An anatomical illustration of the male pelvic region, showing the prostate gland, vas deferens, ureters, and nerves. The prostate is highlighted in red, and the vas deferens and ureters are shown in yellow. The surrounding structures are in shades of blue and purple.

Situational and Surgical Nuances In Penile Prosthesis Implantation following Pca Therapy

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Why PPI after RP

- Today, in Belgium, a man of 50 years will live up to 77 years and a man 60 year will live to 82 years
- After treatment of a localized cancer of the prostate, the survival is greater than 10 years in 80 to 90% of the cases
- Aggressive PCa screening has led discovering smaller and smaller cancer in younger and younger men
- **Three purposes of RP and in order of priority**
 - First: neutralize all cancer
 - Second: preserve continence
 - Third: preserve the erection if possible
- The fate and QoL of the Pca survivors is a **real problem** for urologists

Why PPI after RP

- Sexual function included sexual desire, penile ability for erection, achievement of ejaculation and orgasm, frequency of intercourse and other aspects.
- At the age of 50–80 years, these 5 axes decrease in 50 –70% of men, causing distress for them and their sexual partners.
- **These patients aged 50 to 80 can be screened for Pca**
- **Between the ages of 50 to 80 years, only 30 to 50% of men live without sexual disorders.**

Some young or even older urologists believe that sexual activity stops at age 50 !!!

- About Information, men with recently diagnosed PCa have **unrealistic expectations of sexual outcomes**, whereas in reality, **most Pca survivors experience severe and lasting sexual dysfunction and dissatisfaction** that generates significant discomfort to men and their sexual partners.

Why PPI after RP

- The incidence of post-RP **ED** has been reported to be between **29-88%**. This wide range of values can largely be attributed to failure to control various confounding factors including age, degree of nerve sparing, different definition of potency and preoperative ED. The CaPSURE study revealed that **only 20%** of patients returned to their preoperative baseline potency levels 1 year after RP.
- The negative impact of oncological anxiety on the satisfaction rates patients and their partners after PPI is important.
- 1/5 men is dissatisfied about the functional results after RP, particularly because of complications like **ED** and **UI**.

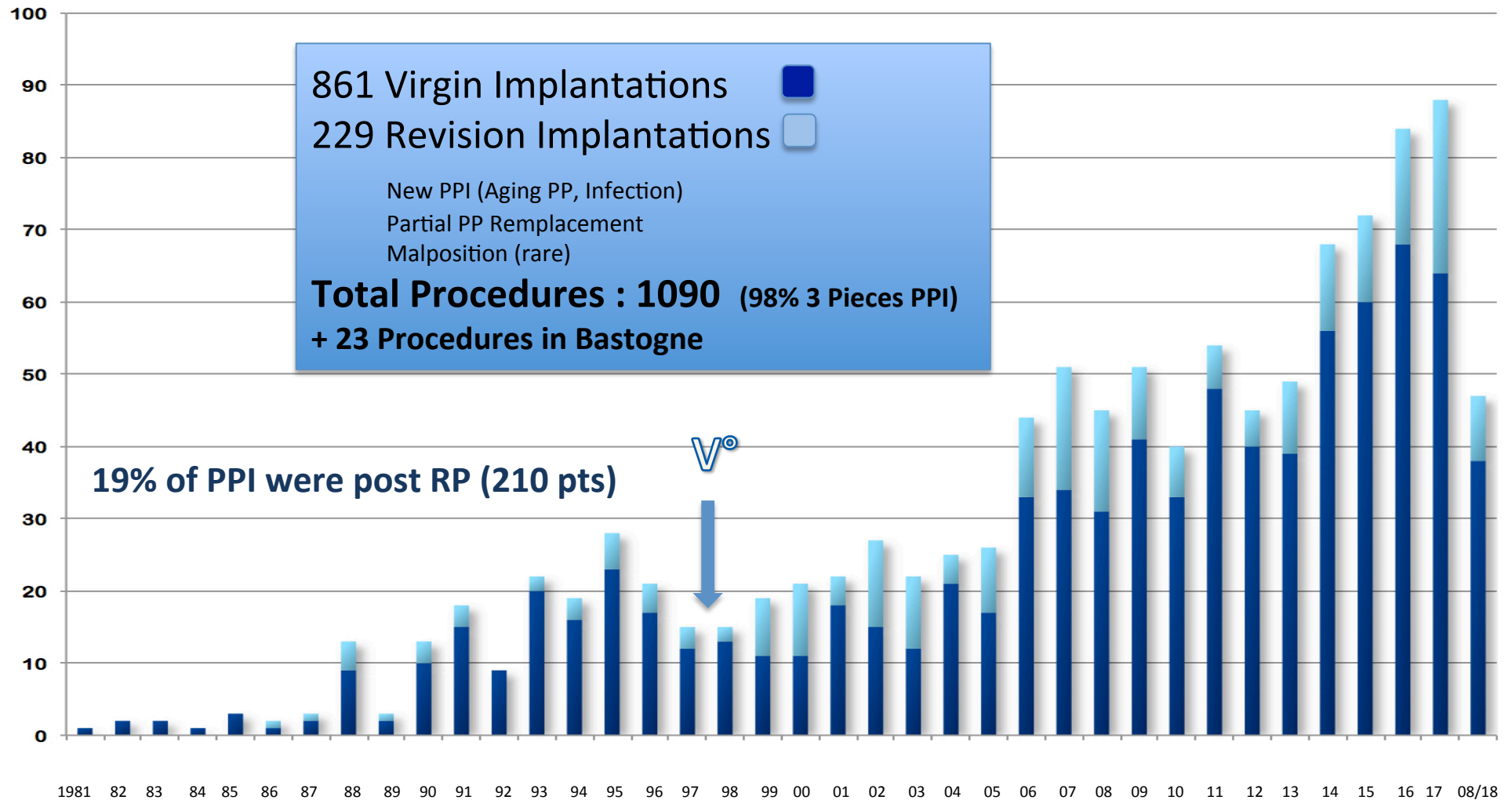
When PPI after RP

- The **ED** after RP is the prototype of the organic ED
- Post-RP **ED** may be neurogenic, venogenic, arteriogenic or a combination of these etiologies. In all cases, injury of the cavernous nerves occurs during dissection of the prostate. The injury, whether caused by contact, traction, electro-cautery or transection, initiates a cascade of events that culminates in ED.
- For the man, the **urinary incontinence** is globally an obstacle to a good sexuality (he feels dirty and humiliated)
- Sexual revalidation will be done after or with recovery of an acceptable continence

When PPI after RP

- Waiting for a minimum of **2 years** prior to PPI if nerve-sparing with first and second-line treatments
- “Predictable ED”, when non-nerve-sparing RP, PPI may be offered at any time after RP and failure of medical treatment. In this case, we think that it is necessary to practice a **PPI quickly to avoid**
 - that the sexological situation of the couple does not deteriorate too much ...
 - Pejorative penile lesions for optimal implantation
- Simultaneous placement of PPI and RP is feasible, with high satisfaction rates
- **But ... Penile implants after RP varies only from 0.8 to 1.9% in USA but no majoration after V°**
- **Why so low implantation of penile implants after RP ?**
 - Firstly, PCa treatment modalities have improved, thereby decreasing the incidence of ED that is unresponsive to nonsurgical intervention.
 - Secondly, effective nonsurgical treatment modalities have been developed as alternatives to surgical treatment, predominantly PDE5Is.
 - Meta-analysis of contemporary publications by Tal *et al.* revealed an overall erectile function recovery rate of 58% among men younger than 60 years after RP.
 - Pca survivors become resigned and insufficiently informed about the penile implant
- **Think of** simultaneous or not synchronous placement of PPI and incontinence device is very effective (Male Sling-AUS- Mini-jupette)

PPI Cohort (1981-2018) CHU Liège(B)



Situational nuances in IPP following Pca

- Pca survivors, are facing **a brutal ED with or without a certain level incontinence after RP.**
- ED appears gradually after radiotherapy.
- ED after RP **is frequently associated with other sexual disorders:** dry orgasm, climacturia, shortening of the penis, PD, with psychological injuries and loss of libido

