Non-medical Treatment for Erectile Dysfunction

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Contemporary History of Erectile Dysfunction Management

- Age of naturopathic remedies
- Age of mental disorders
- Era of safe and effective surgery: 1970s
- Epoch of pharmacotherapy
  - 1980s: injectable vasodilator
    goal-directed approach → urologist
  - 1998: PDE5 inhibitor - sildenafil
    process of care model → primary care physician

Tom F. Lue

Surgery for Erectile Dysfunction

- Penile Prostheses

  25-30% ED p't do not respond to oral pharmacotherapy

  10-15% IC pharmacotherapy

  15% candidate for implantation surgery

- Vascular surgery

History of ED Surgery

- 1936 Lowsley and Reuda venous plication procedure and venous ligation surgery
- 1966 Beheri intracavernous placement of polyethylene prosthesis
- 1972 Pearman silicon prosthesis
- 1973 Scott et al. inflatable penile prothesis
- 1979 Ebbehoj and Wagner venous ligation based on dynamic cavernosography
- 1980 Mikal father of modern vascular surgery for ED arterial revascularization
- 1982 Virag deep dorsal vein arterialization

Penile Implants

- Semi-rigid malleable silicone elastomer rods

  AMS 600-650, Mentor Acuform
- Inflatable

  two-piece implant : Ambicor

  three-piece implant :

  AMS 700CX, Ultrex

  Mentor Alpha 1
- Patient's preference, cost, surgeon's preference

Assessing a candidate for a penile implant
- detailed systemic and sexological medical history

- Good general health
- Failure of other therapeutic options
- Psychological stability
- Patient and partner fully informed
- Complete medical assessment
- Informed consent for surgery

Surgical approach of penile implant

- According to type of implant, surgeon's preference and the previous surgical history of the patient
- Semi-rigid
  - subcoronal
  - infrapubic
  - scrotal
- Inflatable
  - infrapubic
  - scrotal

Prosthetic infection prevention

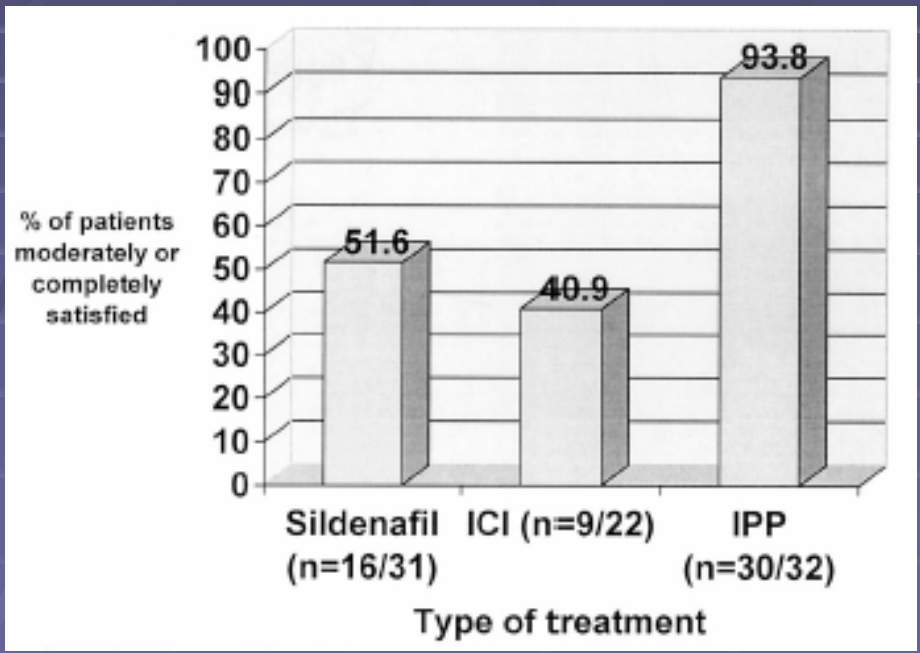
- No infection
- No lesions, bleeding scars or dermatitis in the genital area
- Balanoposthitis– circumcise and delay surgery
- During the days before surgery, genital scrubs with iodopovidone
- Genital shaving before surgery
- 10 to 15 minutes skin preparation
- Antibiotics: aminoglycosided and vancomycin(or cephalosporin) 1 h before to 48 h after implantation. Then quinolones for 7-10 days
- Avoid” traffic” in the operating room !
- Hydrophilic and antibiotic-coated prosthesis

