

# PENILE LENGTH AND GIRTH RESTORATION IN SEVERE PEYRONIE'S DISEASE BASED ON CIRCULAR AND LONGITUDINAL GRAFTS

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**Objective:** Penile prosthesis implantation for Patients with Peyronie's disease should be discussed in cases of severe erectile dysfunction, complex anatomical deformities and massive penile shortening. In up to 50% of cases patients are dissatisfied with their postoperative penile length after penile prosthesis implantation. We report our experience with a novel method for penile length and girth restoration with circular and longitudinal grafting during penile prosthesis implantation.

**Patients and methods:** Between November 2006 and November 2011, 105 patients with disabling Peyronie's disease and associated erectile dysfunction underwent our surgical approach for penile length and girth restoration with concomitant penile prosthesis implantation. The technique consists of a straightening procedure based on the Egydio technique and circular as well as longitudinal grafting for maximum length and girth restoration.

**Results:** After an average of 18.2 months (range, 6-46 months) of follow-up all patients except of one (n= 104; 99.0%), who developed a post-operative wound infection with subsequent prosthesis removal were able to have sexual intercourse. The mean functional penile length gain was 3.6 cm (2-5 cm). It was clearly shown, that the acquisition or the recovery of the ability to perform sexual intercourse brought major relief and high rates of satisfaction and self-esteem. Glans sensitivity, orgasmic ability and ejaculation were preserved in all patients.

**Conclusion:** Our technique resulted in a maximum length and girth restoration with excellent functional outcome. Patient satisfaction was very high. Not only the ability to perform sexual intercourse again after surgery, but also length and girth restoration are very important for recovering self-esteem and patient satisfaction.

## INTRODUCTION

- Severe cases of PD are associated with shortening, narrowing and erectile dysfunction
- The association between PD and ED is reported to be 20-70%
- Frequently, men who suffer from both ED and PD do not respond to erectogenic medications. In such cases, a simple straightening operation does not provide any benefit to the patient, as inadequate rigidity still impedes sexual intercourse
- In such cases, surgical correction of the curvature should be performed with simultaneous penile prosthesis implantation
- However, in up to 50% of cases patients are dissatisfied with the postoperative penile length

## MATERIALS & METHODS

- 105 patients with disabling PD and associated ED underwent our surgical approach for penile length and girth restoration with concomitant penile prosthesis implantation
- Stable disease for at least 6 months; insufficient penile rigidity for sexual intercourse with erectogenic medications
- Preoperative outpatient evaluation: goniometer, color duplex sonography, 20 mg of prostaglandin E1 (PGE1)
- Mean angle of the curvature:  $75.3^\circ \pm 21.2^\circ$  (0-100°)

## SURGICAL TECHNIQUE

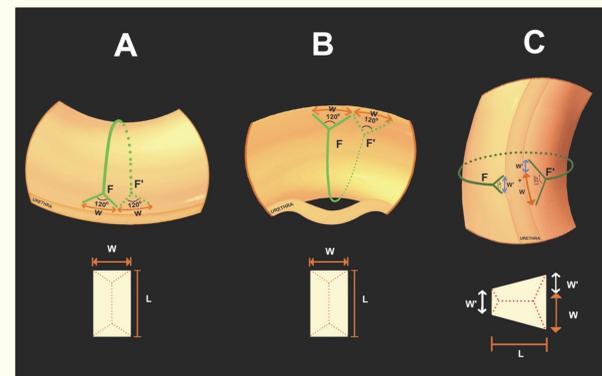
- Based on the geometrical principles of the Egydio technique
- Additional circular and longitudinal tunica albuginea incisions
- Inflatable 2-3 piece or malleable penile prostheses were implanted for maximum restoration of length and girth
- Pericardium grafts were used to cover the defects

## Type of penile prostheses implanted

Type of prosthesis	Number of patients
AMS 700 CX ® (3 pieces) <sup>a</sup>	11 (10.5%)
AMS Ambicor ® (2 pieces) <sup>a</sup>	4 (3.8%)
Coloplast Titan ® (3 pieces) <sup>b</sup>	12 (11.4%)
AMS 650 ® (malleable) <sup>a</sup>	45 (42.9%)
Coloplast Genesis ® (malleable) <sup>b</sup>	33 (31.4%)

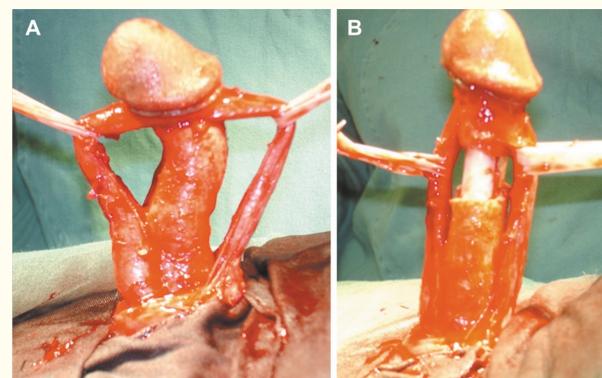
a) American Medical System, Minnetonka, MN, USA

b) Coloplast, Humlebaek, Denmark



Scheme for graft measurement according to geometrical principles for (A) dorsal and dorsolateral curvature; (B) ventral and ventrolateral curvature; and (C) lateral curvature.

