

# Erectile Restoration

Penile Prosthesis Surgery

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**ZSI**  
Zephyr Surgical Implants



Erectile Dysfunction

PART I

**THREE DIFFERENT TYPES OF PENILE IMPLANTS**

**Primary Surgical Approaches for IPP (THREE DIFFERENT APPROCHES)**

**Penoscrotal Approach**

Step 1- **Incision of the skin**

Step 2- **Dissection**

Step 3- **Stay sutures**

Step 4- **Corporotomy**

Step 5- **Devolopment of the distal and proximal space**

Step 6- **Dilatation**

Step 7-1 **Sizing** (Hydraulic Penile Implant ZSI 475)

Step 7-2 **Sizing** (Malleable Penile Implant ZSI 100)

Step 8- **Preparation of the scrotal pouch for the PUMP and RESERVOIR** (Hydraulic – Inflatable implant ZSI 475)

Step 9- **Cylinder Implantation** ZSI 475 (Inflatable/Hydraulic Penile Implant)

Step 9- **Cylinder Implantation** ZSI 100 (Malleable Penile Implant)

Step 11- **Reservoir Filling**

Step 12- **Pump Implantation**



Step 13 – **Tubing with Connection**  
Step 14 – **Device Testing**  
Step 15 – **Closure**  
Step 16 – **Dressing**

## **Infrapubic Approach**

Step 1- **Incision of the skin**  
Step 2- **Dissection**  
Step 3- **Stay sutures**  
Step 4- **Corporotomy**  
Step 5- **Development of the distal and proximal space**  
Step 6- **Dilatation**

## **Subcoronal Approach**

Step 1- **Incision**  
Step 2- **Dissection and Stay Sutures**  
Step 3- **Corporal Dilatation**  
Step 4- **Repeat the incision and dilate**  
Step 5- **Evaluate the fit**  
Step 6- **Sizing and Placement**  
Step 7- **Closure**

## **PART II**

## **Pre-operative Considerations**

# Erectile Dysfunction



## Erectile Dysfunction

Erectile dysfunction (ED), also known as impotence, is a type of sexual dysfunction characterized by the inability to develop or maintain an erection of the penis during sexual activity.

Erectile dysfunction can have psychological consequences as it can be tied to relationship difficulties and self-image.

Prosthetic surgery for erectile dysfunction

# THREE DIFFERENT TYPES OF PENILE IMPLANTS

## SEMI-RIGID PENILE IMPLANT

(PVP Coating to fight against infection)

A simple and quick procedure



## SOFT PENILE IMPLANT

(PVP Coating to fight against infection)



## INFLATABLE PENILE IMPLANT

(PVP Coating to fight against infection)





# Primary Surgical Approaches for IPP

THREE DIFFERENT APPROACHES

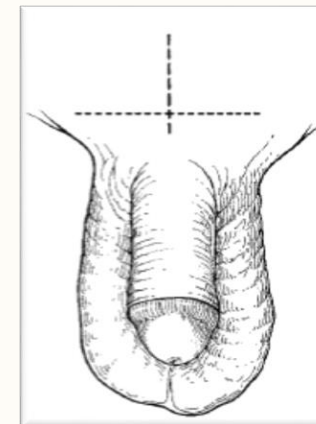
♂ Subcoronal Approach (only for malleable implantation)



♂ Penoscrotal Approach



♂ Infra-Pubic Approach



# Penoscrotal Approach

## Advantages:

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- ♂ Exposure is excellent in all patients including obese patients
- ♂ Affords proximal crural exposure if necessary
- ♂ Helps avoid possible neurovascular bundle injury
- ♂ Sphincters can be done through the same incision
- ♂ Cosmetically there is no scar
- ♂ Pump migration can be easily prevented

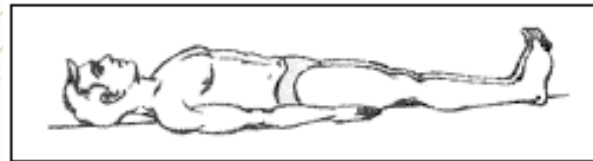
## Disadvantages:

- ♂ Blind placement of the reservoir into the retro pubic space

# Penoscrotal Approach

## Step-1 Incision of the skin

- ♂ Make a vertical 2-3 cm incision through the median raphe of the scrotum at the penoscrotal angle



SUPINE POSITION

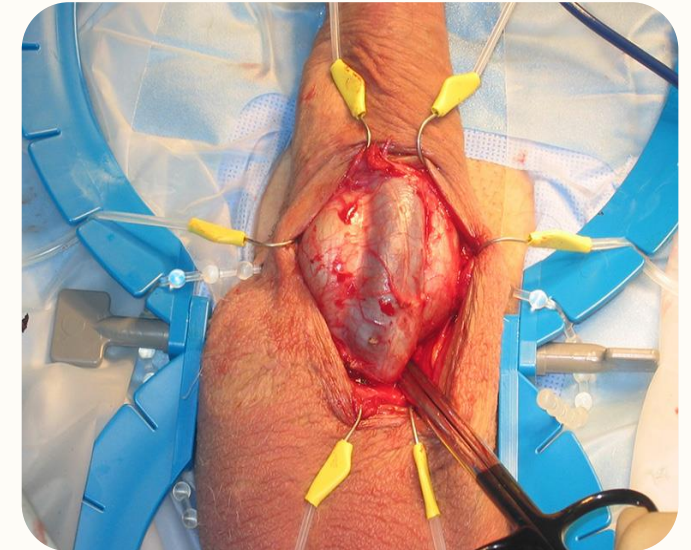
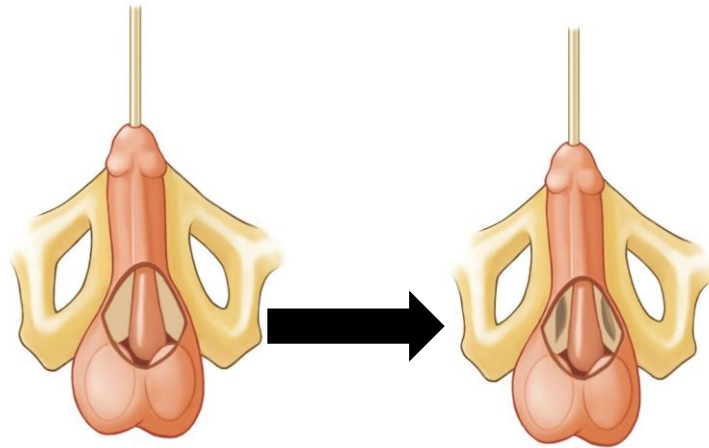