Functional future of the Pca survivors

Dysfunction	Prevalence (%)
Erectile dysfunction	20–90
Climacturia	14–28
Arousal incontinence	93
Orgasmic dysfunction (anorgasmia, delayed orgasm, dysorgasmia, decreased orgasm intensity)	18–46
Reduced penile size	68–71
Peyronie's disease	16

When Erectile deformity is present or suspected

- **Importance of detecting deformity :**
 - Photos under ICI the 3 views
 - Clinic evaluation of cavernous tissue elasticity (stretching of the penis)
 - ICI of PGE1 during Power Doppler
 - Start implantation with artificial erection
- **Loos of penis length : 70 % of men undergoing RP due to**
 - **sequelae of nerve injury**, ischemia from accessory pudendal ligation, or unopposed sympathetic tone with corporal smooth muscle contraction and a hypertonic retracted penis;
 - **PD** is responsible for the alterations in penile length – Preadable ICI injection
 - Inability of today's prosthesis to duplicate the full length of normal erection, the penis may be shortened after RP

We insert a PP with **oversized corporal cylinders** for intracorporal stretching : 2 hours daily or use VED before or/and in the post-operative setting

- In time of PP revision penile cylinders, the new cylinders were 2 cm longer

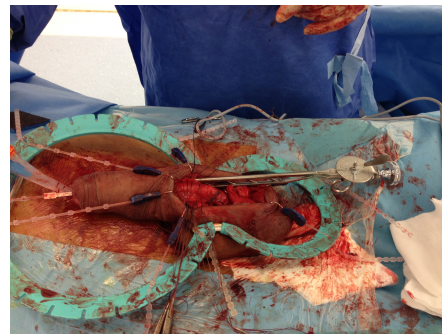
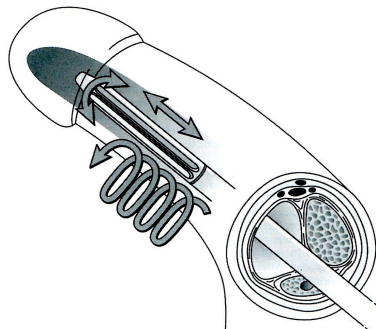
When Erectile deformity is present

- **Peyronie's disease: 15 % of men undergoing RP** due to
 - ICI for revalidation or therapy with fibrosis curvature
 - Reduced rigidity during coitus with buckling injuries then PD
 - Predictors: young men of white race, 13 months after RP

We use Titan OTR or 700 CX in case of deformity (with LGX PP, allows girth and length expansion risk of curvature increase) , SW modeling or plaque incision with Tachosyl

- **Corporal fibrosis after RP** due to
 - Refractory low-flow iatrogenic priapism (ICI)
 - Chronc IIC of vasoactive drugs
 - Rare Penile trauma

We use specialized instruments that assist safer and more efficient excavation (various cavernotomes, Carrion-Rossello, Hegar dilators, Otis Urethrotome with blind use or large cavernotomy and open excision of fibrotic tissue)



PPI after External Radiation Therapy

- PPI **safely** performed in men who have had RP and external radiation therapy
- We have not noticed increased difficulty during 3-pieces PPI, no increased risk of device infection or erosion in these patients
- If crura was exposed to some radiation it is usually possible to dilate with Metzenbaum scissors to the point at which a normal-size cylinder can be implanted. If severe fibrotic tissue, Coloplast narrow-base cylinder or the AMS CXR cylinder can be used
- Delayed external Radiation therapy after PPI is not a problem

PPI after Androgen Deprivation Therapy

- In our practice, we have not experienced any difficulty in IPP in terms of dilating the corpora or implanting cylinders ...
dilatation must be gentle and careful ...
- Care should for the sub-dartos pouch for the pump: scrotal skin in these men is thin and easily injured ... the usual amount of force may produce scrotal injury
creating the scrotal cavity for the pump should be gentle and careful ...

Erectile dysfunction and incontinence after RP ... the fact

1. In our experience, few patients who think they have intimate relationships when they are incontinent.
2. In our department, an incontinent patient after RP is always evaluated on its wish of erectile revalidation.
3. In our « Service d'Urologie of the CHU », if we decide implantation of a penile prosthesis after RP, we think with respect to this issue postRP light incontinence or/and climacturia

Concomitant Placement of Penile Implant and Sling (TOM sling or Mini-jupette) or AUS

- *Tom Sling*: Begin step is the sling (by perineal route) then the PI (by peno-scrotal way)
- *Mini-jupette*: PPI and Mini-jupette by peno-scrotal way in one procedure
- *AUS* : in case of Raditherapy or failure of a passive mechanism

18 patients receive a « male sling – *Tom Sling* » and a PPI in one procedure between 2006 and 2018 with good results

- 3 days hospitalization
- (no experience with Coloplast Virtue and AdVance (AMS))

30 patients receive a « mini-jupette » and a PI in one procedure during the same incision

- 2 days hospitalization

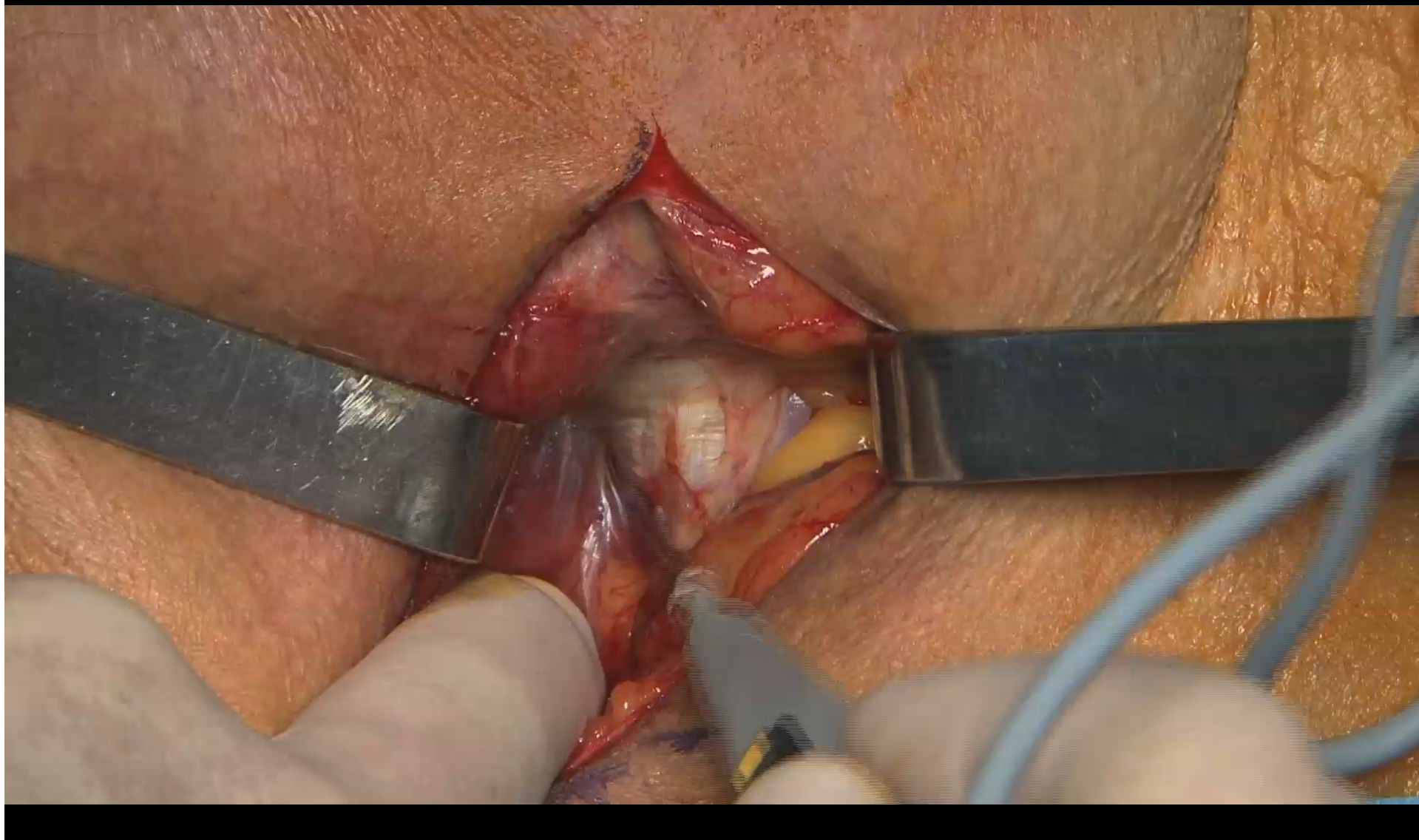
4 patients receive AUS and PPI

First step is the Tom Sling (by perineal route)

