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Dorsal Penile Approach for Insertion of Dynaflex Penile Prosthesis

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Abstract

We report our experience in insertion of Dynaflex* penile prosthesis in 32 patients. In all cases we used a transverse dorsal incision at the base of the penis. No single case of infection or post-operative prolonged edema was encountered in our series. Two patients had inadequate deflation of prosthesis. Three had prolonged post-operative pain. Our technique, results and long term follow up data are discussed. We recommend using the dorsal penile approach in cases of Dynaflex prosthesis insertion. It offers a direct access with minimal tissue dissection and almost no bleeding. It gives excellent cosmetic results and carries a minimal risk of post-operative infection.

Introduction

SINCE the introduction of hydraulic penile prosthesis in 1973 [1], the devices have undergone many revisions and improvements. The Dynaflex* is a self-contained inflatable penile prosthesis made of solid silicon elastomer that was introduced into the market in May 1990. It consists of paired cylinders, each composed of three parts: a central rod, a distal tip containing the pump and a proximal tip containing the fluid reservoir. Fluid transfer between cylinders causes the device to become rigid and flaccid. Obviously, the Dynaflex avoids the mechanical complications of the multicomponent inflatable prosthesis [2]. However, it needs consider-

able manual dexterity to be inflated [3].

The standard incision for insertion of Dynaflex prosthesis is the penoscrotal incision [4]. Many years ago a dorsal incision was reported for Jonas penile prosthesis insertion [5]. In our experience, a transverse dorsal incision for insertion of semirigid prosthesis offered excellent cosmetic and functional results. Accordingly, we used the same approach for insertion of Dynaflex prosthesis. Since 1991, 32 patients have undergone implantation of Dynaflex prosthesis. A transverse dorsal incision at the root of the penis was used in all of them. Herein, we present our technique and results.

Material and Methods

Thirty-two patients of our patients have

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undergone implantation of Dynaflex prosthesis since 1991 in Hamad Medical Corporation, Qatar. The patients ranged in age from 38 years to 64 years with a mean age of 53.4 years. All men underwent complete history and physical examination, determination of serum testosterone and prolactin and complete blood chemistry tests. Nocturnal tumescence evaluation and determination of cavernosal artery blood flow velocity were performed when appropriate. A definite organic etiology for erectile dysfunction was found in 31 patients. The commonest cause was diabetes mellitus (table 1).

In all patients, a thorough survey was done to detect and eradicate any septic focus with special attention to urinary tract infection. Perioperative antibiotics (80 mgm aminoglycoside and 500 mgm ampicilline intravenously) were received by all patients twelve hours prior to surgery. An intraoperative pubic shave and a 15 minutes skin preparation with 10% povidone solution from umbilicus down to the knees was strictly followed in all patients.

Under general anesthesia, the patient was put in supine position. A 16 F Foleys catheter was inserted into urethra but kept closed. A 3-4 cm transverse dorsal incision was made (Figure 1). The dissection was developed laterally down to tunica albuginea of each corpus cavernosum avoiding the central neurovascular bundle. Stay sutures (3-0 Vicryl) were placed at the tunica albuginea of each corporal body between the stay sutures. We always made the corporotomy incision slightly lateral, again, to avoid the neurovascular bundle.

Corporal dilatation was done by using a series of progressively larger Hegar dilators starting with a 7 mm dilator. Each corpus was dilated from ischial tuberosity

proximally to midglans distally. The site of corporotomy was usually not well dilated and this was taken care of by few snips with a Metzeubaum scissors. Dynaflex prosthesis comes in 11mm and 13mm diameters. The corporal bodies should be dilated 1mm larger than the cylinder diameter to be used. To offer the best penile girth, we routinely dilated the corpora up to 14mm unless the penis was too narrow.

After dilating one side up to 14mm, we never proceeded to dilating the other side beyond 12mm unless a 13mm dilator was placed in the contra lateral corpus. Then, if dilatation was easy, we continued up to 14mm. Otherwise, we stopped the dilatation and used two cylinders of different sizes but of identical lengths. This maneuver will guarantee easy insertion, prevents cylinder buckering with a possibility of subsequent aneurismal formation and will offer better function.