# Penoscrotal Approach

## Step-2 Dissection

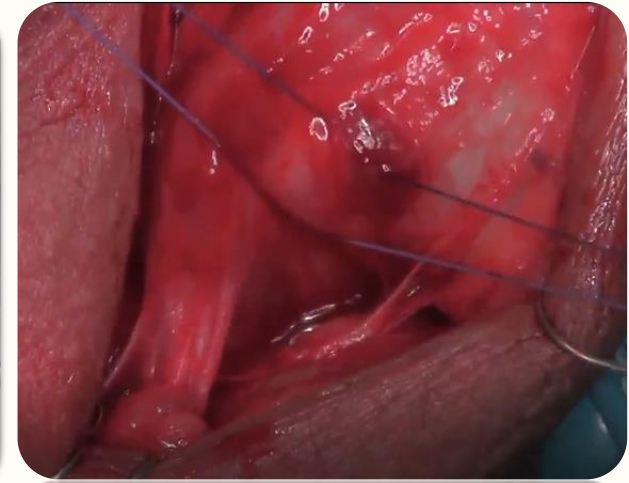
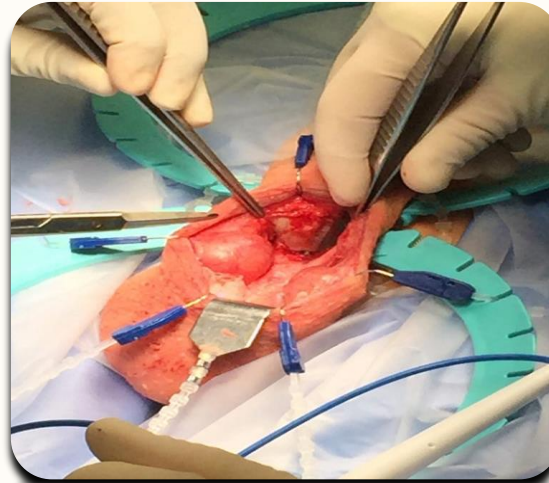
- ♂ Dissect through the dartos fascia and buck's fascia to expose the tunica albuginea to achieve deep exposure of the proximal corpora. Make an incision in each area.
- ♂ To avoid damage to the urethra retract the corpus spongiosum laterally



# Penoscrotal Approach

## Step-3 Stay sutures

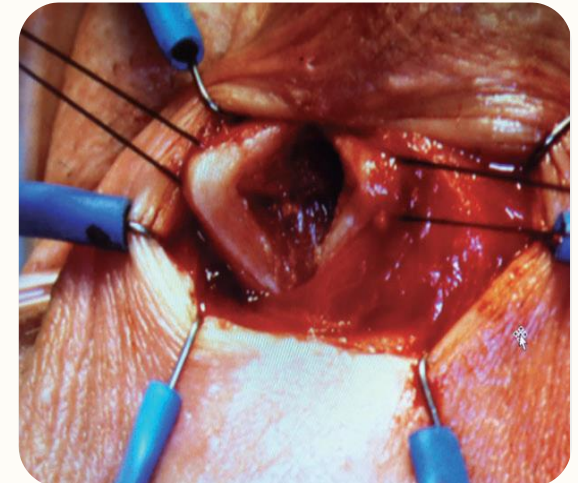
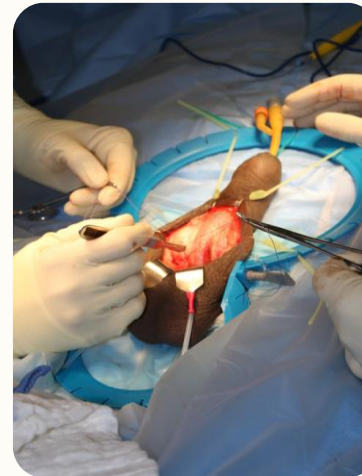
- ♂ In each corpus cavernosa; place stay sutures (00 Prolene or Silk – or physician preferred) in the tunica albuginea at the 8 and 10 o'clock positions.



# Penoscrotal Approach

## Step-4 Corporotomy

- ♂ Make a 1-1.5 cm incision, lateral to the urethra, between the two stay sutures in the corpus cavernosa.

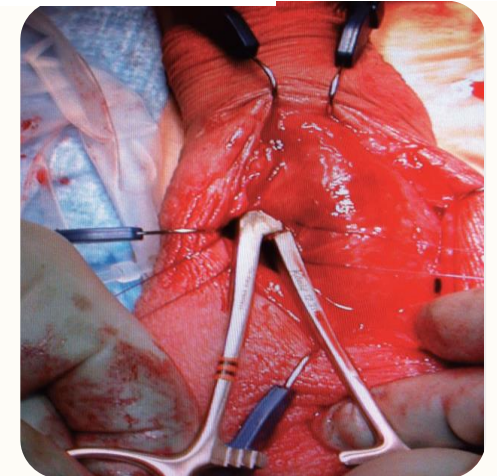
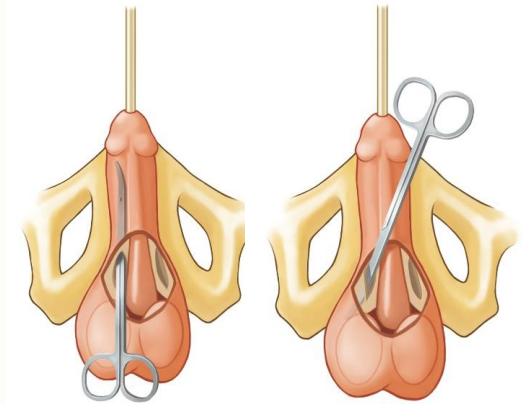




# Penoscrotal Approach

## Step-5 Development of the distal and proximal space

- ♂ Long Mayo scissors can be passed proximally to the tip of both crurae and distally to the penile glans.
- ♂ To facilitate the dissection, the scissors are inserted closed and withdrawn open in both sites and should always be aimed away from the urethra.
- ♂ To secure proper sizing of the penis, dissection should be continued into the glans until an optimum level of distal space development is acquired.