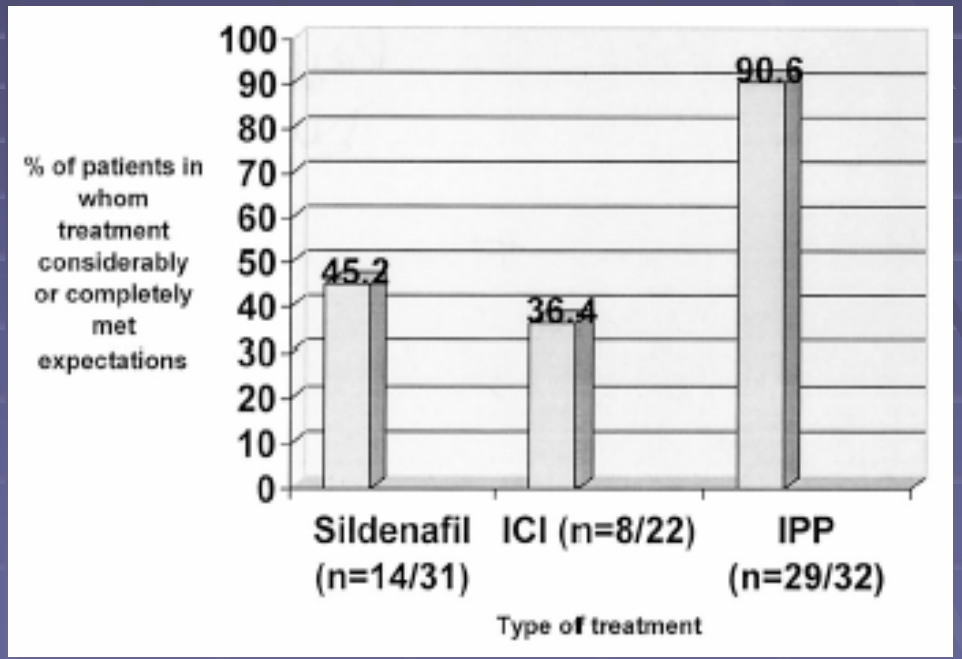
Surgical technique

- Placement of a Foley catheter
- Continuously wash the surgical field with an antibiotics solution of protamine and vancomycin
- Dilate the corpora cavernosa
- Measure the length and insert the cylinder
- Place the pump
- Place the reservoir
- Oral antibiotics for 20 days
- Sexual activity 6 wks later

Comparison of satisfactory rates and erectile function in patients treated with sildenafil, IC PGE1 and penile implant