The length of erectile bodies was measured with a Furlow insertion tool. The stay sutures were taken as reference point. The tool was advanced proximally to ischial tuberosity and distally to midglans. The two measurements were added to determine the total length of erectile body. The Dynaflex comes in six sizes. Each cylinder is supplied with six half cm rear tip extenders that can give up to three cm extra length. The chosen cylinders size was either equal to or shorter than the total corporal length, rear tip extenders were added if necessary. The erectile bodies were equal in length in most of cases. If the lengths were different, the shorter side was redilated. Congenital penile curvature was encountered in one case where the right corpora was not extending distally beyond the coronal sulcus. A lateral curvature was seen after insertion of the prosthesis. To straighten the penis, a lateral vertical incision was taken at the

point of maximum convexity of the left corpora and two plication suture lines were taken at the tunica albuginea using Prolene 0 suture as described by Essed and Schroeder [6].

Once correct cylinder was chosen, the traction suture at the front tip cylinder was threaded into Kieth needle which in turn was inserted into the Furlow insertion tool. The cylinder was inflated then the proximal end was inserted first. The cylinder was deflated, then, the Furlow tool was inserted into the distal portion of the corpora. The Kieth needle was pushed through the lateral aspect of the glans and traction thread was secured with a hemostat. The distal part of the cylinder was gently pushed into place from the corporotomy while guiding it with the traction suture until tip was well felt under the glans. The function of the cylinders was assessed by inflation and deflation before removal of traction suture and closure of tunica.

In our early cases we closed the tunica with running or interrupted Vicryl 3.0 stitches. In those cases it was mandatory to use the winged AMS closing tool which was put over the cylinder while placing the sutures to protect the cylinder from accidental needle puncture (Fig. 2). Late in our series we used a modified preplaced suture (Fig. 3). Thus, once the cylinder was in place no needle was used. The fascia and the skin were closed with Dixon 3.0 sutures (Fig. 4). During the whole procedure three to four copious irrigation with gentamycin sulfate (80 mg in 100 cc saline) was used

Postoperative management and follow up:

Postoperatively, we kept the prosthesis either partially deflated or even deflated in most of cases. Ice packs were placed over

penis for 8 to 12 hours. No postoperative abnormal hematoma or swelling were noticed in our patients. The penis was dressed and fixed to abdomen for 24 hours. Patients were advised to keep penis fixed to abdomen for most of the time for 3 to 4 weeks after surgery. The urethral catheter was kept in place for 24 hours. Patients were maintained on intravenous antibiotics for three days then were shifted to oral broad spectrum antibiotics for ten days more. Hospital stay ranged between 4 to 7 days with an average of 4.8 days. Patients were instructed to start inflating/deflating the prosthesis 2 weeks after operation and to begin having intercourse after 4 more weeks.

No single case of infection was encountered in our series. Postoperative pain usually disappeared in two to three days. Three patients had prolonged pain in the perineum and/or glans penis for ten to forty days. The pain was well controlled with analgesics but we could not explain it.

Follow up in all cases was available for five to seventeen months. Twenty six patients (81%) were greatly satisfied. Two patients complained of inadequate deflation of the prosthesis. This may be due to either inadequate proximal dilatation of erectile bodies or mechanical failure. The remaining four patients expressed only partial satisfaction mainly due to partner causes. No major malfunction or incomplete rigidity was reported in our cases.

Comment

The choice of penile prosthesis should depend on the anatomical and biological needs of the patients. A detailed explanation of the available prosthesis was given to all patients before they choose their own prosthesis. Our preference of self-contained

Table (1): Etiology of Impotence in 32 Cases.

Etiology	Patients	
	No.	%
Diabetes mellitus	18	56.3
Vasculogenic		
Arterial	9	28.1
Venous*	1	3.1
Pelvic radical surgery	2	6.2
Peyronie's disease	1	3.1
Indefinite	1	3.1

* Recurrent



Fig. (1): Demonstration of the transverse dorsal incision. The central neurovascular bundle is quite apparent and can be easily avoided.