# Penoscrotal Approach

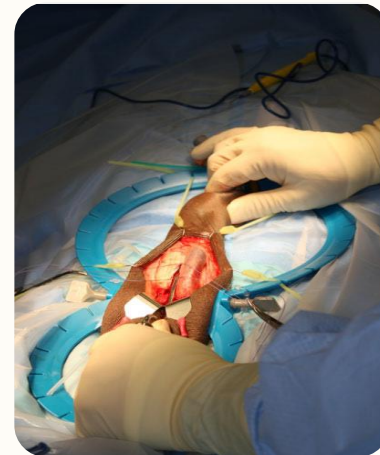
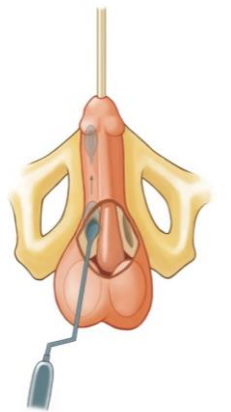
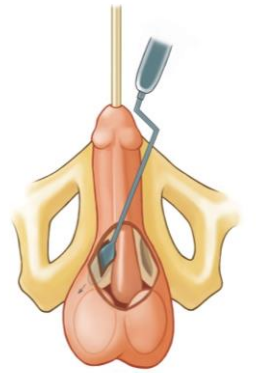
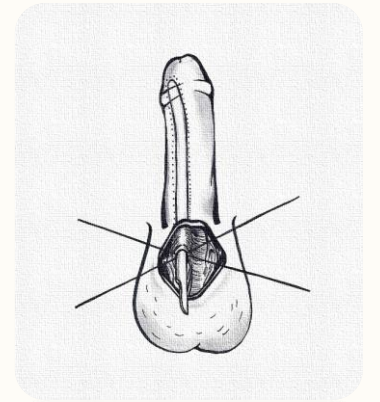
## Step-6 Dilatation

- ♂ To create the required space for the cylinders in the corpus cavernosa a series of dilators of the physician's choice are used (generally from 7 mm up to 14 mm)
  - ♂ The method and amount of dilatation may vary by each individual physician.
- Corpus cavernosa dilatation for malleable penile implant ZSI 100, up and down with dilators:

ZSI 100 D 9 mm: dilators up to 9 or 10

ZSI 100 D 11 mm: dilators up to 11 or 12

ZSI 100 D 13 mm: dilators up to 13 or 14

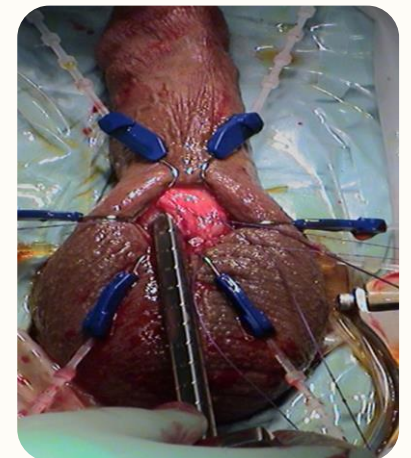
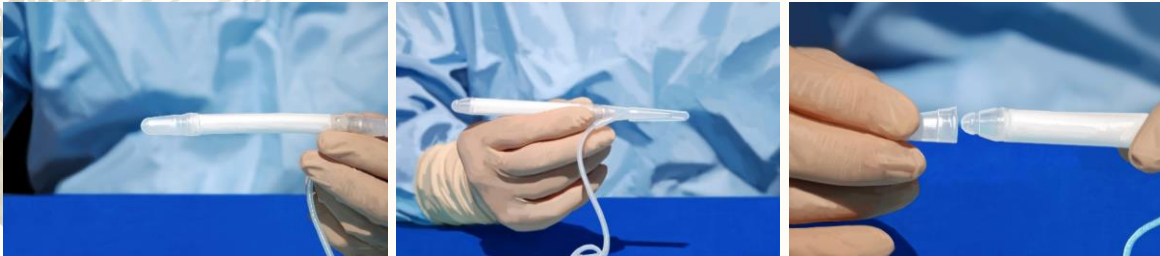
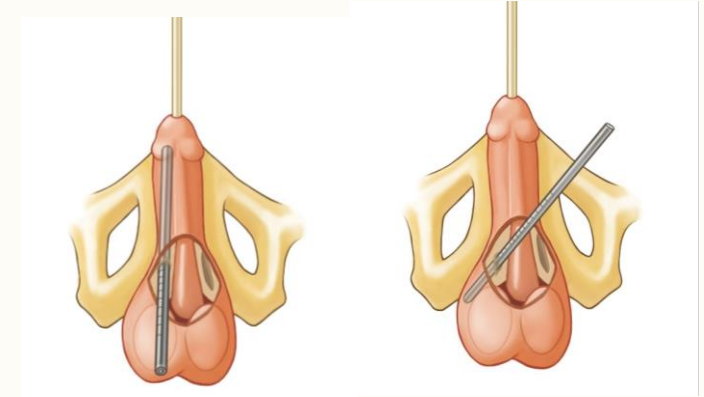


# Penoscrotal Approach

## Step-7-1 Sizing

(Hydraulic Penile Implant ZSI 475)

- ♂ Measure each corpus cavernosa proximally and distally using the Furlow Insertion Tool or similar, slightly stretching the penis during measurement.
- ♂ Taking one of the stay sutures as a reference point while measuring both distally and proximally will provide reliable measuring



