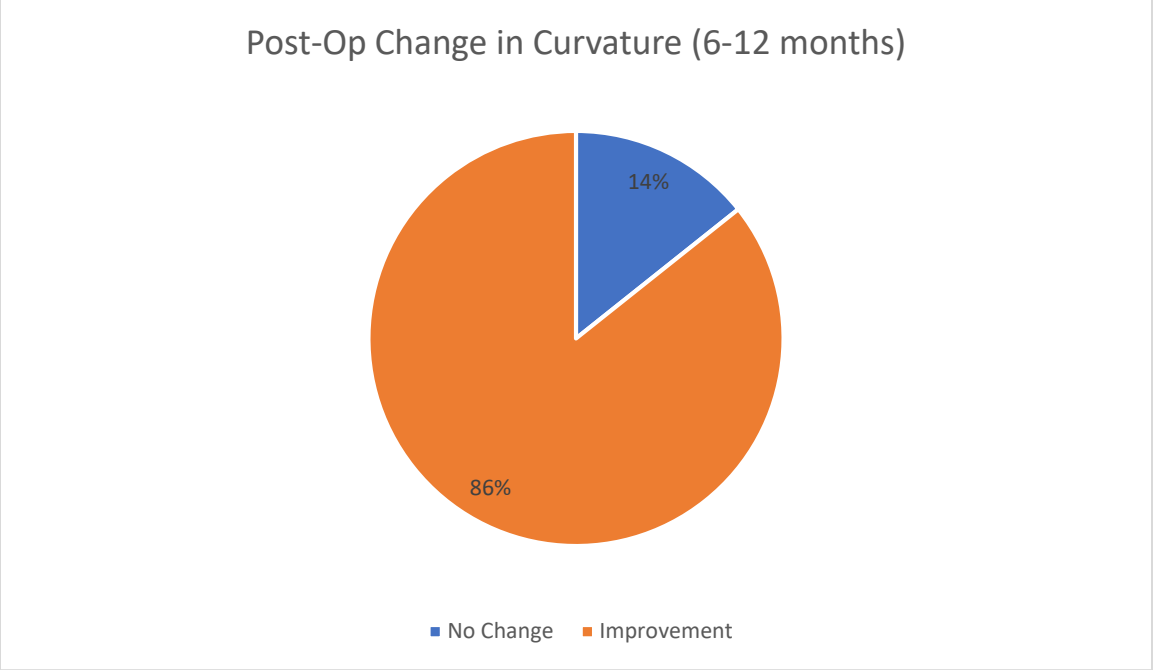

Figure 3: Post-Op Change in Curvature (13-35 months)

