

## Autologous Pubovaginal Slings



Sherif Mourad, MD  
Professor of Urology, Ain Shams University  
ICS General Secretary

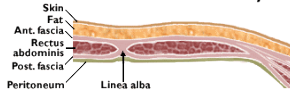
## Autologous Pubovaginal Slings

- Traditional autologous pubovaginal slings (PVS) **have re-emerged** as a viable alternative to synthetic slings in light of the issues with synthetic slings.
- The re-adoption of autologous PVS has however, been slow due to the **technical difficulty of the surgery** and the perceived higher morbidity rates.

## Autologous Materials

- The two most commonly utilized autologous slings are the **rectus abdominis fascia** or **fascia lata graft** slings.
- The **rectus abdominis fascia sling** is preferred by most surgeons due to a greater familiarity with the abdominal wall anatomy and the relative ease of harvesting.

**Cross-Section of Abdominal layers** Wein et al, 2012



## Autologous Materials

- **Fascia Lata:**
  - Harvested from the thigh
  - Similar properties to rectus fascia.
  - Fascia lata is completely biocompatible
  - Minimal tissue reaction.
- **Recovery time: may be less**
- **no risk of future abdominal hernia formation.**
- **Fascia lata:**
  - requires repositioning of the patient
  - increased operative time
  - operating in an area unfamiliar to urologists.
- Another autologous material, vaginal wall, has also been used.



## Pubo Vaginal Slings

- Both of these autologous slings have otherwise been shown to be **equally effective**.
- The **main advantage** associated with autologous PVS is the negligible risk of erosion as they have minimal inflammatory and foreign body reaction.
- Studies showed that the autologous graft **remains viable** with no signs of degeneration up to 4 years after the initial implantation.

Shieh and Belal, 2016



## Pubo Vaginal Slings; Indications

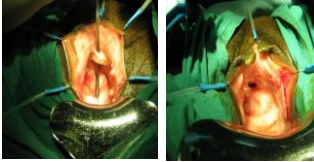
1. **Stress urinary incontinence.**
2. **Traditionally, autologous PVS is advocated for secondary or recurrent SUI surgery:**
  - Women with recurrent SUI after a failed synthetic MUS or who had suffered from sling complications with the autologous PVS chosen as a salvage procedure.
  - Up to 69% of women experienced improvement in symptoms and they concluded that autologous PVS provides reasonable outcomes even after a failed synthetic MUS.



Welk and Herschorn, 2012

## Pubo Vaginal Slings; Indications

3. In addition to salvage surgery, PVS is also indicated in **primary SUI with concomitant loss of urethra length** due to trauma or in conjunction with simultaneous complex urethra reconstruction.



## Pubo Vaginal Slings; Indications

4. The **durability of the autologous PVS** also allows **expansion of the indications to include treatment of primary uncomplicated SUI in young women who:**

- engage in vigorous exercises
- obese individuals
- situations with potential poor tissue healing such as connective tissue disorders or uncontrolled diabetes mellitus.
- In patients requiring long-term intermittent catheterization as they have a much higher risk of urethral erosions if synthetic slings are used.



Shieh and Belal, 2016

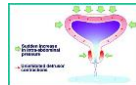


## Pubo Vaginal Slings; Indications

5. The **autologous PVS** has also been reported to be effective in the management of **MUI**.

- **Chou et al** reported their results on 131 women with MUI who underwent autologous PVS.
- The results showed that women with SUI and concurrent urgency urinary incontinence have outcomes **comparable** to women with simple SUI at long-term follow-up of up to 7 years.
- **DO** was present in 26% of the women but was not a predictor of poor outcomes.

Chou et al, 2003



## Pubo Vaginal Slings

- The **success rates** for autologous PVS in the treatment of SUI range from **46.9% to 90%** with the longest follow-up period being 10 years.
- **Morgan et al:**
  - 4-year study outcomes
  - 247 females with SUI (autologous PVS)
  - overall **continence rate** of 88%
- They concluded that autologous PVS are **effective, durable, and significantly improve the quality of life** in patients with both type II and III SUI.

Morgan et al, 2000

## Autologous Pubovaginal Slings



- **The disadvantages** of autologous PVS:
  - longer operating time due to graft harvesting
  - repositioning of the patient.
- **Associated morbidities** of the harvesting:
  - Bleeding
  - infection.