ALL THE ACCESSORIES ARE IN ONE BOX

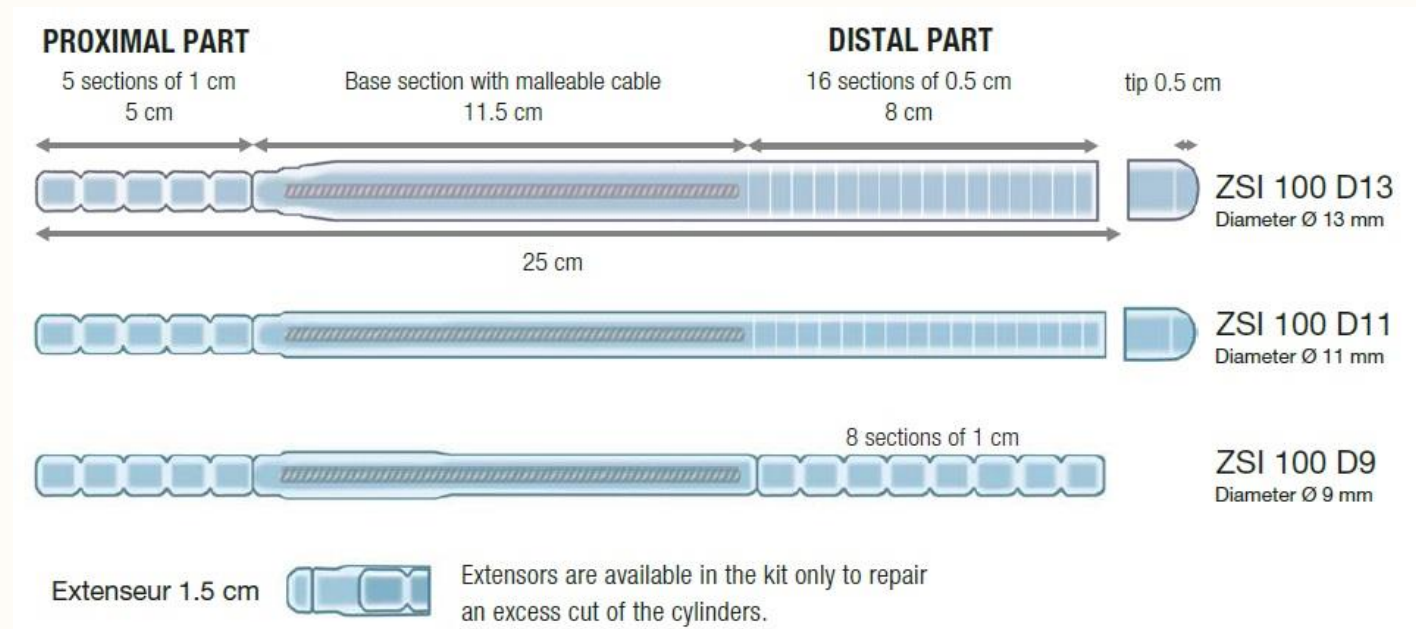
# Penoscrotal Approach

## Step-7-2 Sizing

(Malleable Penile Implant ZSI 100)

Cut the penile implant to the right size, from 25 to 12 cm. The surgeon can reduce the length from the distal or/and proximal part, to suit the individual patient's anatomy or expectations.

But always cut distal part first and then proximal part if necessary. This allows the ZSI 100 device to be modified to maximize patient comfort. In case of mistake, extensors are provided (For proximal part).



Closure of layers and skin after large washing with antibiotics.

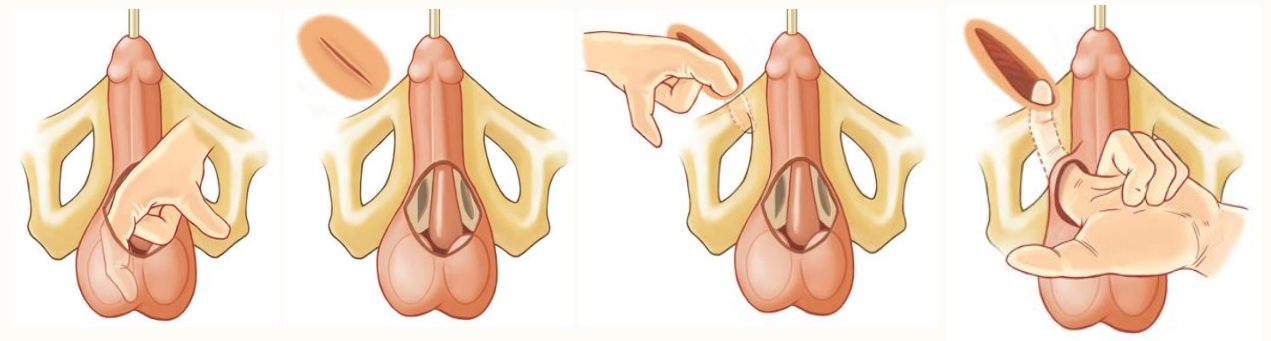
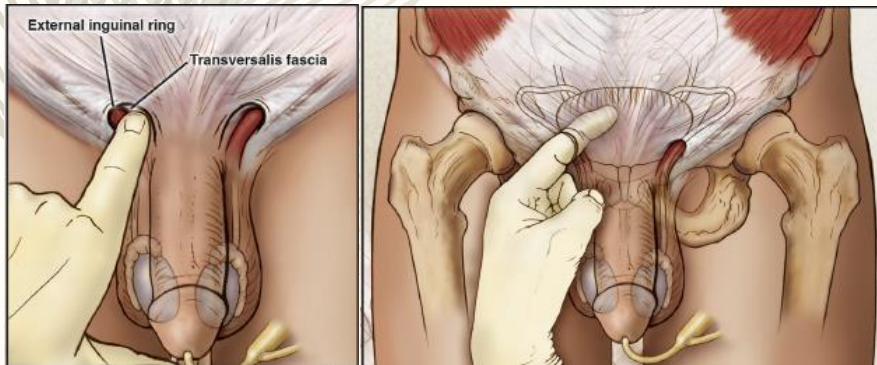


# Penoscrotal Approach

## Step-8

Preparation of the scrotal pouch for the PUMP and RESERVOIR  
(Hydraulic – Inflatable implant ZSI 475)

- PREPARATION OF THE SCROTAL POUCH FOR THE PUMP
- INGUINAL INCISION
- PREPARATION OF THE PELVIS FOR THE RESERVOIR  
(To provide access to the prevesical space create a defect in transversalis fascia through the external inguinal ring)
- PREPARATION OF THE PASSAGE FOR TUBING



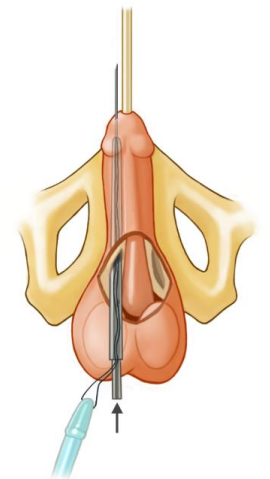


# Penoscrotal Approach

## Step-9 Cylinder Implantation

ZSI 475 (Inflatable/Hydraulic Penile Implant)

- **PASSAGE OF THE NEEDLE**
  - ♂ Remove the needle from suture to prevent any risk of cylinder puncture.
  - ♂ **IRRIGATION OF ANTIBIOTICS (Gentamycine)**
  - ♂ Place the base of the cylinder into the crus
  - ♂ Pull the inflatable part of the cylinder into the corporal space with the help of cylinder sutures
  - ♂ Follow the same instructions to place the other cylinder into the corporal space.