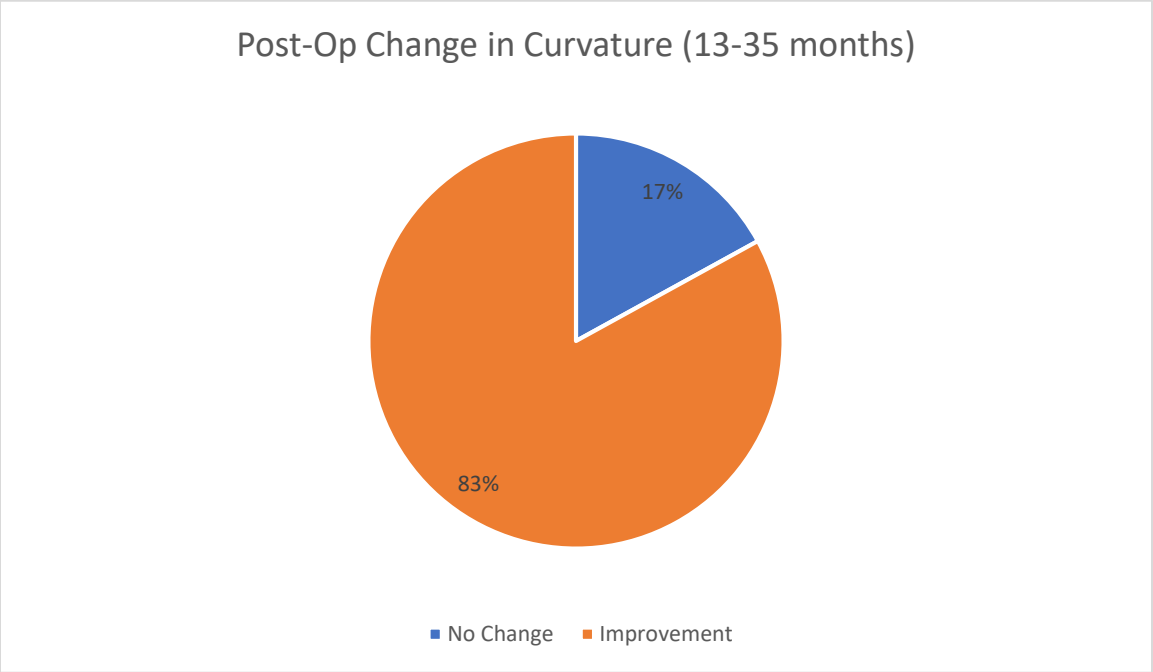

Figure 4: Paired-Samples T-Test for SHIM

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-op_SHIM_total	9.89	9	8.388	2.796
	Post-op_SHIM_total	10.22	9	7.694	2.565

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pre-op_SHIM_total & Post-op_SHIM_total	9	.533	.139

Paired Samples Test

		Paired Differences		
		Mean	Std. Deviation	Std. Error Mean
Pair 1	Pre-op_SHIM_total - Post-op_SHIM_total	-.333	7.794	2.598

Paired Samples Test

		Paired Differences	
		95% Confidence Interval of the Difference	
		Lower	Upper
Pair 1	Pre-op_SHIM_total - Post-op_SHIM_total	-6.325	5.658

Paired Samples Test

		t	df	Sig. (2-tailed)
Pair 1	Pre-op_SHIM_total - Post-op_SHIM_total	-.128	8	.901

Paired Samples Effect Sizes

			Standardizer[a]	Point Estimate
Pair 1	Pre-op_SHIM_total - Post-op_SHIM_total	Cohen's d	7.794	-.043
		Hedges' correction	8.185	-.041

Paired Samples Effect Sizes

			95% Confidence Interval

			Lower	Upper
Pair 1	Pre-op_SHIM_total - Post-op_SHIM_total	Cohen's d	-.695	.612
		Hedges' correction	-.662	.583

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation of the mean difference.

Hedges' correction uses the sample standard deviation of the mean difference, plus a correction factor.

Figure 5: Paired-Samples T-Test for Curvature

Paired Samples Statistics

		Mean	N	Std. Deviation
Pair 1	Pre_curvature_numeric	4.25	20	1.293
	Post_curvature_numeric	1.45	20	.945

Paired Samples Statistics

		Std. Error Mean
Pair 1	Pre_curvature_numeric	.289
	Post_curvature_numeric	.211

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pre_curvature_numeric & Post_curvature_numeric	20	.075	.752

Paired Samples Test

		Paired Differences		
		Mean	Std. Deviation	Std. Error Mean
Pair 1	Pre_curvature_numeric - Post_curvature_numeric	2.800	1.542	.345

Paired Samples Test

		Paired Differences	
		95% Confidence Interval of the Difference	
		Lower	Upper
Pair 1	Pre_curvature_numeric - Post_curvature_numeric	2.078	3.522

Paired Samples Test

		t	df	Sig. (2-tailed)
Pair 1	Pre_curvature_numeric - Post_curvature_numeric	8.119	19	.000

Paired Samples Effect Sizes

			Standardizer[a]	Point Estimate
Pair 1	Pre_curvature_numeric - Post_curvature_numeric	Cohen's d	1.542	1.815
		Hedges' correction	1.574	1.779

Paired Samples Effect Sizes

			95% Confidence Interval

			Lower	Upper
Pair 1	Pre_curvature_numeric - Post_curvature_numeric	Cohen's d	1.085	2.528
		Hedges' correction	1.064	2.477

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation of the mean difference.

Hedges' correction uses the sample standard deviation of the mean difference, plus a correction factor.

