



### Introduction

As the general population ages, so does the typical patient in a men's health practice. Additionally, the prevalence of Peyronie's Disease (PD) increases with age. Surgical intervention in the older man may be considered more risky. Moreover, with the FDA approval of Collagenase clostridium histolyticum, urologists may prefer nonsurgical treatment in the applicable older man. Surgery, however, remains the gold standard for the definitive treatment of PD. Nevertheless, there is a paucity of data on the surgical treatment of PD in the older patient.

### Aim

Evaluate the patient characteristics and surgical outcomes of our population of men older than 65 years of age who underwent surgical treatment for their PD during the study period.

### Materials and Methods

We performed a retrospective review of all patients 65 years or older with PD who underwent surgical treatment at our tertiary care institution from January 2010 to September 2017. Baseline characteristics were obtained by history and physical examination as well as penile duplex ultrasound with vasoactive injection. We compared pre-operative patient characteristics and post-operative surgical and patient reported functional outcomes for those who underwent penile implantation with straightening maneuvers (PP+SM), tunica albuginea plication (TAP) and plaque partial excision and grafting (PEG). ANOVA tests were used to compare means among different treatment groups and Chi-square test was used to compare prevalence rates.

### Results

**Table 1.** Patient Demographics

Patient Characteristics	N= 86
Age, mean (range)	68.2 years (65 - 81)
Degree of curvature, mean (range)	59.9 <sup>0</sup> (0 - 105 <sup>0</sup> )
Dorsal curvature	76%
Lateral curvature	14%
Ventral curvature	10%
Body Mass Index, mean	26.89 kg/m <sup>2</sup>
<b>Prevalence of Comorbid Conditions</b>	
Diabetes Mellitus	20%
Essential Hypertension	52%
Past or present smoking	48%
Hypogonadism (T < 300 ng/dL )	16%

**Table 2.** Preoperative patient characteristics

Patient Characteristics	PP+SM (n=39)	TAP (n=25)	PEG (n=22)
Age (years), mean	69.3	68.0	66.3
Degree of Curvature, mean	49.1 <sup>0*</sup>	61.4 <sup>0*</sup>	78.6 <sup>0*</sup>
Erectile Function (1-10), mean	4.69 <sup>*</sup>	7.96 <sup>*</sup>	8.62 <sup>*</sup>
Hinge effect	28% <sup>*</sup>	8% <sup>*</sup>	72% <sup>*</sup>
Narrowing/Indentation	44% <sup>*</sup>	64% <sup>*</sup>	96% <sup>*</sup>
ASA Classification (1-6), mean	2.2 <sup>b</sup>	2.2 <sup>b</sup>	1.9 <sup>b</sup>

\*: p<0.05 (IPP vs. TAP vs PEG)    b: p<0.05 (PEG vs TAP, PEG vs IPP)

**Table 3.** Postoperative patient reported outcomes

Patient Characteristics	PP+SM (n=39)	TAP (n=25)	PEG (n=22)
Sexually active	95%	92% <sup>c</sup>	95% <sup>d</sup>
Functionally straight (< 20 <sup>0</sup> )	95%	96%	96%
Sensory changes	23%	24%	18%
Patient satisfaction	85%	88%	82%
Perceived shortening	10%	28%	14%
Clavien-Dindo II/III Complication	8%	0%	5%

c: PDE5 Inhibitor use (64% pre-operatively, 72% post-operatively)

d: PDE5 Inhibitor use (28% pre-operatively, 50% post-operatively)

A total of 86 men had surgery for PD with a mean age of 68.2 years (range: 65-81 years). Of our population, 20% had Diabetes Mellitus, 52% had hypertension, and 48% were either current or former smokers. Surgical management included either PP+SM (n=39, 45%), TAP (n=25, 29%) or PEG (n=22, 26%). The mean curvature for all men was 59.9<sup>0</sup> (range: 0-105<sup>0</sup>).

Men who underwent a PEG had a mean curvature of 78.6<sup>0</sup>, significantly higher than men who underwent PP+SM (49.1<sup>0</sup>, p<0.05) or TAP (61.4<sup>0</sup>, p<0.05). Men who underwent PEG were also significantly more likely to have penile narrowing/indentation and/or hinge compared to men who underwent TAP or PP+SM (96% vs 64% vs 44% and 72% vs 8% vs 28% respectively, p<0.05). Patient reported baseline erectile function (1-10/10) was significantly lower in men who underwent PP+SM compared to TAP or PEG (4.69 vs 7.96 vs 8.62 respectively; p<0.001). Moreover, patient's who underwent PEG were more likely to have a lower perioperative ASA classification compared to PP+SM or TAP (1.9 vs. 2.2, p<0.05).

Overall, 97% of all men reported to be functionally straight following surgery with no difference between treatment groups. 93% of men claimed to be engaging in penetrative intercourse. Post-operative sensory changes were reported in 23% of all men (23% in PP+SM, 24% in TAP, 18% in PEG) with no incidence of cold glans or anorgasmia. Overall patient reported post-operative satisfaction was 85%, equal among all treatment groups. There were 3 reported Clavien-Dindo class II/III complications (1 infection, 1 seroma and 1 urinary retention). Mean follow up was 50 months (range: 7-96 months).

### Conclusions

With the increasing adoption of non-surgical treatment modalities in PD, surgical correction in older men is safe, effective and associated with high patient satisfaction. Our outcomes suggest that surgery remains a viable option for the properly selected and counseled older man.