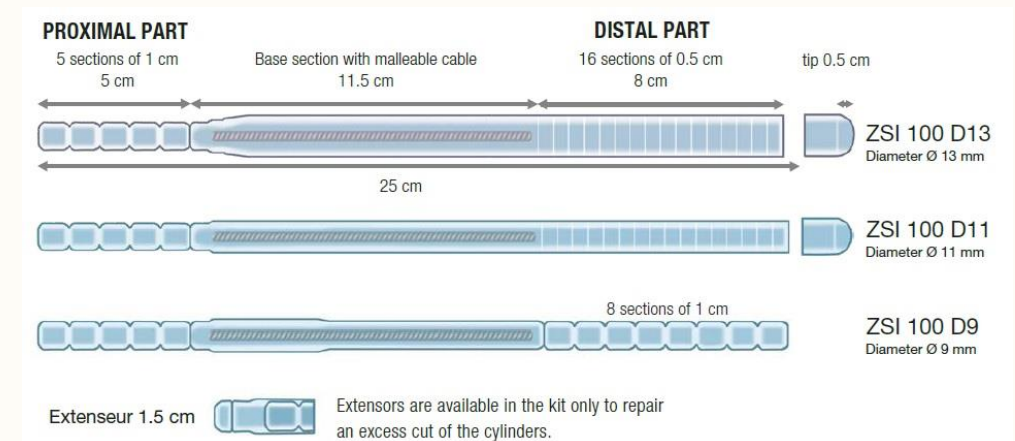


# Penoscrotal Approach

## Step-9 Cylinder Implantation

ZSI 100 (Malleable Penile Implant)

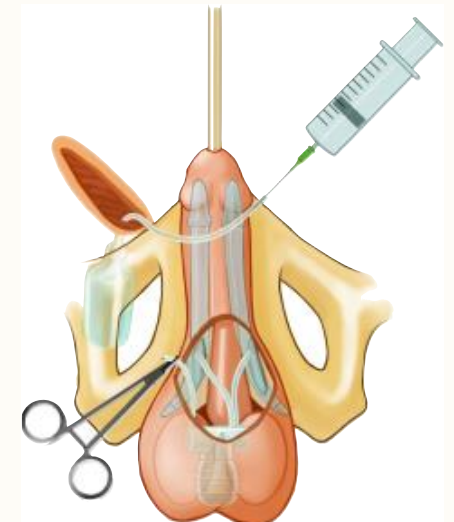
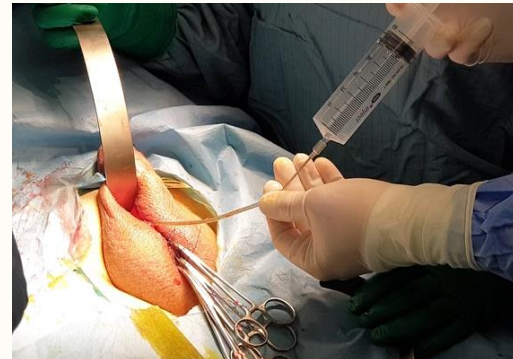
- ♂ In order to ensure correct size and fit inflate the component until cylinders are full
- ♂ Ensure that the distal tip is under the penile glans, the cylinder lies within the corporotomy, and the proximal end rests firmly against the crus for satisfactory fit within corpus cavernosa
- ♂ If the fit is not satisfactory, physician should remove the cylinder, adjust its length as needed and re-implant.



# Penoscrotal Approach

## Step 11 - Reservoir Filling

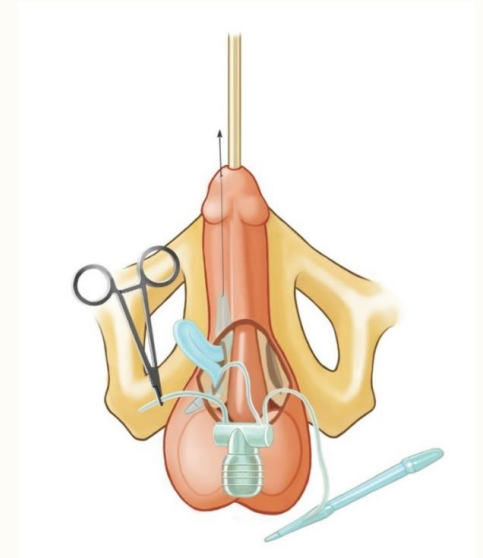
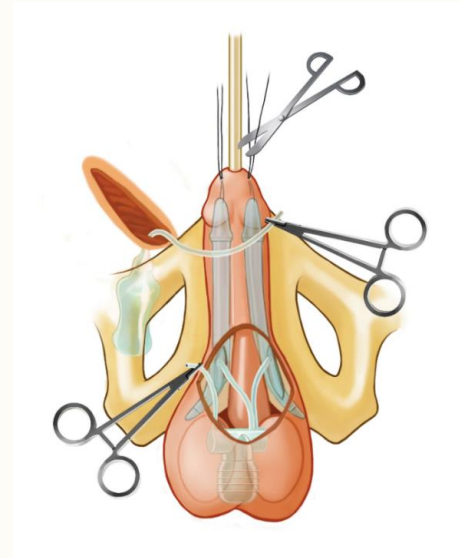
- ♂ After implantation, flush the reservoir tubing with normal saline using a the needle available in the BOX with a 10 cc syringe
- ♂ Use the needle on the 60 cc syringe to fill the reservoir with sterile saline and re-clamp the reservoir tubing with hemostat shod



# Penoscrotal Approach

## Step 12 – Pump Implantation

- ♂ The physician forms a pocket large enough to accommodate the pump in the sub-dartos pouch by using blunt dissection.
- ♂ To hold pump in place during the remainder of surgery the physician can apply Babcock clamps or similar to pump tubing through the scrotal skin

