

New Insights in the Surgical Management of Stress Urinary Incontinence in Women

Gabriel Gillon MD
Dept. of Urology
Rabin Med. Cent. /Beilinson

Incontinence and LUTS 25/6/2009
Symposium
Ramat Aviv



New Insights in the Surgical Management of Stress Urinary

Incontinence in Women

The surgical therapy of Stress Urinary Incontinence (SUI) has been revolutionized in the last decade “by the rise of the tape”.

- 1. Middle and sub urethral slings for all.**
- 2. Minimally invasive procedure .**

From inception to current status

- Concept of continence mechanism
- Choice of favorable synthetic material
- Invention of minimally invasive route and instruments of tape insertion
- Industry driven promotion

From inception to current status

- Concept of continence mechanism
- Choice of favorable synthetic material
- Invention of minimally invasive route and instruments of tape insertion
- Industry driven promotion

New Insights in the Surgical Management of Stress Urinary Incontinence in Women

- Concept of continence mechanism

Ulmstein

De Lancey

New Insights in the Surgical Management of Stress Urinary Incontinence in Women

Ulmstein 1990 , Petros and Ulmstein 1995
:Integral theory

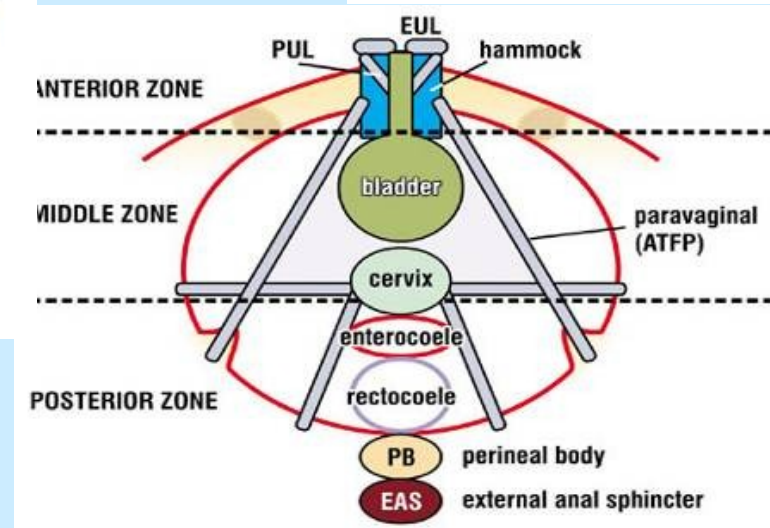
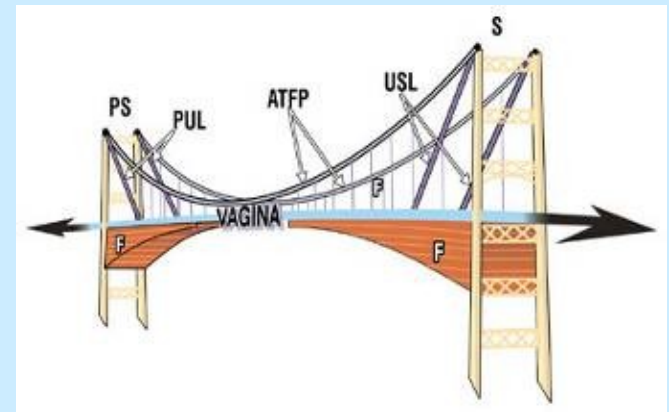
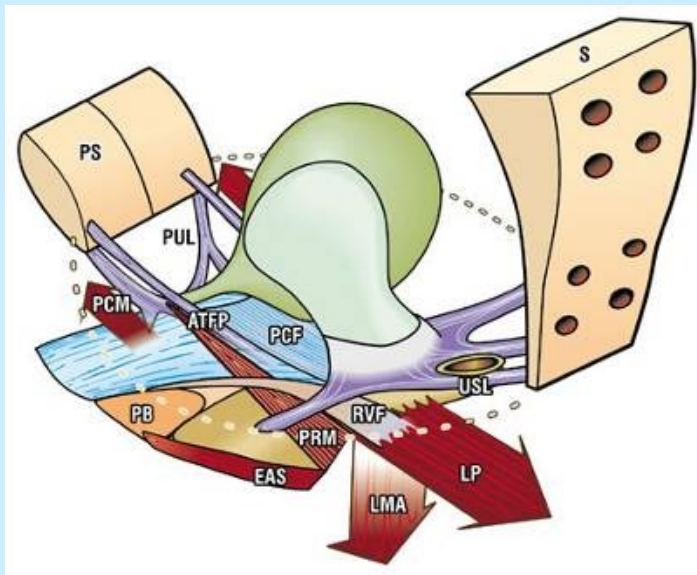
Control of urethral closure results from
:interplay of