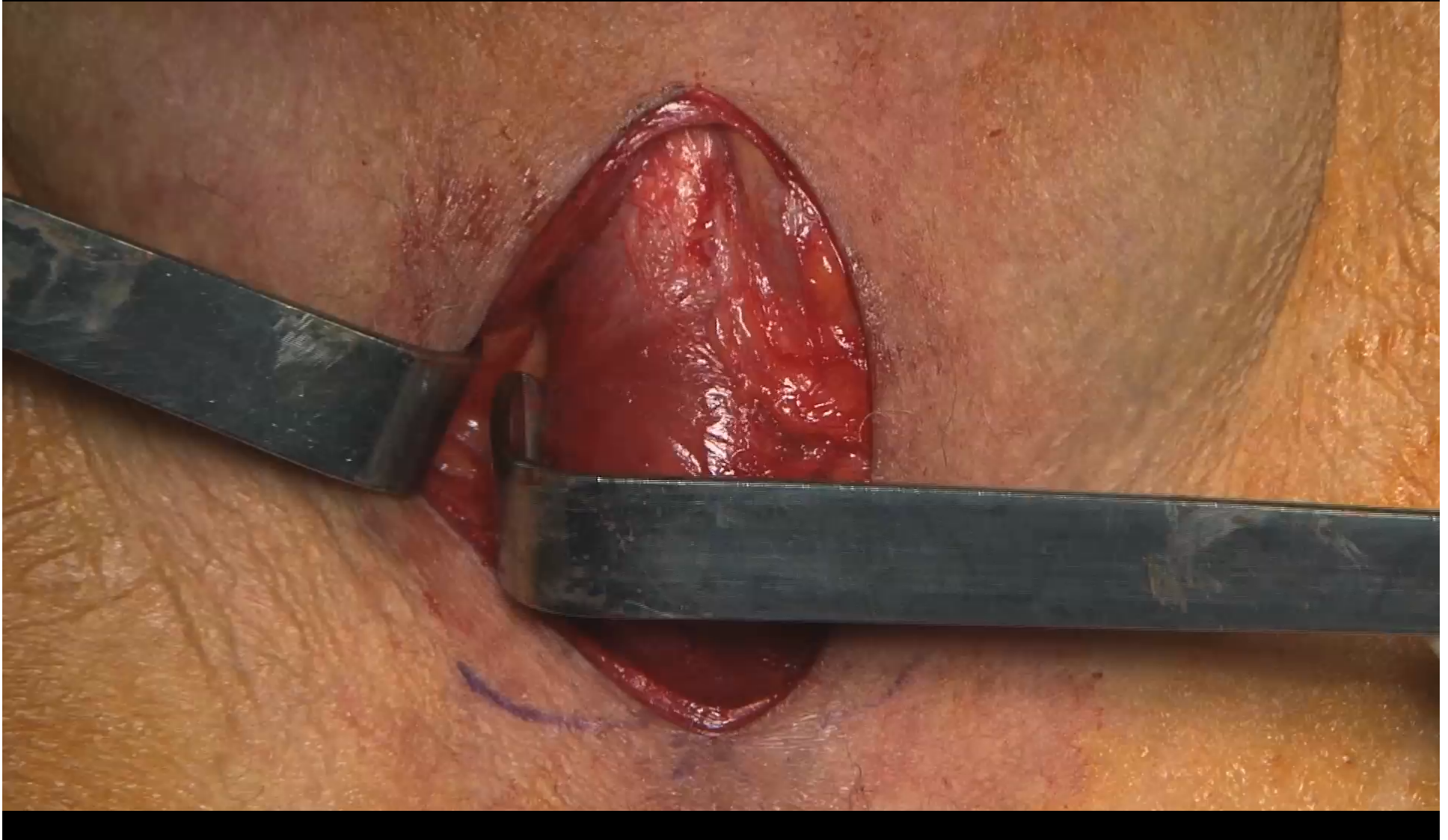
Initial dissection



Initial dissection



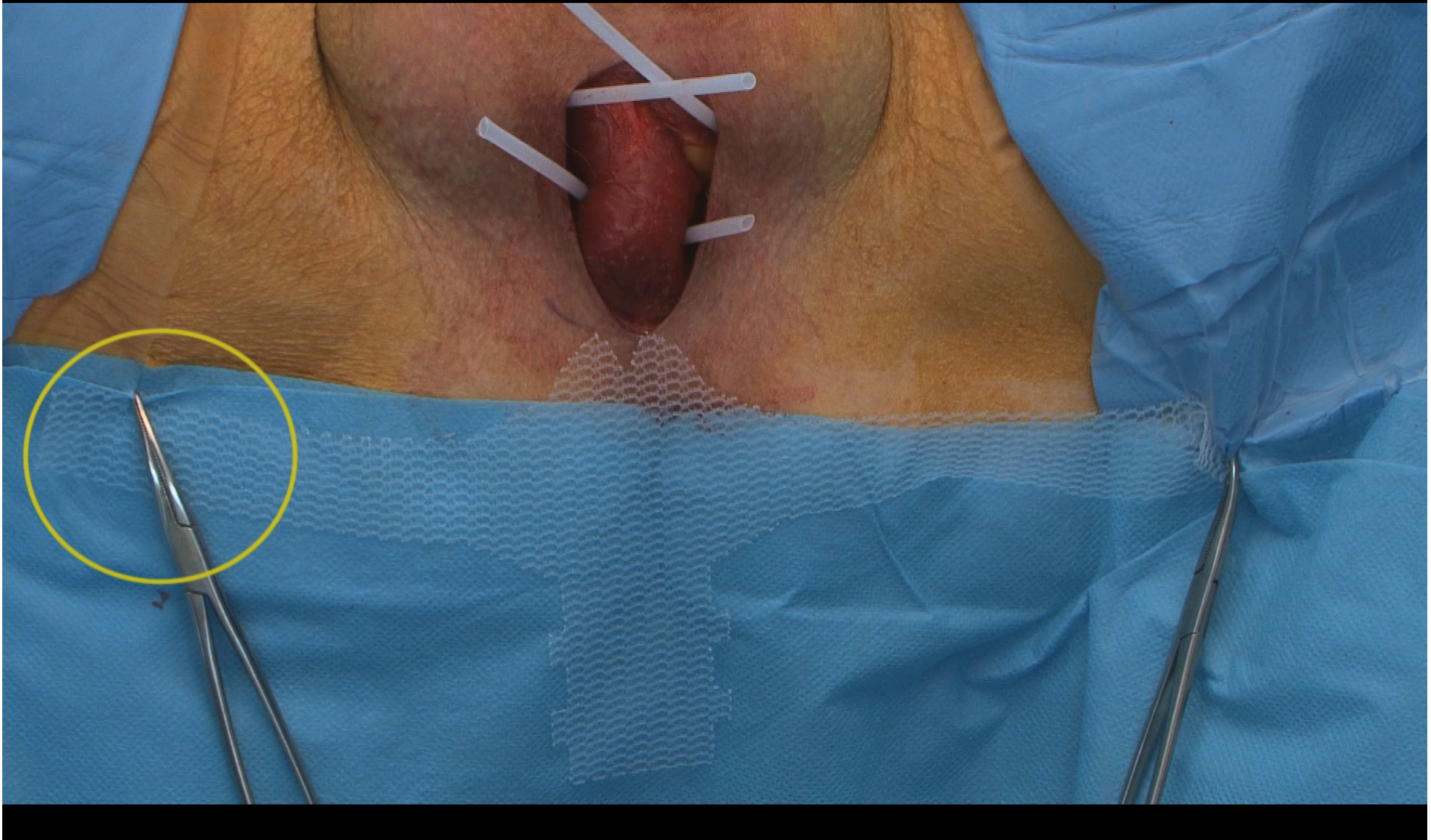
Insertion of the guide and the 2 mesh arms