Fig. (2): Closure of the corporotomy. The AMS closure tool is used to protect the prosthesis from accidental puncture.



Fig. (3 A): Closure of the corporotomy with pre-placed stay sutures. Mattress stay sutures in place.



Fig. (3 B): Closure of the corporotomy with pre-placed stay sutures. After closure.



Fig.(4): Post-operativ. Penis in erect position.

inflatable prosthesis stems from the fact that their use will decrease the time of surgery, the tissue dissection and the volume of implanted material. All these factors will definitely decrease the incidence of infection which is the most drastic postoperative complication in prosthesis surgery. On the other hand, the inflatable self-contained prosthesis; when compared to the multi-component one; needs more manual dexterity and does not offer the same flaccidity when deflated.

Although the penoscrotal incision is commonly used for insertion of Dynaflex prosthesis [4] yet, our preference is to use the transverse dorsal penile incision. Our incision offers a direct access to the corporal bodies with minimal bleeding and tissue dissection. It leaves no contracture or painful scar. Being at the base of the penis, it guarantees easy insertion of the proximal part of the prosthesis and allows selection of longer cylinders. This approach can be done under local anesthesia and thus allows the operation to be performed in outpatient setting [7]. Fein recommended a vertical dorsal incision instead of the transverse one as the latter may be associated with persistent postoperative edema [7]. However, this was never noticed in our series. The transverse incision is more preferable than the vertical one because it is cosmetic. Moreover, it offers a direct lateral approach to the corporal bodies greatly minimize the possibility of injuring the central neurovascular bundle.

The incidence of postoperative infection in penile prosthesis surgery ranges between 0.9% and 8.3% regardless of the surgical approach [8]. The risk of infection increases 11 times in patients with diabetes mellitus [9]. Although it is denied by some authors [10], yet, it is our experience that the penoscrotal incision definitely increas-

es the risk of infection in penile prosthesis surgery. Eighteen patients (56.3%) of our cases were diabetics, however, no single case of infection was reported in series. We believe that this was not only due to our strict adherence to aseptic surgical technique but also to our choice of the transverse dorsal penile incision.

In conclusion; the dorsal transverse penile incision for insertion of the inflatable self-contained prosthesis (Dynaflax) offers a rapid and simple approach. It gives a access with minimal tissue dissection and bleeding. It carries a minimal risk of postoperative infection. We recommend using this approach for insertion of all types of semirigid or self-contained inflatable prosthesis.

References

- 1- SCOTT FB., BRADLEY WE. and TIMM GW.: Management of erectile impotence: use of inflatable penile prosthesis. *Urology*, 2:80, 1973.
- 2- STIENKOHLE WB. and LEACH GE.: Mechanical complications associated with Mentor inflatable penile prosthesis. *Urology*, 38:32, 1991.
- 3- MULCAHY JJ.: The Omniphase and Duraphase penile prosthesis. *Urol. Clin. North Am.*, 16:25, 1989.
- 4- FURLOW WL., KNOLL LD. and BENSON RC.: A new self-contained inflatable penile prosthesis (Dynaflax): Results of investigative trial in ten patients, A paper presented in AUA annual meeting, 1990. *J. Urol.*, 1990, 143(4) suppl., # 883.
- 5- FEIN RL., NEEDLE MH. and WINTON L.: An orderly approach to the impotent male in the dorsal approach for the insertion of Jonas penile prosthesis. *Contemp. Surg.*

- 22: 92, 1983.
- 6- ESSED E. & SCHROEDER F.H.: New surgical treatment for Peyronie's disease. *Urology*, 25:582, 1995.
 - 7- FEIN R. L.: Duraphase penile prosthesis: Dorsal approach using local anesthesia. *Urology*, 38:358, 1991.
 - 8- MULCAHY JJ.: Management of infected penile implants. *World J. Urol.*, 8:111, 1990.
 - 9- PETROU SP. and BARRETT DM.: The use of penile prosthesis in erectile dysfunction, *Seminars in Urology*, 8: 138, 1990.
 - 10- GRAYDON JR. and BERLIN BB.: Improved pump placement with infrapubic penile prosthetic implantation. *J. Urol.*, 148:102, 1992.