Khan et al, 2015

## Pubo Vaginal Slings

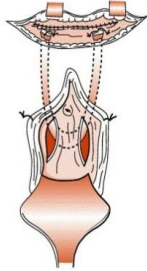


- The incidence of voiding dysfunction is reported to be higher in autologous PVS compared to synthetic slings, with rates ranging from **2% to 20.8%**.
- Risk factors for prolonged post-operative intermittent self-catheterization after PVS surgery and these included a **post void residual volume of > 100 mLs; Qmax ≤ 20 mL/s** in preoperative urodynamic study.

Morgan et al, 2000

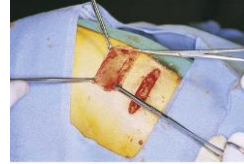
## Autologous Pubo-vaginal Sling

### Operative Procedure



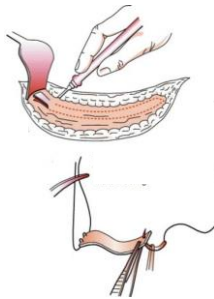
### Operative Procedure

- The **1<sup>st</sup> step** of the surgery involves the harvesting of the rectus fascial graft.
- This is performed by making a Pfannenstiel incision 2 cm above the pubic symphysis with the dissection carried down to the rectus fascia.



### Operative Procedure

- A 2 cm x 10–12 cm rectus fascia graft is marked out.
- The edges of the graft are dissected and freed from the underlying rectus muscle.
- Running sutures of Prolene™ 3-0 are stitched onto each end of the graft with the sutures left long.



### Operative Procedure

- The **2<sup>nd</sup> step** of the surgery involves dissection of the wall of the vagina to create space for the placement of the autologous sling.
- An indwelling catheter ensures that the bladder is emptied.
- Sims speculum or a Lonestar retractor.
- At least 50 mls of local anesthesia is injected into the vaginal epithelium for hydro-dissection.



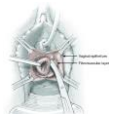
### Operative Procedure

- The bladder neck is identified by palpation of the catheter balloon.
- A vertical incision is made through the vaginal epithelium extending from **2 cm below the meatus** to the level of the bladder neck.
- **The dissection plane will be above the periurethral and pubocervical fascia.**



### Operative Procedure

- The **3<sup>rd</sup> step** of the surgery is the creation of lateral vaginal flaps using a combination of sharp and blunt dissection.
- Palpate the ischiopubic ramus.
- A window is created in the ipsilateral endopelvic fascia.



### Operative Procedure

- Protect the urethra during this step.
- The space between the endopelvic fascia and ischiopubic rami that has previously been hydrodissected out is then opened up by spreading out the scissor blades.
- The above steps are **repeated for the contralateral side**.



### Operative Procedure

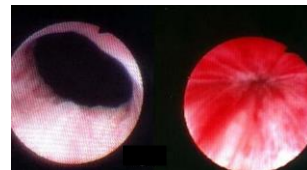
- The **4<sup>th</sup> step** involves placement of the graft.
- The ends of the graft sutures are tied to the blunt ends of the trocars and brought out through the vaginal incisions.
- By careful guidance behind the pubis, the trocars are brought out through the abdominal incisions.

### Methods of positioning the sling; depending on its length:

- **Full-length Sling:**  
placed in the retropubic space, passing from underneath the urethra on either side and is fixed by sutures to the rectus fascia at each end.
- **Half-length Sling:**  
extends into the retropubic space above the perineal membrane and is suspended by sutures applied to the tails.
- **Patch Sling:**  
the tails of which are attached by sutures that extend through the retropubic space to the attachment site.

### Operative Procedure

- Ideally, a cystoscopy with is then performed to:
  - check for any urethra or bladder injury before pulling out the trocars completely.
  - To check the degree of urethral lumen closure.



### Operative Procedure

- The two free ends of the sutures are then pulled up while keeping an artery forceps in place between the fascia and periurethral tissue.
- The suture ends are then tied together above the rectus fascia **with a finger placed underneath the knot to avoid excessive tension**. This operation is then completed with closure of both vaginal and abdominal incisions.

### Conclusion

- The autologous PVS is an **effective and safe option** for surgical treatment of primary and secondary SUI.
- It can be safely performed with a **low morbidity rate** and a **negligible erosion risk** in comparison to synthetic slings.

**Thank You**