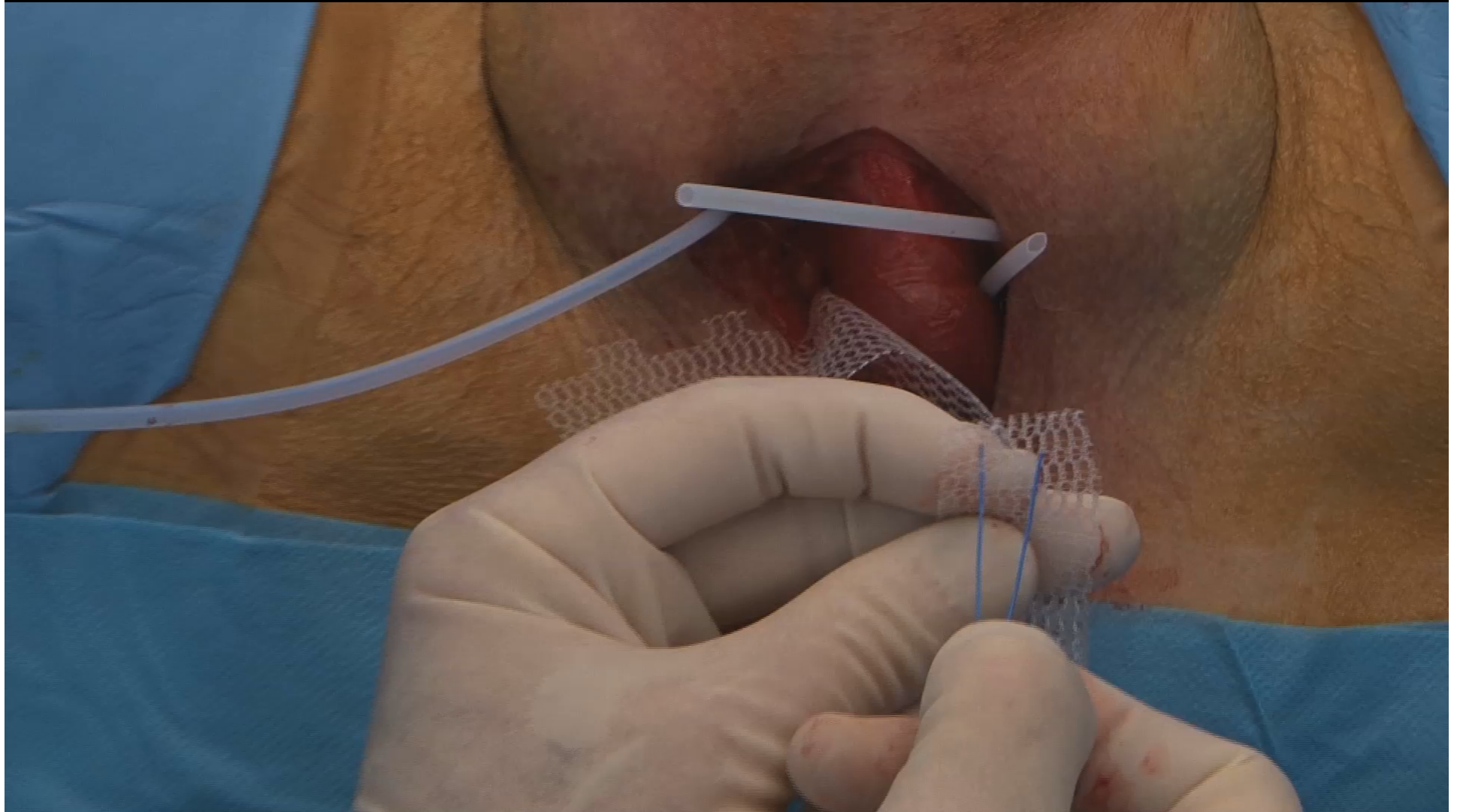
Insertion of the guide and the 2 mesh arms



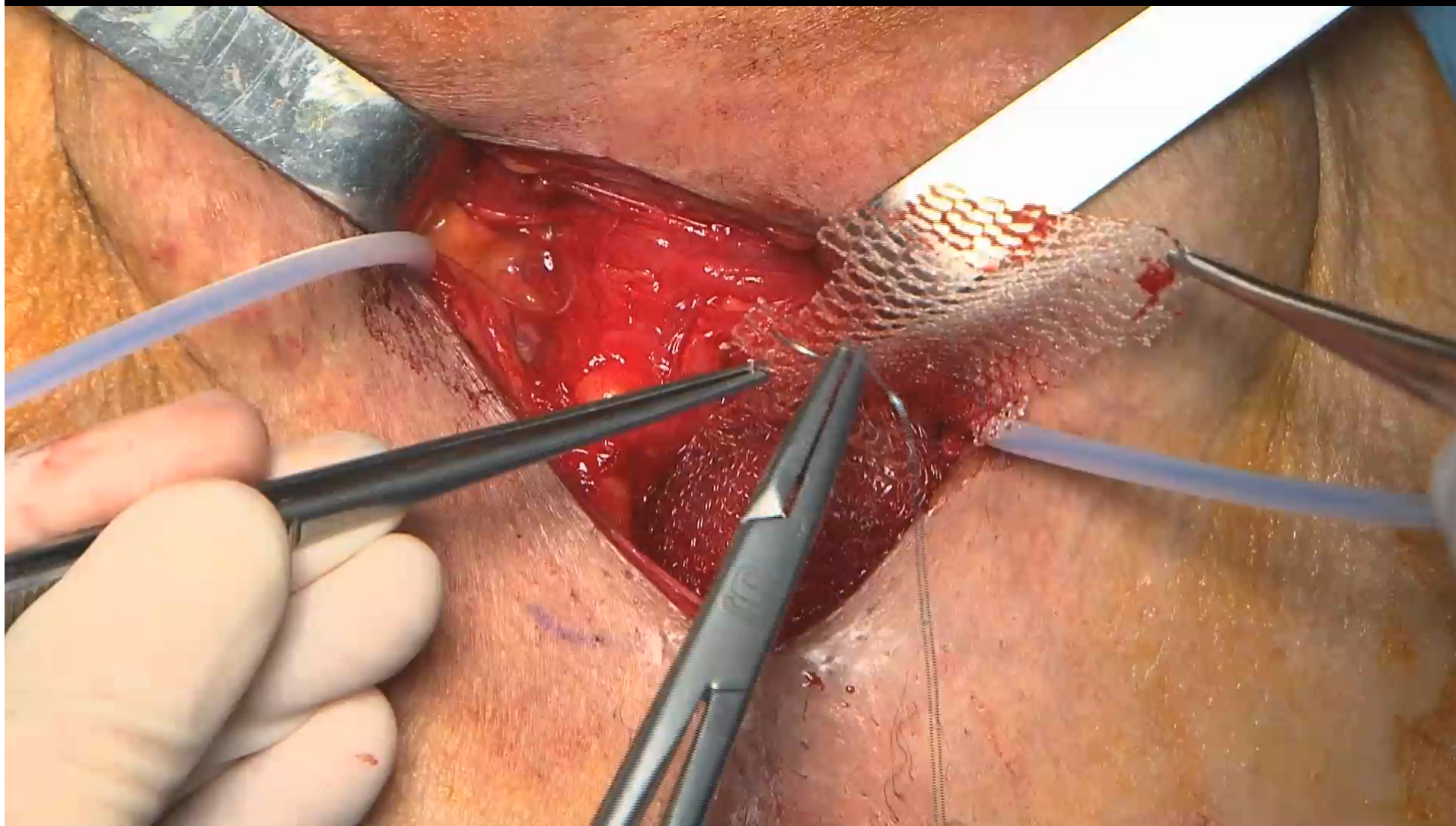
Mesh fixation to the central body of the perineum