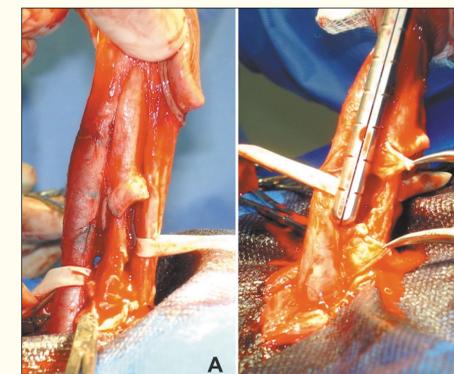
W: defect width- difference between long and short side of the penis; L: defect length (measured at maximum penile erection)- measurement between any extremities of the bifurcation around the circumference of the penis, measured outside any constricted area; F-F': Starting points of the bifurcation of the transversal incision at an angle of 120 degrees.



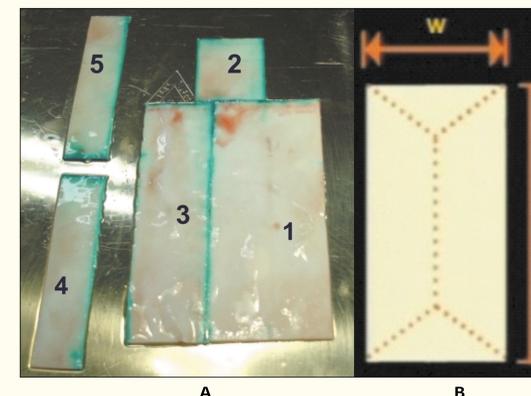
(A) Dissection of the neurovascular bundle and urethra; (B) A circular tunica incision for malleable prosthesis implantation in cases with a severe penile shortening but no curvature.



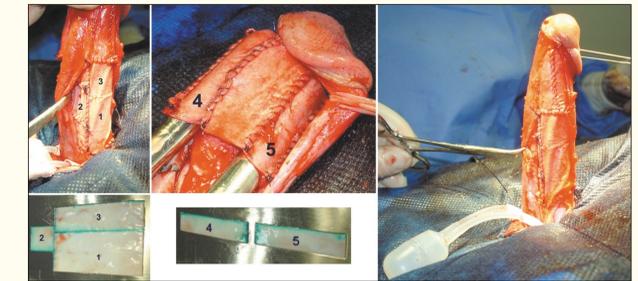
Traction is applied to the glans to ensure that the penile shaft is elongated to the maximum length of the dissected neurovascular bundle. If this procedure shows that extra length may be added under the urethra, a complementary circular tunica incision at the middle of the two extremities of the bifurcation, which coincides with the continuity of the transverse incision determined by geometrical principles is performed.



(A) After complementary circular tunica incision, glans traction demonstrates that the neurovascular bundle and urethra are at the maximum possible length. (B) The extra shaft length under the urethra is measured for dorsal, dorsolateral, or lateral curvatures.



(A) Grafts ready to be inserted on the corresponding final tunica defects (1, graft measured using geometric principles; 2, graft to be added under the urethra by complementary circular tunica incision [measured by stretching the penis by the glans]; 3, graft to be added to the geometrical tunica defect, corresponding to the measurement added under the urethra using the extra length obtained by complementary circular incision; 4 and 5, grafts to be added to the longitudinal tunica incision to correct distal narrowing phenomenon). (B) Geometric layout of the graft, corresponding to the number 1.



(A) Pericardium graft sutured circumferentially with 4.0 poliglecaprone or polydioxanone sutures. (B) Longitudinal strip of pericardium sutured longitudinally with 4.0 polydioxanone suture for correction of distal narrowing. (C) After insertion of a 2-piece inflatable penile prosthesis by corporotomy on both crura, with the neurovascular bundle at the maximum length.

## RESULTS

- 104/105 (99%) patients were able to have satisfactory sexual intercourse
- 1 (1%) penile prosthesis explantation due to wound infection
- Mean penile length gain:  $3.6 \pm 0.7$  cm (range, 2-5 cm)
- Residual curvature of up to 30 degrees (2.9%)

Patients' satisfaction at 6 months according to EDITS (n= 104)

Domain #	Outcome measure(s)	Outcome
Overall satisfaction	Satisfied (1-2)	93 (89.4%)
	Somewhat satisfied (3)	10 (9.6%)
	Somewhat dissatisfied (4-5)	1 (1.0%)
Overall confidence	Confident (1-2)	93 (89.4%)
	Somewhat confident (3)	10 (9.6%)
	Somewhat dissatisfied (4-5)	1 (1.0%)
Postoperative loss of sensation	Significant loss of sensation (1-2)	0 (0.0%)
	Minimal loss of sensation (3)	5 (4.8%)
	Unsure/no loss of sensation (4-5)	99 (95.2%)
Postoperative penile length	Satisfied (1-2)	99 (95.2%)
	Somewhat satisfied (3)	4 (3.8%)
	Dissatisfied (4-5)	1 (1.0%)
Loss of length due to surgery	Yes	10 (9.6%)
	No	94 (90.4%)

## CONCLUSION

- Our technique resulted in a maximum length and girth restoration with excellent functional outcome. Patient satisfaction was very high. Not only the ability to perform sexual intercourse again after surgery, but also length and girth restoration are very important for recovering self-esteem and patient satisfaction.