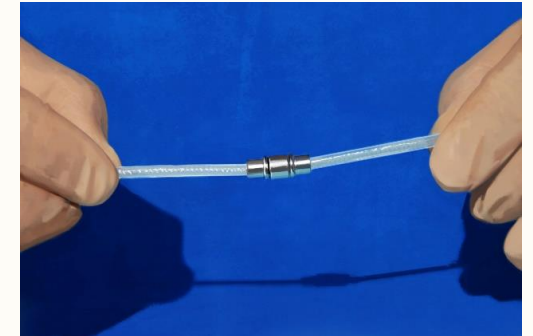
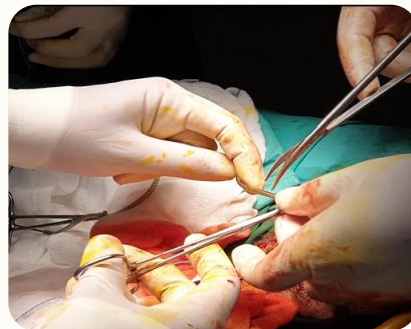




# Penoscrotal Approach

## Step 13 – Tubing with SecureConnect

- ♂ Determine the tubing length to fit the patient's anatomy and cut the tubing with a sharp, straight scissors or a knife blade.
- ♂ The physician should place a second hemostat shod approximately 1.5 cm adjacent to the desired cutting point prior to cut to prevent airflow into the tubing.
- ♂ A 22G blunt tip needle is used to flush the tubing ends with normal saline to remove particles, blood and air before connecting.
- ♂ Insert tubing ends on the connector. Firmly push both ends of the tubing to the center of the connector.



# Penoscrotal Approach

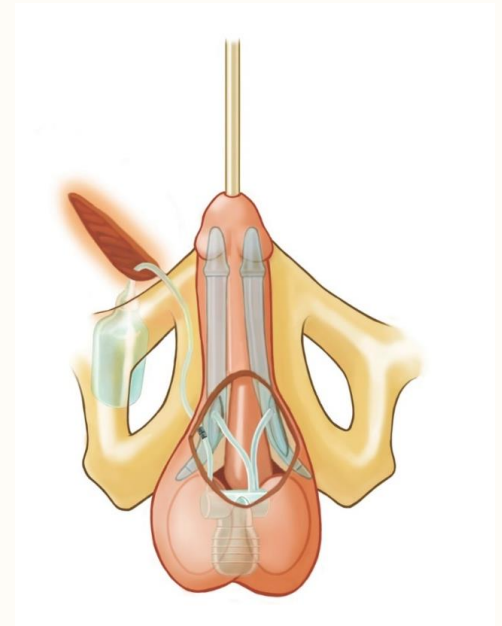
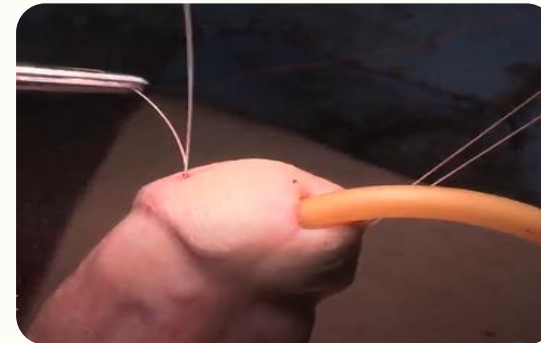
## Step 14 – Device Testing

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Inflate the cylinders to evaluate the proper functioning of the device and the appearance of the erected penis.

Deflate the cylinders to a semi-inflated stage.

Remove the cylinder sutures by cutting one suture close to the glans and pulling back on the other end of the suture.

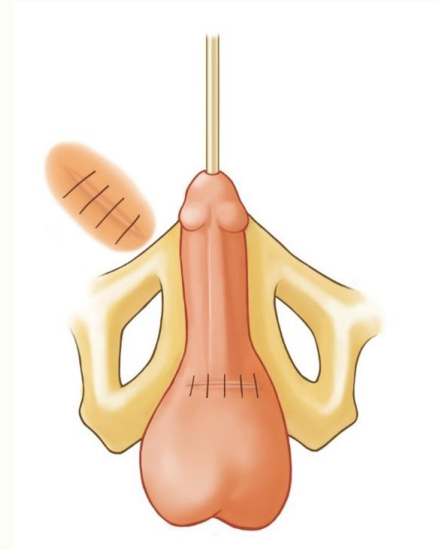


# Penoscrotal Approach

## Step 15 – Closure

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- The subcutaneous tissue is irrigated with physician preferred irrigating/soaking solution
- The subcutaneous tissue is closed in two layers with interrupted sutures of 00 plain catgut.



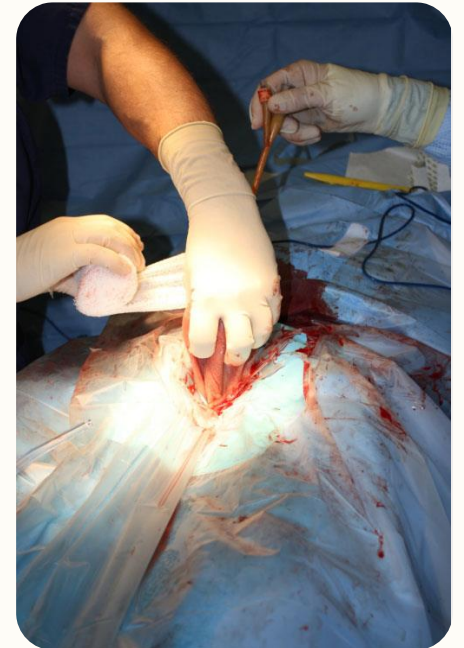
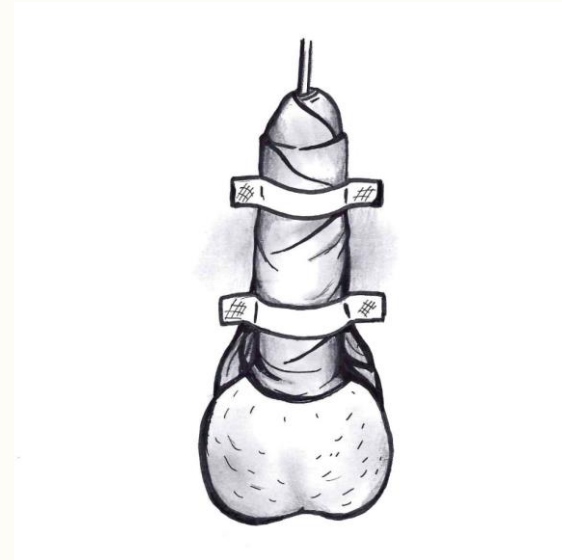


