

SUPPLEMENT ARTICLE

Critical Appraisal and Review of Management Strategies for Severe Fibrosis During Penile Implant Surgery

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ABSTRACT

Introduction. Penile corporal fibrosis represents a challenging clinical scenario for surgeons placing penile prostheses (PP). Because of its rarity, a small number of series with limited follow-up have reported outcomes in this cohort.

Aim. The aim of this study was to perform a critical appraisal of the corporal excavation technique, discuss its relevance to contemporary practice, and review alternative surgical methods and outcomes.

Methods. A critical review was performed of the 2006 article by Montague and Angermeier, “Corporeal excavation: new technique for penile prosthesis implantation in men with severe corporeal fibrosis.” Notable inclusions and omissions were described, with emphasis placed on methodology and outcomes. A PubMed search from 1990 to June 2015 was then performed to review and summarize the literature on managing corporal fibrosis during PP surgery.

Main Outcome Measures. The main outcome measures used were the major contributions and limitations of the 2006 article describing outcomes of the corporal excavation technique.

Results. Corporal excavation is a relevant surgical technique for managing severe corporal fibrosis. Compared with alternatives, excavation achieves successful placement of PP without need for grafting and with few complications. The article was limited by several notable omissions including relevant patient demographic and disease characteristics, patient selection, and minimal descriptions of complications and outcomes. Alternative techniques include use of specialized dilators, counter incisions, reconstruction with graft placement, minimal scar tissue excision, and endoscopic resection. Because of limited data, no specific algorithm for managing corporal fibrosis can be prescribed.

Conclusions. Corporal fibrosis is a challenging clinical scenario and requires surgical experience and specialized techniques to manage appropriately. Corporal excavation represents one of several viable techniques, which may be chosen based on surgeon’s preference and clinical factors. **Trost Landon, Patil Mukul, and Kramer Andrew. Critical appraisal and review of management strategies for severe fibrosis during penile implant surgery. J Sex Med 2015;12(suppl 7):439–447.**

Key Words. Revision; Salvage; Erectile Dysfunction; Peyronie’s Disease

Introduction

Penile corporal fibrosis encountered at the time of penile prosthesis (PP) implantation remains a challenging clinical scenario for prosthetic surgeons. Several etiologies may result in corporal fibrosis including long-standing erectile dysfunction (ED), Peyronie’s disease (PD), and diabetes mellitus, among others. The extent of fibrosis

encountered with these conditions is variable and often does not significantly impact surgical placement of PP. In other cases, particularly among patients with prior ischemic priapism or device explantation secondary to infection, fibrosis may be much more severe and limit the extent of dissection performed. Although these cases represent a relatively small percentage of implants overall, they may be associated with higher rates of intra-

operative and postoperative complications, including perforations, crossovers, procedural abortions, supersonic transporter (SST) deformities, or infections. Therefore, descriptions of novel surgical techniques, which permit placement of PP while limiting adverse effects, are welcome additions to contemporary prosthetic surgery.

Historically, several techniques preceded this first case series studying corporal excavation as a viable surgical option for the management of severe fibrosis. These included the use of synthetic, autologous, or xenografts, cavernotomes, electrovaporization of fibrotic tissue, corporal counter incisions, extended corporotomy, or multiple incisions with minimal scar tissue excision [1–7]. Each of these techniques exhibited varying limitations and side effect profiles. Cavernotomes were appropriate in cases where an initial channel for dilation could be established; however, their use was limited in cases of complete corporal occlusion and by the indirect nature of incisions performed. Counter incisions and minimal tissue excision permitted device implantation in even the most severely occluded corpora; however, adjunctive use of graft materials is frequently required to achieve coverage of the implant cylinders. These techniques were also associated with complications including perforation, infections, and inadequate dilation, support, and positioning of cylinders.

Description of corporal tissue excavation technique

In this setting, Montague and colleagues presented a series of nine patients undergoing extensive corporotomy with corporal excavation at the time of PP implantation [8]. The technique was performed via a penoscrotal, ventral, inverted-T penile incision. This permitted complete exposure of the corpora bilaterally. Ventral corporotomies were subsequently made from the penoscrotal junction to the distal-most extent of the corpora. Metzenbaum scissors were next used to create a plane between the scarred corporal tissue and the tunica albuginea. This was carried circumferentially until a penrose drain could be placed to further assist with the dissection. The scarred fibrotic corporal tissue was then excised as distally as possible to provide a cavity for the PP (AMS, Boston Scientific, Marlborough, MA, USA; 700 inflatable PP [IPP]). Measurements were then obtained, and an appropriately sized device placed. The corpora were subsequently closed using pre-placed horizontal mattress sutures.

Results of corporal tissue excavation

Limited demographic information was available on the nine patients reported. Etiologies for the fibrosis included four with prior ischemic priapism, four with prior infected PPs, and one with diabetes mellitus and renal transplantation. Information was obtained via retrospective review of charts and patient telephone interviews.

At a mean follow-up of 44 months (range 15–92), all patients continued to have a functional prosthetic, with one patient requiring revision for a malfunctioning device at 46 months. Seven patients required reduced diameter devices (AMS 700 CXM™), while two received standard sizes (AMS 700 CX™). Mean length of excised fibrotic corporal segments was 5.2 cm (range 4–7), and mean PP cylinder length was 13.8 cm (range 12–16). No patient required grafting, and all patients reported limited thrusting with intercourse, presumably due to inadequate functional penile length.

The authors concluded that the current series supported the use of extensive corporotomies with tissue excavation in cases of severe corporal fibrosis. Suggested benefits over prior techniques included direct visualization and controlled excision of affected tissue without need for grafting.

Aims

The original article by Montague and Angermeier presented several notable contributions, which are described in subsequent sections of the current review in greater detail. As with all articles, however, there were several relevant limitations and omissions, which may have improved the overall relevance and quality of the report. The objective of the current article was to critically review the original publication by Montague and Angermeier to evaluate notable omissions or errors which may have had an impact on the data or limit utility by subsequent readers. Each of the issues identified are organized by article section and are not rated or categorized for overall significance.

Methods

A critical review was performed of “Corporeal excavation: new technique for penile prosthesis implantation in men with severe corporeal fibrosis” [8]. The report was analyzed for appropriate-

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