CLINICAL ARTICLE SUMMARY

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° 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° 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° 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.).

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