# Penoscrotal Approach

## Step 16 – Dressing

The Foley catheter and or tissue drain is placed (for 12 - 24 hours)

Scrotal pressure dressing may help the prevention of scrotal hematoma





# Infrapubic Approach

## Advantages:

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- Direct vision introduction of the reservoir into the prevesical space
- Opportunity to implant cylinders and pump safely

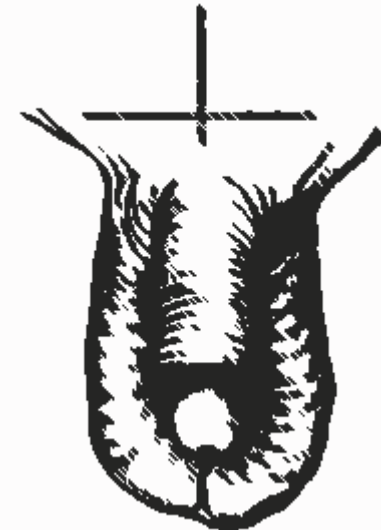
## Disadvantages:

- Difficult dilatation in obese patients
- High riding pumps may occur
- Risk of dorsal nerve injury

# Infrapubic Approach

## Step-1 Incision of the skin

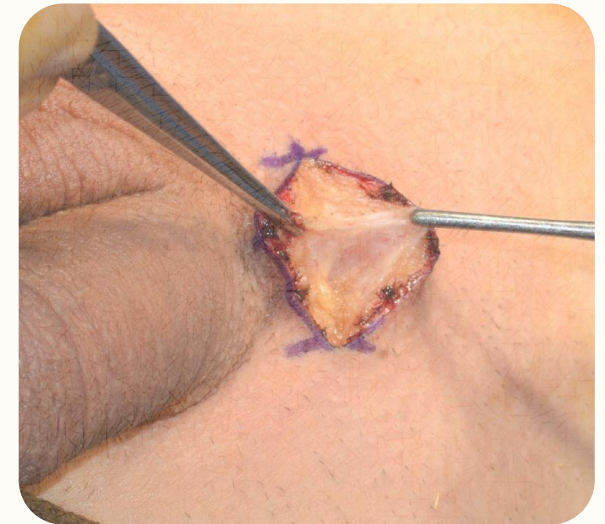
- ♂ Make a 4-6 cm transverse incision at the level of the symphysis pubis.
- ♂ Extra caution should be taken to avoid the midline neurovascular bundle.



# Infrapubic Approach

## Step-2 Dissection

- ♂ Expose Buck's fascia on the proximal dorsal surface of the penis by carrying out an incision through the subcutaneous tissue.
- ♂ Midline venous and lymphatic structures should be avoided during this procedure.





# Infrapubic Approach

## Step-3 Stay sutures

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- ♂ In each corpus cavernosa; place stay sutures (00 Prolene or Silk - or physician preferred) in the tunica albuginea at the 2 and 10 o'clock positions.
- ♂ The sutures should be lateral to the dorsal penile nerves, 1-2 cm distal to the suspensory ligament.

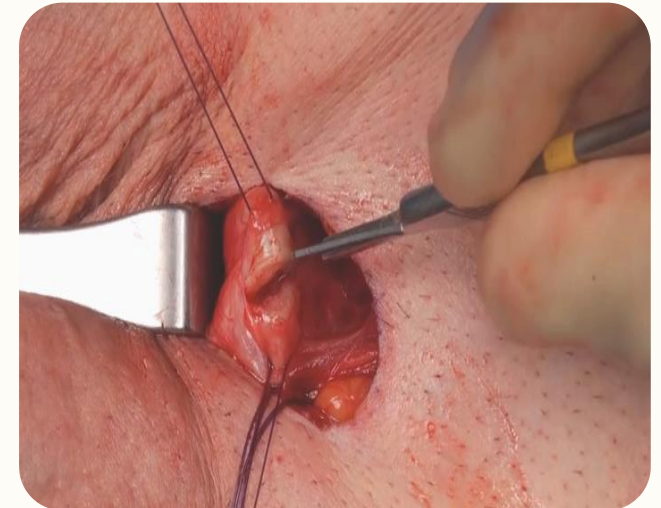


# Infrapubic Approach

## Step-4 Corporotomy

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- Make a 1.5 cm of longitudinal incision in the tunica albuginea between the two stay sutures on the corporal space

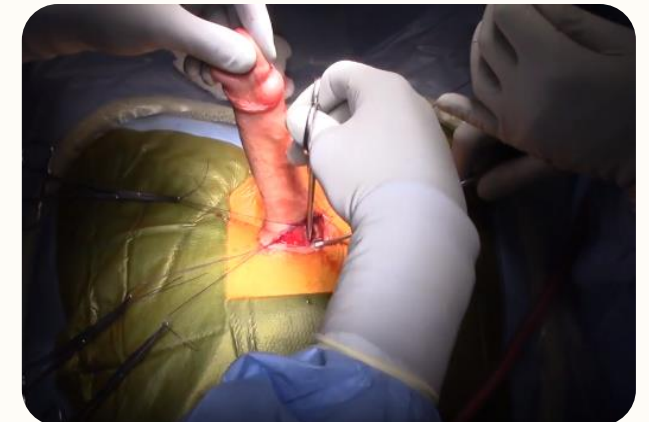
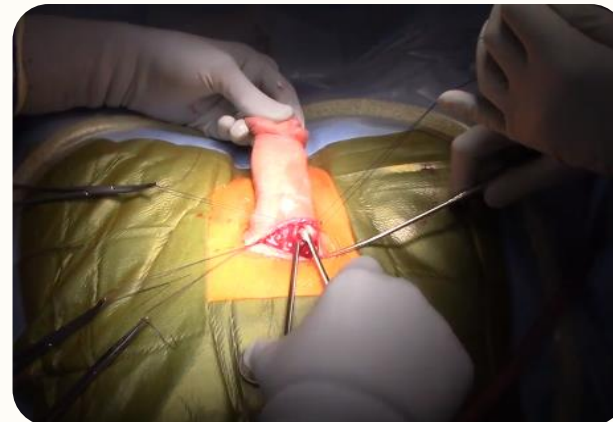