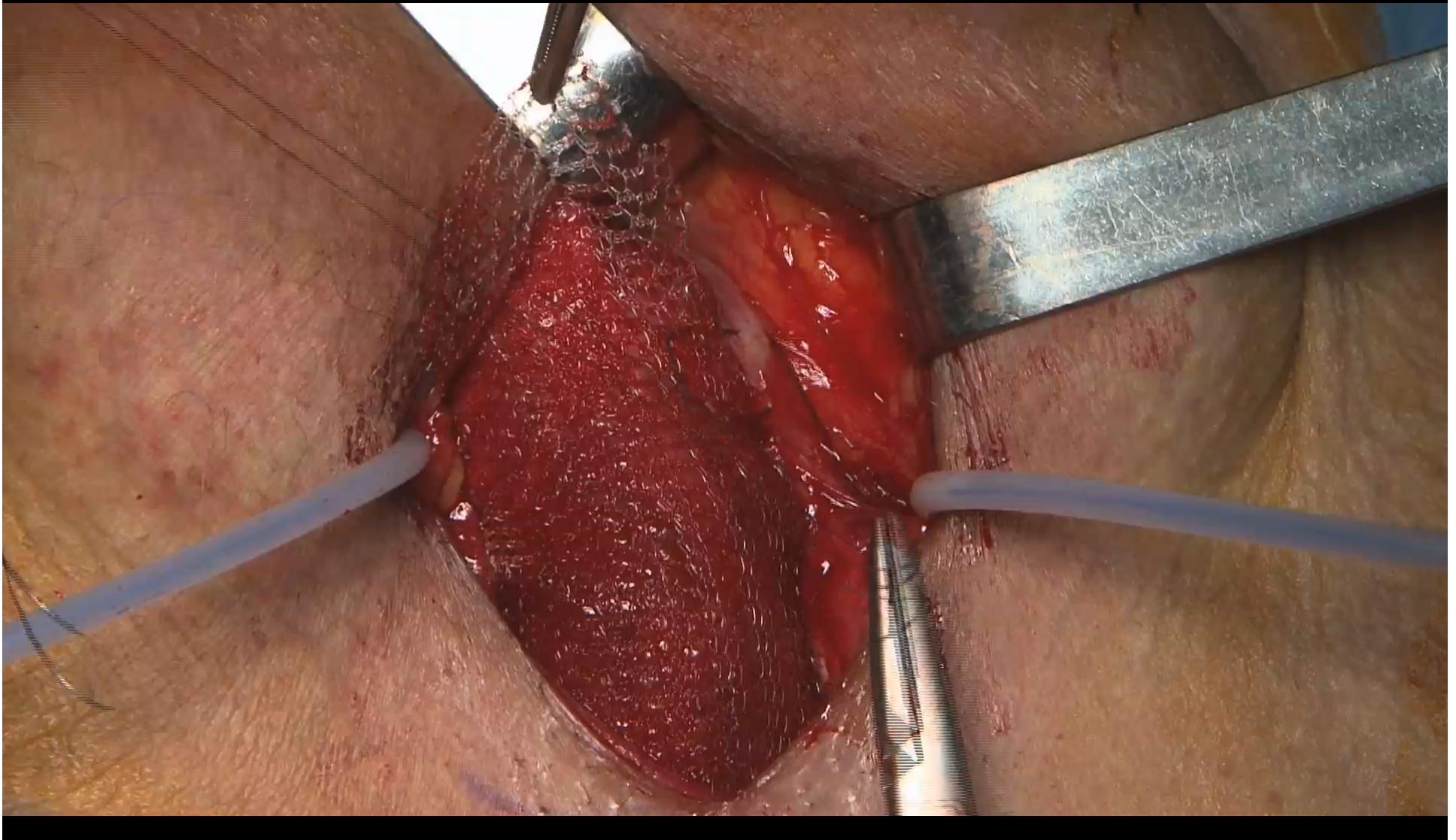
Mesh placement



Mesh placement

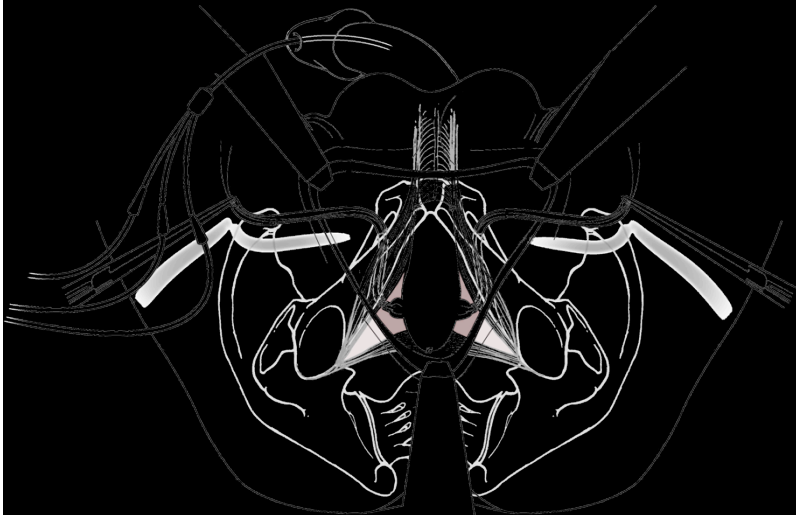


Mesh placement

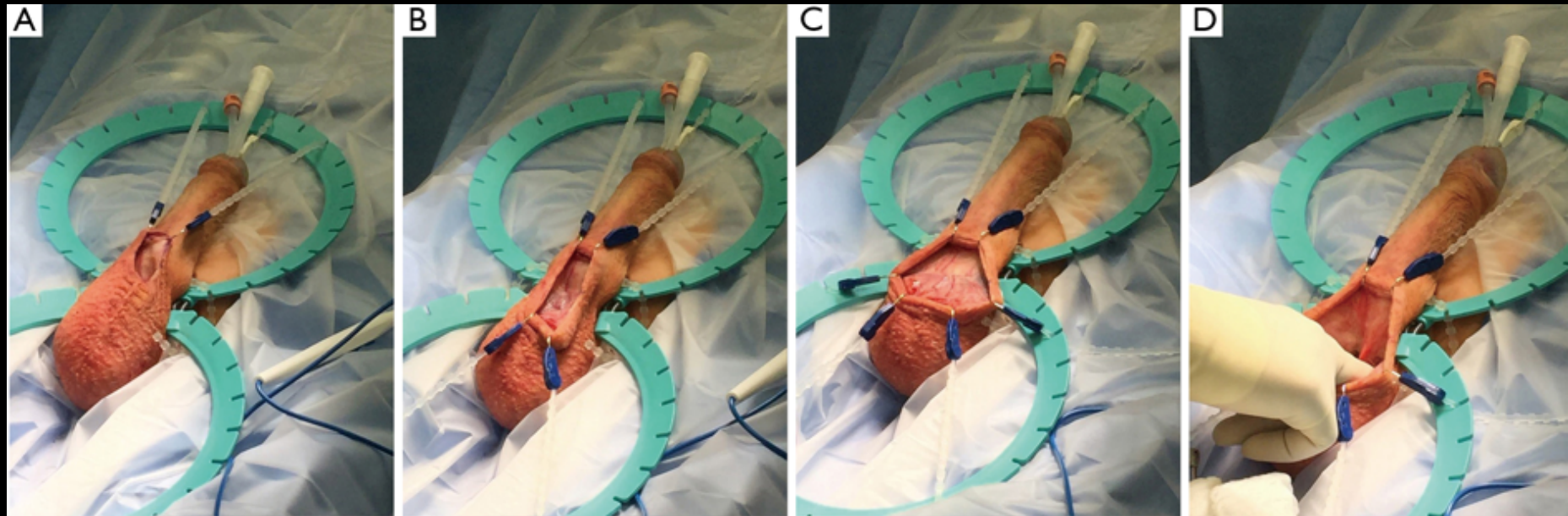


Mesh tensioning

**Intraoperative urodynamics:
Measurements of MUP and ALPP
before and after applying tension to
the mesh**



Second step : 3 pieces Penile Implant by peno-scrotal way



PP in Dual device Implantation

- Simultaneous implantation of a penile prosthesis and the male sling is possible.