- Pubourethral ligament
- Sub-urethral vaginal hammock
- Pubococcygeus muscle

New Insights in the Surgical Management of Stress Urinary Incontinence in Women

Integral theory of Petros & Ulmstein

These diagrams illustrate the synergism of the pelvic floor structures. They show how the organs are suspended by ligaments and stretched by muscle forces acting against these same ligaments to create form and strength.



Concept of continence mechanism

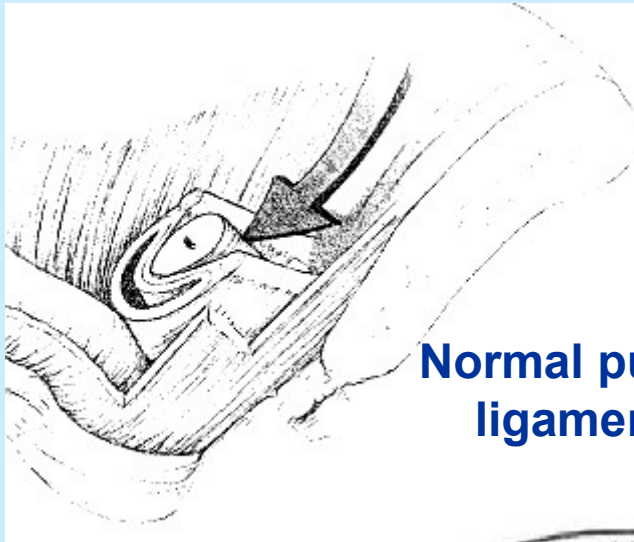
Subfascial Hammock Concept of Urethral Support De Lancey 1997

Normal pubo-urethral ligaments form -
sub-urethral hammock of support

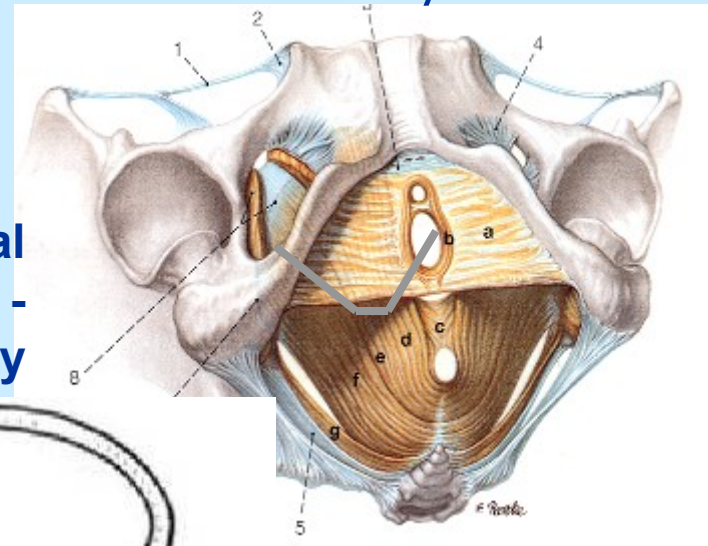
Downward force against this hammock causes urethral -
compression and prevents bladder neck descent

