

Optimal Modeling: an Updated Method for Safely and Effectively Eliminating Curvature During Penile Prosthesis Implantation

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ABSTRACT

Objectives: To assess outcomes of a variant of traditional modeling (“optimal modeling,” OM) in patients with residual curvature following prosthesis implantation.

Methods: We performed a retrospective review of all patients who underwent penile implant insertion. Patients with $>30^\circ$ of residual curvature after cylinder placement and inflation underwent OM and were compared 1:1 to a demographically-matched cohort who received implantation without ancillary straightening. Optimal modeling was performed by forcibly bending the erect penis in the direction opposite the point of maximal curvature while maintaining glanular pressure to prevent urethral injury. This was performed for 90-second intervals for as many cycles as necessary to achieve $<15^\circ$ curvature.

Results: Eighty patients were included in the final analysis; 40 (50.0%) underwent optimal modeling while 40 (50.0%) did not need additional straightening following surgery. The mean premodeling curvature was 47.8° (range 30° - 90°) while post-modeling curvature improved to a mean of 10.6° (range 0° - 30° , $P < .001$); 87.5% of patients had $<15^\circ$ of residual curvature. Patients in the OM cohort experienced longer operative times (82.7 vs 75.8 min, $P = .15$). No patient in either group experienced an intraoperative or postoperative complication at a mean follow-up of 29.9 months.

Conclusion: Although many prosthetic urologists forego manual modeling in cases of moderate-severe penile curvature, our contemporary series shows it to be both safe and effective. OM may preclude the need for more time-consuming and complex surgical procedures.

COLOPLAST KEY TAKEAWAYS

- The Coloplast Titan penile implant was utilized in patients receiving the Optimal Modeling (OM) technique.
- No patients in the current series had evidence of urethral perforation (either intraoperative or delayed) with OM, despite use of a greater number of modeling cycles than in the historical description.
- No patient in the series experienced device mechanical malfunction or infection.
- 87.5% of patients in this series reached had <15° of residual curvature immediately following manual modeling. These findings were validated with patient follow-up evaluations.
- Modeling may ultimately represent the least invasive strategy to correct curvature while simultaneously mitigating the risks of other straightening maneuvers (i.e., penile shortening, glans paresthesia, etc.).

Indications: The Titan, Titan OTR and Titan Touch Inflatable Penile Prosthesis is indicated for male patients suffering from erectile dysfunction (impotence) who are candidates for implantation of a penile prosthesis.

Contraindications: The Titan, Titan OTR and Titan Touch Inflatable Penile Prosthesis is contraindicated in patients with an active infection present anywhere in the body, especially urinary tract or genital infection; with a documented sensitivity to silicone; with unresolved problems affecting urination, such as an elevated residual urine volume secondary to bladder outlet obstruction or neurogenic bladder; or, unwilling to undergo any further surgery for device revision.

Warnings: Implantation of the device may make latent natural erections, as well as other interventional treatment options, impossible. Men with diabetes or spinal cord injuries, as well as immunocompromised patients, may have an increased risk of infection associated with a prosthesis. Failure to evaluate and promptly treat erosion may result in a substantial worsening of the condition, leading to infection and loss of tissue. Implantation of a penile prosthesis may result in penile shortening, curvature or scarring. Pre-existing abdominal or penile scarring or contracture may make surgical implantation more complicated or impractical.

Precautions: Surgeons implanting penile prostheses should be familiar with the currently available techniques for measuring the patient, determining implant size, and performing the surgery. Removal of an implanted prosthesis without timely reimplantation of a new prosthesis may complicate subsequent reimplantation or may make it impossible.

Potential Complications: Potential complications include scrotal swelling, auto-inflation, discomfort, angulation/curvature, edema, device malfunction, chronic pain, difficulty with ejaculation, transient urinary retention.

The information provided is not comprehensive with regard to product risks. For a comprehensive listing of indications, contraindications, warnings, precautions, and adverse events refer to the product's Instructions for Use. Alternatively, you may contact a Coloplast representative at 1-800-258-3476 and/or visit the company Website at www.coloplast.us.

Caution: Federal law (USA) restricts this device to sale by or on the order of a physician. See the device manual for detailed information regarding the implant procedure, contraindications, warnings, precautions, and potential complications/adverse events.

For further information, call Coloplast Corp at 1-800-258-3476 and/or consult the company website at www.coloplast.us.