Rigor of sterility of the two separate fields +++

- Simultaneous implantation of a PP and an AUS is possible but theoretical increased risk of infection because of longer operating time.
 - If an infection occurs, removal of both devices is likely to be necessary
 - **AUS implanted first - PPI as a second procedure following successful activation of the AUS.**
 - S.Wilson describe « AMS 1500 » (simultaneous implantation of AUS and a 3-piece PP through a single transverse upper scrotal incision). Distal cuff placement may result in a higher cuff erosion rate ?, and the distally placed cuff may not provide the same degree of continence as a more proximally placed cuff ?. At World Meeting on Sexual Medicine in Lisbon, he now discourage it ... in lessons learned from a 45 y. Career of prosthetic urology

It is possible that the use of two synchronous or delayed incisions is less risky for the infection

- In case of orgasmuria ...

Climacturia or post prostatectomy orgasm-associated incontinence (PPOI)



Climacturia / post prostatectomy orgasm-associated incontinence (PPOI) ...

In the group of PCa Survivors with acceptable erection

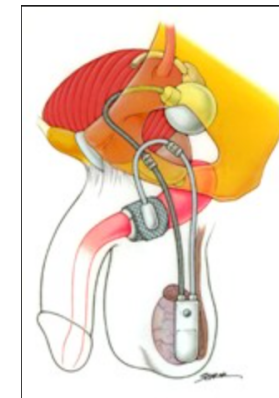
- Estimated rate of climacturia in the literature varies between 45% and 93% (Choi 2007)
- Significant bother is present by 50% of those report climacturia
- Urinary leakage occur in 38% of men post-RP during kissing, hugging or genital foreplay (Guay 2008)
- 25% avoided sexual contact because of the this type of incontinence

In the group of PCa Survivors with DE who will receive an PI

- Climacturia is sometimes difficult to identify !!! Importance of the **gentle interrogation**

Climacturia / post prostatectomy orgasm-associated incontinence (PPOI) ... the solutions

- Use of condom
- Pre-coital voiding to empty the bladder
- Imipramine or duloxétine
- Penile variable tension loop (Actis or Urostop)
- Urethral sling or AUS

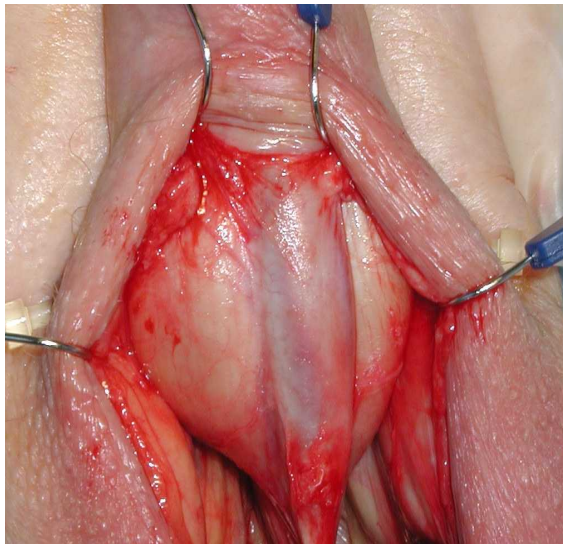


« Mini-jupette » insertion during PI



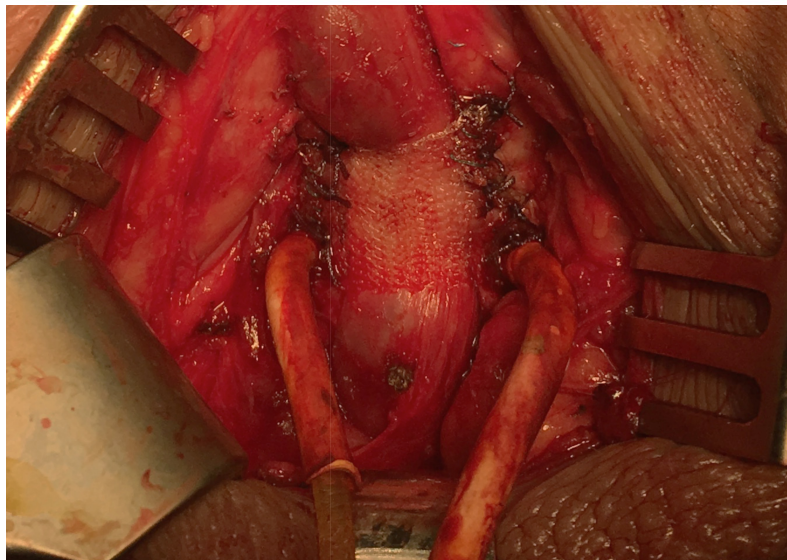
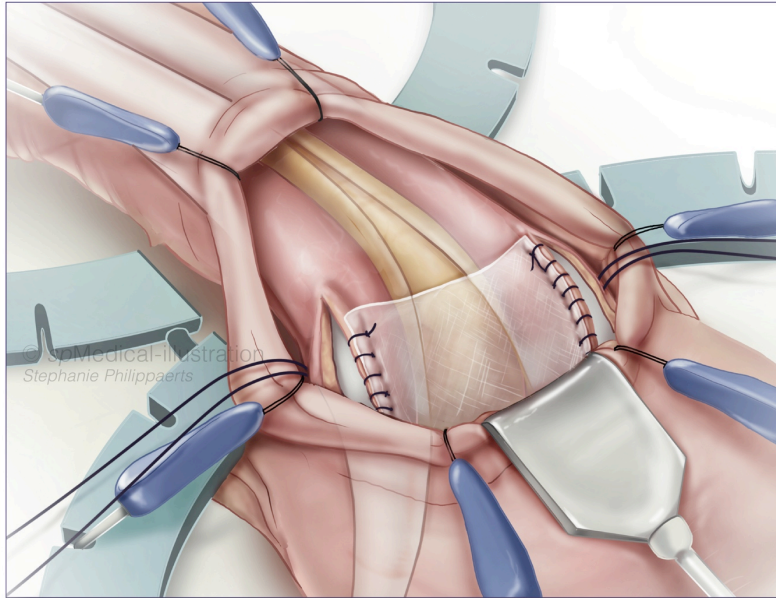
The 'Mini-Jupette' procedure was specially reserved to patients with a predominant complaint of ED after RP.

However this is a cohort of patients who complains of climacturia with or without a light incontinence



! *« Mini-Jupette » without PPI not seem to be effective*

« Mini-jupette » insertion during PI



By peno-scrotal way, the cavernotomies are made at the bulbo-urethral level, laterally with a length of 3 cm.

PI is installed in the cavernous space with a emergence of the tubing at the posterior angle of the cavernotomies .

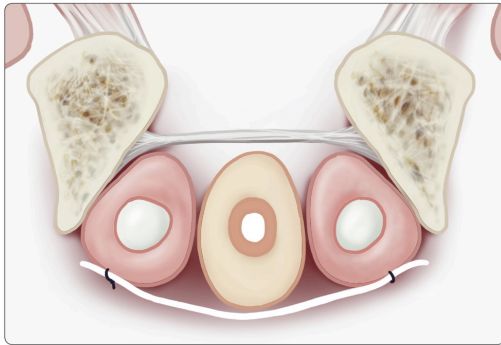
The « Mini Jupette » is fixed by running nylon 4/0 suture to the 2 inner borders of the cavernotomies .

If the penis is not erect, the mesh tension is set to have a mild compression of the bulbo-urethra.