Discussion and Innovation

This project challenged and sought to shift previous conclusions regarding the notion that plaque excision is associated with a greater risk of new onset or worsening erectile dysfunction than tunica plication. Since plaque excision with dermal grafting was first described in 1974 by Drs. Devine and Horton, there have been many advances in the management of this disease, such as the type of graft used. Additional medical remedies have also been used, with varying rates of success. Although medical therapies have existed for varying time periods, the surgical management options have remained largely the same. Surgical correction of Peyronie's Disease can be managed with tunica plication, plaque incision/excision, and/or penile prosthesis placement.

According to the Peyronie's Guideline Algorithm[11], the AUA recommends offering tunica plication or plaque incision/excision with or without grafting to patients with stable disease and intact erectile function. However, difficult cases, such as those with persistent angulation and/or extensive plaques, may require a combination of surgical methods. Dr. Secrest's patients often have extensive plaques that would otherwise not be amenable to plication alone or penile prosthesis alone. Our patient sample includes patients with varying degrees of erectile dysfunction, as determined by SHIM questionnaires.

Even though plaque incision/excision can effectively cure the patient of Peyronie's Disease by removing the plaque, there has been an ongoing notion that this surgical method can lead to new onset or worsening of erectile dysfunction. In one of Dr. Secrest's published abstracts in the American Urological Association, he reported that excision of Peyronie's plaque with dermal grafting is an effective way to straighten the penis (92% success rate). Only one patient with normal erectile function preoperatively developed erectile failure after surgery, and this patient had an abnormal pre-operation doppler study[12]. Since publishing this abstract, Dr. Secrest has continued to perform this surgery with similar successful results. We intended to compile his most recent patient data to provide an update, challenge misconceptions, and add data to the limited literature about this surgical method.

To achieve this, we collected and analyzed pre-and-post-operative data from patient charts regarding the same variables, such as curvature, erectile function, and patient satisfaction. We used the SHIM questionnaire to evaluate erectile function and patient satisfaction. We used a modified curvature survey and measurements obtained by Dr. Secrest to evaluate penile curvature and patient satisfaction. We then used SPSS software for statistical analysis and the statistically significant results support the hypothesis that plaque excision with dermal grafting leads to reduction of curvature and positive overall patient outcomes in this regard. The data regarding SHIM scores included in this study was not statistically significant, likely due to a relatively small patient sample.

The descriptive frequencies we ran on the major variables showed that 23% percent of the sample experienced no change in curvature and 77% of the sample experienced lessening (improvement) of curvature. No one reported an increase in curvature. We also categorized patients in one of two groups based on follow-up time since the surgery. In the 6-to-12-months follow-up group, 14.3% of patients experienced no change in curvature and 85.7% of patients experienced an improvement of curvature. In the 13-to-35-months follow-up group, 17% of patients experienced no change in curvature and 83% of patients experienced improvement of curvature. These results are comparable to existing literature regarding plaque excision and

tunica plication. A 2018 article published in the Journal of Urology reported 87.6% of patients experienced improvement in curvature with the 16-dot plication technique and 89.7% of patients experienced improvement in curvature with the Nesbit technique, although these results were not statistically significant with a p-value of 0.514[13]. One weakness of our results with regard to our descriptive analysis is the number of patients included. We had 19 patients in our study sample and feel that the results would have been stronger and more supportive if we included a greater number of patients.

We conducted paired-sample t-tests for SHIM scores and numeric curvature scores. The paired-sample t-test on pre-and-post-op SHIM total scores reported a small positive mean increase over time, though this was not statistically significant, $t(8) = -.13$, $p = .90$. As mentioned above, we feel that the results would have been significant and more supportive if we included a greater number of patients' SHIM scores. The paired-sample t-test comparing pretest numeric curvature scores to their posttest numeric curvature scores reported a negative and significant result, $t(19) = 8.12$, $p<.001$. The effect size for this mean difference was large, $d = 1.80$. This means the sample experienced a statistically significant decrease in curvature from pre to post operation. These results indicate that most patients in our sample had markedly significant reductions in curvature. Many patients reported complete straightening of the penis. Patients with residual post-op curvature had extensive penile deformities and plaques that will likely require additional surgeries that may include tunica plication and placement of a penile prosthesis. The management of severe and complex cases of Peyronie's Disease is not outlined in the AUA guideline. Therefore, these cases are managed based on the preference and experience level of the urologic surgeon.