# Infrapubic Approach

## Step-5 Development of the distal and proximal space

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- ♂ Long Mayo scissors can be passed proximally to the tip of both crurae and distally to the penile glans
- ♂ To facilitate the dissection, the scissors are inserted closed and withdrawn open in both sites and should always be aimed away from the urethra

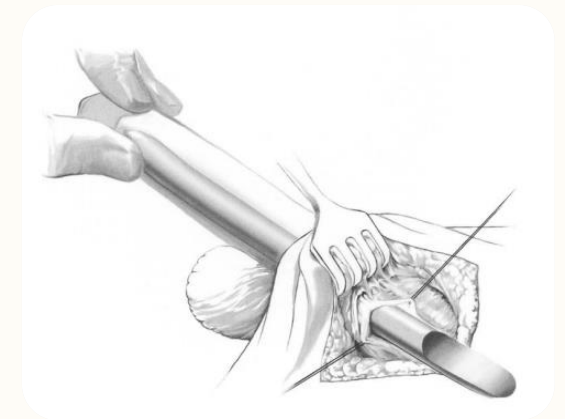
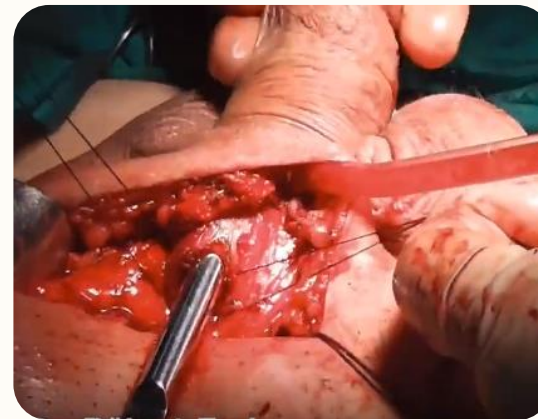




# Infrapubic Approach

## Step-6 Dilatation

- ♂ To create the required space for the cylinders in the corpus cavernosa a series of dilators of the physician's choice are used (generally from 7 mm up to 14 mm)
- ♂ The method and amount of dilatation may vary by each individual physician.



# Subcoronal Approach

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- ♂ Only suitable for rigid prosthesis
- ♂ Straightforward approach
- ♂ Longer corporotomy is not required
- ♂ No risk of damaging the component
- ♂ Easier implantation for malleables with wider turning angle

# Subcoronal Approach

## Step-1 Incision

- ♂ Suture throughout the glans to allow traction and stretching of penis
- ♂ Make a 3cm subcoronal incision (skin and buck's fascia)





# Subcoronal Approach

## Step-2 Dissection and Stay Sutures

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- ♂ Dissect through the buck's fascia to expose the tunica albuginea
- ♂ Make appropriate corporotomies in each corpus cavernosum

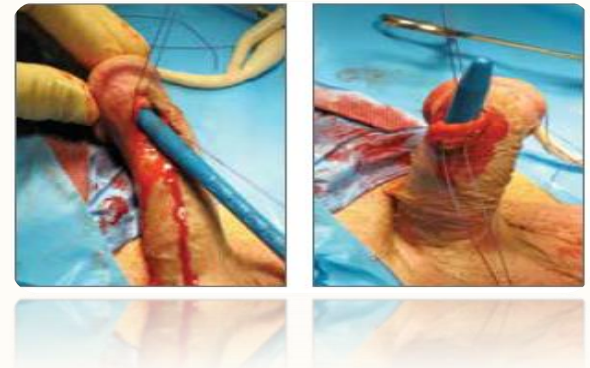


# Subcoronal Approach

## Step-3 Corporal Dilatation

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- ♂ Using a series of progressively larger dilators, dilate both corpora proximally and distally
- ♂ Dilate approx. 1mm beyond the prosthesis diameter
- ♂ Be delicate to avoid crossover through the intracavernosal septum



# Subcoronal Approach

## Step-4 Repeat the incision and dilate

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♂ Repeat incision and dilatation on the other side



# Subcoronal Approach

## Step-5 Evaluate the fit

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- ♂ Simultaneously insert dilators side by side into the proximal ends of the corpora to check crossover
- ♂ Repeat this step to distal ends



# Subcoronal Approach

## Step-6 Sizing and Placement

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- ♂ Stretch the penis to approximate an erection
- ♂ Use sizer to measure both distally and proximally
- ♂ Add the measurement together to attain intracorporal length
- ♂ The prosthesis should be sized so that there is not excessive pressure on the glans which could lead to pain or erosion



# Subcoronal Approach

## Step-6 Sizing and Placement

♂ The device provides the best erection if the possible widest diameter is chosen

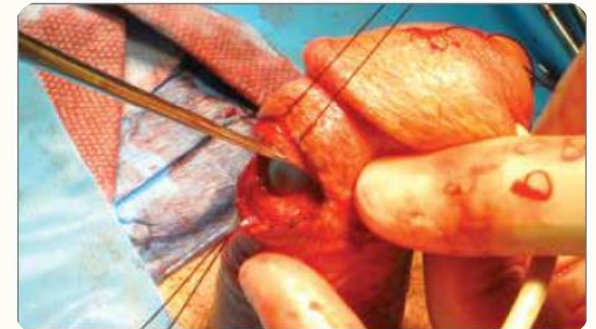
Product Code	Prosthesis Diameters	Prosthesis Lengths	Distal Extenders	Proximal Extenders
ZSI100 D9	9 mm	25 cm	0.5 cm	1-1.5 cm
ZSI100 D11	11 mm			
ZSI100 D13	13 mm	25 cm		

# Subcoronal Approach

## Step-7 Closure

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- ♂ Advance glans over the ZSI100 prosthesis
- ♂ Close the corporotomy and incision using an acceptable surgical technique





# Pre-operative Considerations

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PART II  
upcoming soon





# Thank you for your attention

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