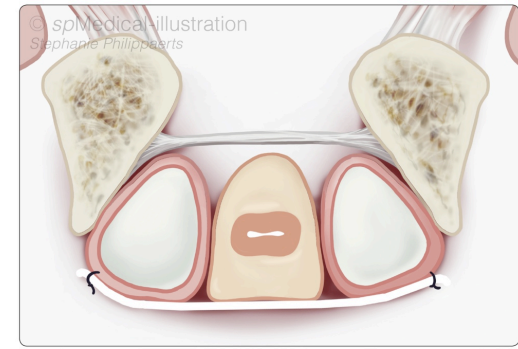
The cavernotomies are closed with classic 2/0 Vicryl running suture.

Penis not erect, the « Mini-Jupette » works almost like a sling because of the attachment of the corpora cavernosa over the ischial bone.

« Mini-jupette » : effect during PI activation

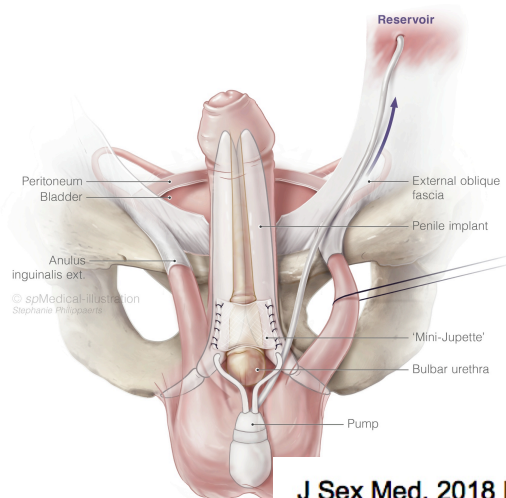


During implant activation, the interval between the 2 cavernotomies increases and the compression to the bulbar urethra is stronger, thereby improving even more continence and neutralizes climacturia ...



Absolute evidence of the clinical effectiveness of the procedure:

One patient implanted with PI and Mini-jupette had a mechanical penile implant failure after 8 years with recurrence of incontinence and was immediately dry after total replacement of the entire penile implant



J Sex Med. 2018 May;15(5):789-796. doi: 10.1016/j.jsxm.2018.01.015. Epub 2018 Mar 6.

Andrienne Mini-Jupette Graft at the Time of Inflatable Penile Prosthesis Placement for the Management of Post-Prostatectomy Climacturia and Minimal Urinary Incontinence.

Yafi FA¹, Andrienne R², Alzweri L³, Brady J⁴, Butcher M⁵, Chevalier D⁶, DeLay KJ⁷, Faix A⁸, Hatzichristodoulou G⁹, Hellstrom WJG³, Jenkins L¹⁰, Kohler TS¹¹, Osmonov D¹², Park SH¹³, Schwabb MD¹⁴, Valenzuela R¹⁵, van Renterghem K¹⁶, Wilson SK¹⁷.

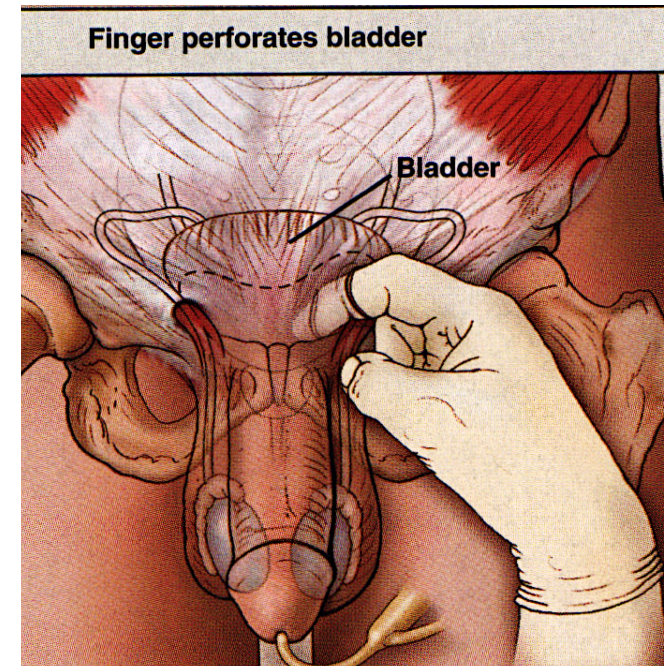
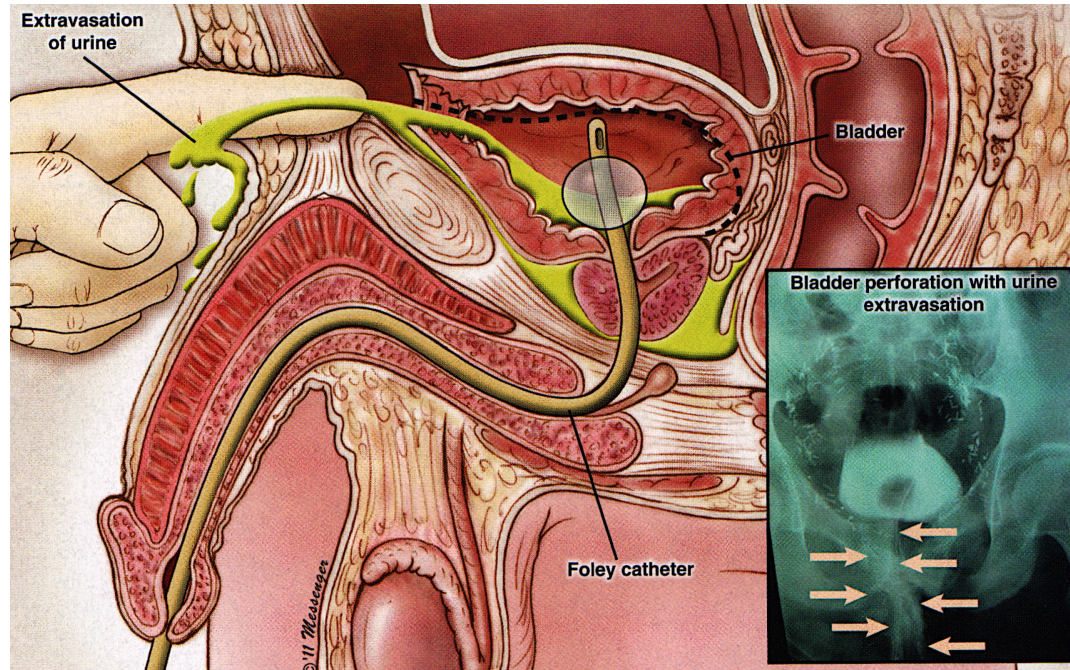
RESULTS: 38 patients underwent the mini-jupette procedure. The mean age of the population was 65.3 years (SD = 7.7). 30 had post-RP climacturia and 32 patients had post-RP incontinence (mean = 1.3 ppd, SD = 0.8). 31 patients received Coloplast Titan, 4 received AMS 700 LGX, and 3 received AMS 700 CX IPPs. Mean corporotomy size was 2.9 cm (SD = 1.0). Mean graft measurements were 3.2 cm (SD = 0.9) for width, 3.3 cm (SD = 1.3) for length, and 11.0 cm² (SD = 5.1) for surface area. At a mean follow-up of 5.1 months (SD = 6.9), there were 5 postoperative complications (13.2%) of which 4 required explantation. Climacturia and incontinence were subjectively improved in 92.8% and 85.7%, respectively. Mean ppd decreased by 1.3 postoperatively.

PP Reservoir placement after RP

Be careful !