Existing literature shows similar success rates of the tunica plication and plaque excision surgeries. One article shared that 92% of their sample experienced a reduction in curvature using the plication method[14]. These results are consistent with other studies and are comparable to the results shared by Dr. Secrest in his aforementioned publication. Although our study was unable to obtain statistically significant data regarding erectile function, we obtained helpful data regarding curvature and patient satisfaction. We intend to add to this sample of patients and continue our research in the future in order to obtain statistically significant data regarding erectile function.

We anticipate this study will add to the limited literature regarding this topic and provide support for the efficacy of plaque excision with grafting. We anticipate this study will be referenced by urologists as they study and consider the best management options for their patients with Peyronie's Disease. Further, we expect that these results may influence the way Peyronie's is managed by challenging the way urologists in the field view this surgery. In doing so, we hope urologists will be encouraged to consider and use the plaque excision method when appropriate. As we look to the future of urology and seek to advance the field through innovative ways, we predict that this surgical method will provide superior results with overall positive patient outcomes.

Our research was also innovative in that we employed a compassionate communication approach to elicit and obtain accurate and candid responses from patients. Valid questionnaires reflected the sensitive nature of sexual health and Peyronie's Disease. In planning this study, we recognized that sexual health is an important component in the analysis of patient satisfaction. To encourage frank and honest responses from patients, we focused on building

rapport and trust. This compassionate approach is conducive to obtaining honest and accurate responses that help mitigate recall bias compared to asking trite and impersonal questions. Asking the latter type of questions may discourage patients from answering honestly due to the perceived insensitivity that can be intentionally or unintentionally communicated. As we look at future directions in this field of research, we hope and believe this empathetic communication approach will be adapted by medical professionals when communicating with patients who have Peyronie's Disease.

Future Directions

Our research positively contributes to a limited body of literature and will advance this area of urology. We anticipate this research will challenge existing assumptions and will straighten out any uncertainty regarding the efficacy of plaque excision with grafting. We foresee additional research being conducted based on this study and hope others will feel encouraged to consider this surgery as a viable option for patients, especially those with severe and extensive disease.

As Dr. Secrest continues to perform this surgery on new patients, He and I will collect further data on additional variables in order to increase the significance of future studies. For example, further research may include doppler ultrasound results, other graft materials, and different patient satisfaction measures. These are a few examples of different variables that Dr. Secrest and other urologists regularly employ in their management of Peyronie's Disease that may enrich the literature if used in research studies.

Another way to increase the significance of the research is to include a greater number of patients in the study. Of note, we initially planned to include a larger sample of the over 500 patients Dr. Secrest has performed this surgery on. However, due to multiple limiting factors, such as several institutions involved, we opted to focus on the most recent subset of patients who have received this surgery. Conducting a cross-institutional study with hundreds of patients would yield one of the largest studies of this kind. The data is promising, and we look forward to future developments.

Conclusions

In conclusion, plaque excision with dermal grafting is an effective surgical management method to straighten penile curvature and improve patient satisfaction in Peyronie's Disease. The data in this study demonstrates how plaque excision with grafting leads to patients who are satisfied with their results and restored sexual health. No patient in this study had worsening of curvature, and the majority experienced significant improvement in curvature. These results are comparable to other studies in literature. Patients reported being satisfied with the outcome with regard to curvature and many did not note a change in erectile function, although the latter was not statistically significant. Future studies should continue to evaluate curvature and erectile function outcomes in the context of the sensitive nature of sexual health. Standardization of variables, inclusion of compassionate communication, and exploration of new developments should be guiding principles in future Peyronie's Disease research. This is especially important as the amount of information in the field rapidly grows each day.

Compliance

This research study required and received Baylor Scott and White Institutional Review Board (IRB) approval. The IRB process involved completion of an IRB form and revisions as necessary. This study did not require any consideration or approval from IACUC. I, Connor Rodriguez, have completed all required CITI training prior to the initiation of the study.

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