J Urol. 2003





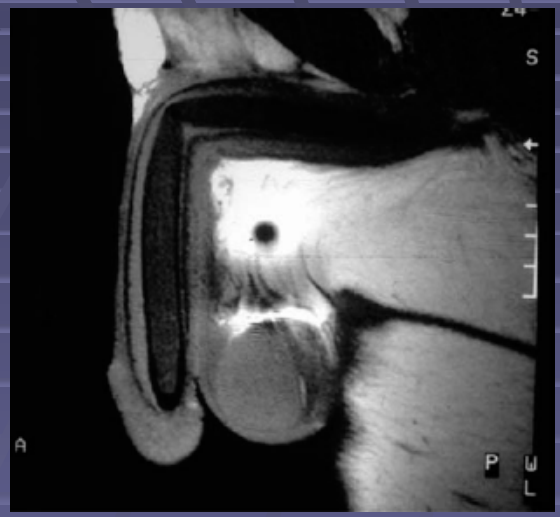
Complication of penile implant

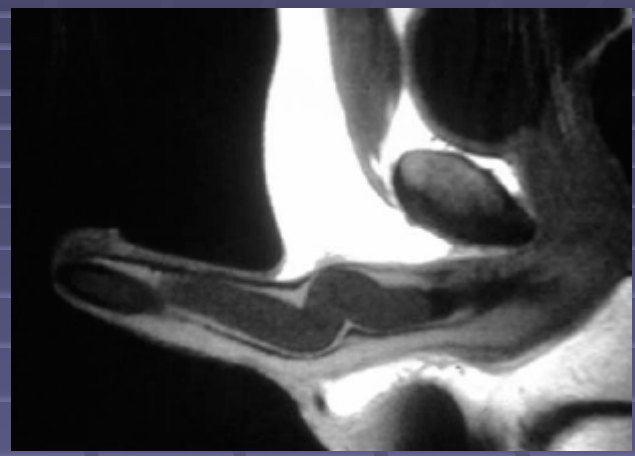
- Intraoperative – crural perforation
- Infection – 1-10%, Staphyloccus epidermidis
  risk factors: 2nd implantation, uncontrolled DM, paraplegia, surgeon's inexperience

- position – inadequate cylinder length
  SS deformity
  high riding pump
  kinked reservoir
- Pressure erosion
- Mechanical complication

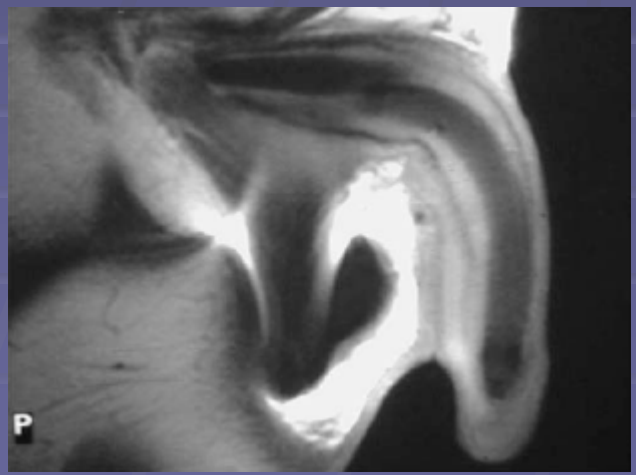
Radiological assessment of penile prosthesis: the role of MRI

World J Urol 2004

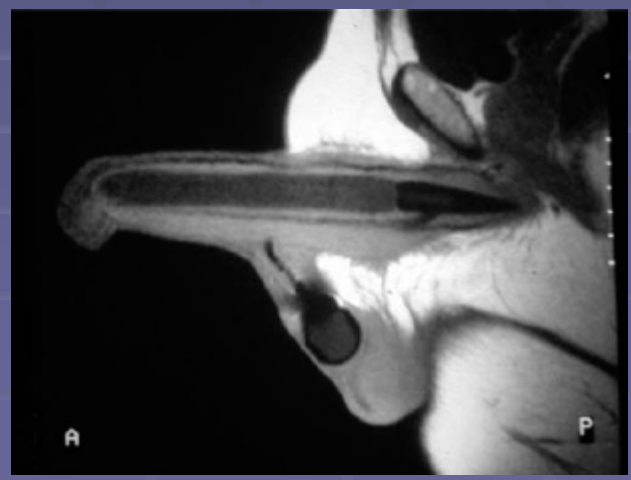




Buckling of one cylinder



Penile edema and sepsis



SST deformity or hypermobile glans

Penile implant infection

- Remove the prosthesis and reinsert it later, usually at least 3 months
- Salvage procedure – remove the prosthesis and all foreign materials, clean the wound by a series of antiseptic solutions and reinsert a new prosthesis

  Mulcahy 2003 84% success rate
- Irrigating solutions

  vancomycin and GM(1g/L and 80mg/L)

  half-strength hydrogen peroxide

  half-strength betadine

  pressure-wash with 5L NS containing vancomycin-GM mixture

  half-strength betadine

  half-strength hydrogen peroxide

  half-strength antibiotics solution

Table 3.2. Inflatable Penile Prostheses and Mechanical Failure: Summary of Studies Published after Those Included in the 1996 *Report* Analysis[45,68,69,70,71,72,73,74]