- In virgin anatomy, the PP reservoir is traditionally placed in the space of Retzius, through a bluntly developed defect in the transversalis fascia or ectopic.
- PCa therapy (open or RALP) can create an **environment of scarring and diminished tissue quality** that can heighten the risks of injuries by requiring more force to achieve the same dissection and increasing tissue susceptibility to damage
- After open RP, **the incidence of inguinal hernia is high** (15-20%)

PP Reservoir placement after RP



Space of Retzius placement has been difficult after pelvic surgery (robotic or open RP, cystectomy, kidney transplanation hernia and mesh surgery)

Complications of space Retzius reservoir placement have included **bladder, vascular and bowel injuries ...**

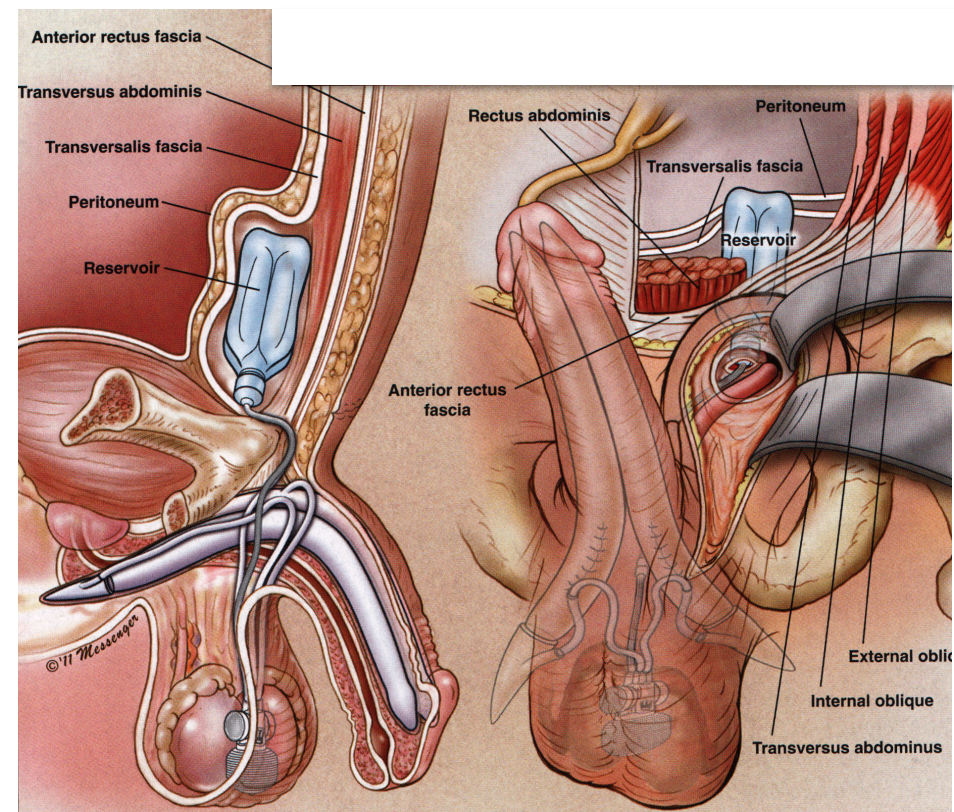
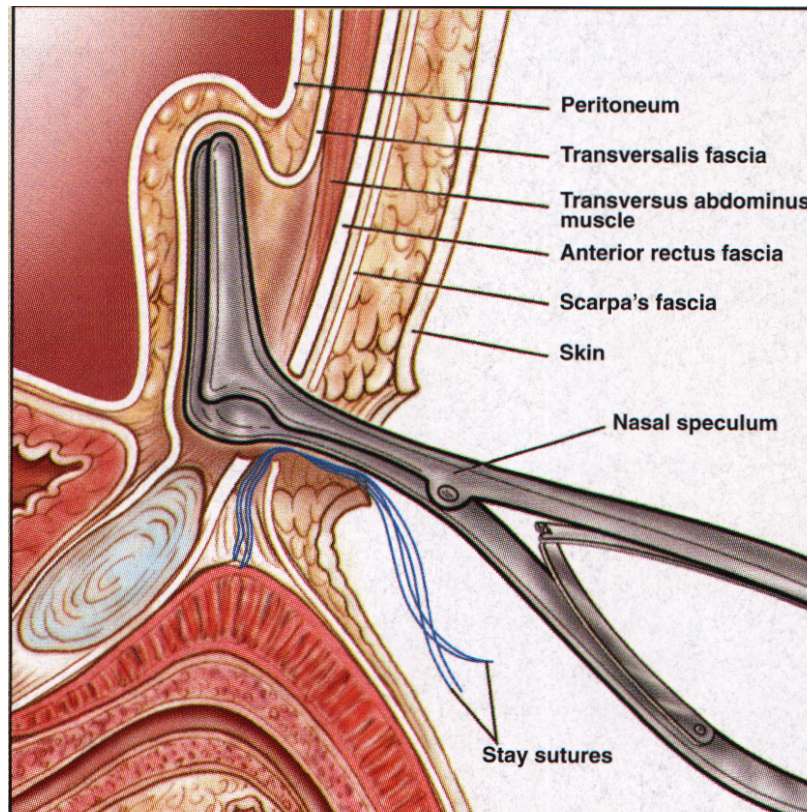
PP Reservoir placement after RP



We use a lateral retroperitoneal placement with a second small incision ...

... because we are « too » careful

PP Reservoir placement after RP Ectopic position (S.Wilson 2002)

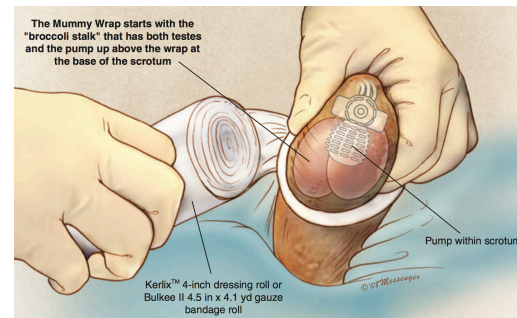


For experts who can do it with habit, the reservoir can be placed extraperitoneal between transversus abdominus muscle and transversalis fascia without bulging of the abdominal wall postoperatively : Ectopic Reservoir Placement

PPI scrotal drain or not

- In large large series of implants, more than a **3% incidence of accumulation of fluids in the scrotum classified as hematoma**
- Bleeding sources derive
 - more often from the corporotomies
 - from the scrotum itself
 - from reservoir placement (blind)
 - Venous leakage is a part of mechanism responsible for ED after RP
- **My surgeon preference** : Meticulus hemostatic technique, watertight closure of the corpora, inflation of the device postoperatively (EHS 3/4 for 12 hours), « mummy warp » and closed- suction drain (for 24 hours)

prolonged patient recovery. In a study of more than 1,000 implants Wilson stratified patients into 3 groups of pressure dressing, pressure dressing with drain, and pressure dressing with drain and device inflation (70% inflated).⁷ The hematoma rate decreased from 3% to 0.7% ($p < 0.005$) with pressure dressing, drainage and partial inflation. Impor-



Satisfaction with PPI after RP

- **Sexual dysfunction has been found to have the most negative impact on QoL of patients after RP**
 - Due to brutal onset of DE
 - Because of depressive situation in oncologic situation
 - Due to several factors, including perceptions of inadequacy, performance anxiety and depression in each member of the couple, overly enthusiastic expectations, and partner physical/emotional readiness to resume active sex
 - Depend of the psycho-sexologic and partner accompagnement
 - Due to the fact that a second procedure is useful for ED revalidation
- **Akin-Olugbade have reported that penile prosthesis surgery has lower satisfaction rates in patients with PD, with a BMI > 30 or for those who have had previous RP**
 - After RP, ejaculation is absent; however, most men are able to reach orgasm. The patient should be aware that PPI only produce prosthetic erections and they will not restore libido, sensation, orgasm, or ejaculation if they are absent.
 - After PPI in patients with RP, the penis may be shortened, especially if PPI is performed **late** after PR
 - **Climacturia forgotten and untreated !!!**

Satisfaction with PPI after RP

Conclusion

In our experience, IPP implantation after RP enjoys high satisfaction rates for patients and their partners.

Obtain honest and informed consent before IPP is an indispensable condition to minimize dissatisfaction

- Invite the couple to discuss it with the sexologist and the urologist
- Remind the patient that PI does not restore ejaculation, does not restore the benefits of a blunted orgasm or the erection of the glans
- After PPI in patients with RP, orgasmic function is significantly lower compared to those with other causes of vasculogenic ED (Menard)

Rare specific complication in case of PPI after RP or non surgical treatment of local Pca

Intraoperative complications can be distressing, but with prevention and prompt recognition, most of these complications can be navigated with excellent postoperative results.

Special attention should be given to incontinence (or / and orgasmuria) after RP (that can decrease satisfaction if they are not identified)