Reference	Number of Patients	Follow-up in Months: Range (Mean)	Data Pre- or Postmodification	% of Devices Free of Mechanical Failure*
AMS 700CX/CXM (not modified)				
Choi et al (2001)	273	6 - 100 (49)	NA	90.4
Carson et al (2000)	372	38 - 134 (57)	NA	86.2
Montorsi et al (2000)	90	(60)	NA	93.1
Daitch et al (1997)	111	1 - 112 (47.2)	NA	90.8
Dubocq et al (1998)	103	(66 across 3 groups)	NA	83.9†
AMS Ultrex (modified 1993)				
Montorsi et al (2000)	110	(58)	Both	79.4
Dubocq et al (1998)	103	(66 across 3 groups)	Both	84.2†
Milbank et al (2002)	85	<1 - 136 (75)	Pre-1993	64.7
Milbank et al (2002)	52	<1 - 92 (46)	Post-1993	93.7
Mentor Alpha-1 (modified 1992)				
Goldstein et al (1997)	434	<1 - 44 (22)	Both	85‡
Dubocq et al (1998)	117	(66 across 3 groups)	Both	95.7†
Wilson et al (1999)	410	Not specified	Pre-1992	75.3
Wilson et al (1999)	971	Not specified	Post-1992	92.6

NA = not applicable.
*Kaplan-Meier survival estimates; 5-year estimates unless otherwise noted.
†63-month estimate.
‡Three-year estimate.

Source: AUA guidelines

Vascular surgery for ED and selection criteria

- Penile revascularization

  discrete focal aretrial lesions found on pudental arteriography

  younger patients who have a history of trauma

  no systemic disease
- Surgery for a veno-occlusive disorder

  normal cavernous arteries on color duplex ultrasound

  proved by pharmacocavernosography

Result of penile arterial reconstructive surgery

Table 3.4. Penile Arterial Reconstructive Surgery: Summary of Studies Published Subsequent to the 1996 *Report* Literature Analysis[75,76,77,78]

Reference	Type of Surgery	Number of Patients	Months of Follow-up Overall: Range (Mean)	Success Rate % (N)	Success Criteria
Ang and Lim (1997)	Dorsal vein	6	8 to 37 (20)	66 (4)	NPT, Doppler
DePalma et al (1995)	Dorsal artery	11	12 to 48	60% (7)	Doppler
Grasso et al (1992)	Dorsal artery	22	1 y for all	68 (15)	NPT
				36 (8)	Doppler
Jarow and DeFranzo (1996)	Mixed	11	12 to 84 (50)	91 (10)	Doppler; DUS

DUS = duplex ultrasonography; NPT = nocturnal penile tumescence.

Source: AUA guidelines

Results of surgery for veno-occlusive ED

Study	P'ts	Excellent	Improve	Immediate success /later failure	failures	FU (mo)
Freedman et al 1986-1991	46	11(24%)	8(17%)	23(50%)	4(9%)	31-33
Stief et al 1989-1992	77	31(40.3%)	8(10.4%)		38(49.4%)	6
Schultheiss et al 1987-1996	126	14(11%)	24(19%)	56(44%)	32(25%)	33 +- 19.6

Penile edema, penile numbness, penile shortening

Source: AUA guidelines

The synergism of penile venous surgery and oral sildenafil in treating patients with ED

- Hsu GL Int J Androl 2005

- 65 patient underwent penile venous surgery + 12.5-100mg sildenafil
- 65 patients without surgery + 100mg sildenafil
-

	control	surgery group
initial IIEF	9.4+/-3.9	9.2+/- 5.0
after surgery		15.1+/- 5.0(p<0.001)
+ sildenafil	10.7+/- 3.5	20.1+/- 5.4(p<0.0001)

- 61 men (93.8%) positive response to sildenafil after surgery
- 8 men(12.7%) felt a beneficial response in the control group