Subfascial Hammock Mimics Pubourethral Ligament

Subfascial Hammock mimics
normal anatomy



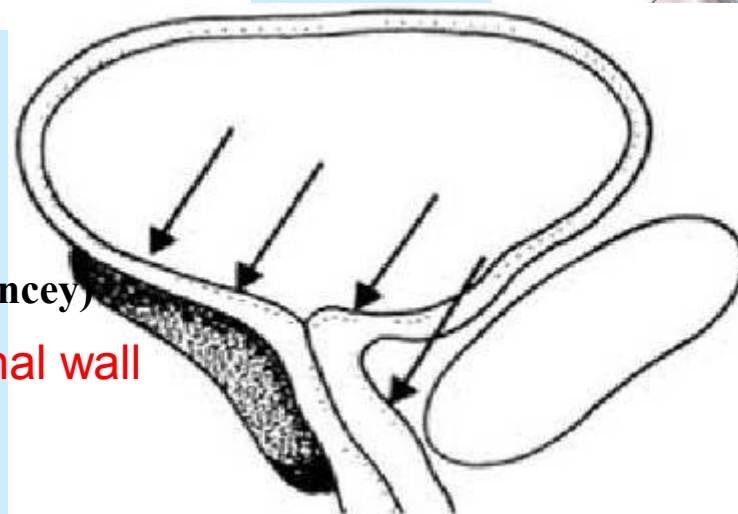
Normal pubourethral
ligament support -
DeLancey



Effect of
abdominal
pressure

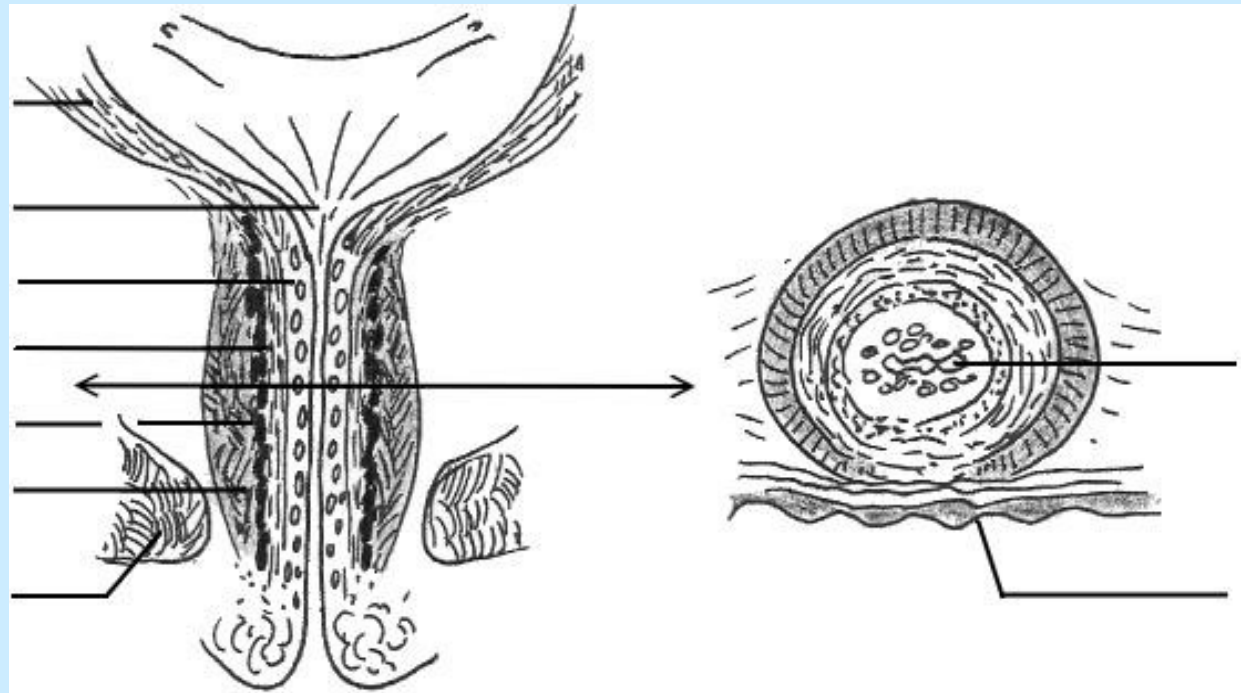
(hammock theory - DeLancey)

Anterior vaginal wall



Pubic synthesis

Relationship of Urethra and External Urethral Sphincter



From inception to current status

- Concept of continence mechanism
- Choice of favorable synthetic material
- Invention of minimally invasive route and instruments of tape insertion
- Industry driven promotion

New Mesh Classification

Amid 1997

Class	Pore type/size	Examples
• Type I	Macroporous >75 micron	Atrium, Marlex Prolene
• Type II	Microporous <10 micron	Gore-Tex
• Type III	Macroporous multifilament	Teflon, Mersilene Surgipro
• Type IV	Submicroporous	Cellgard, Silastic

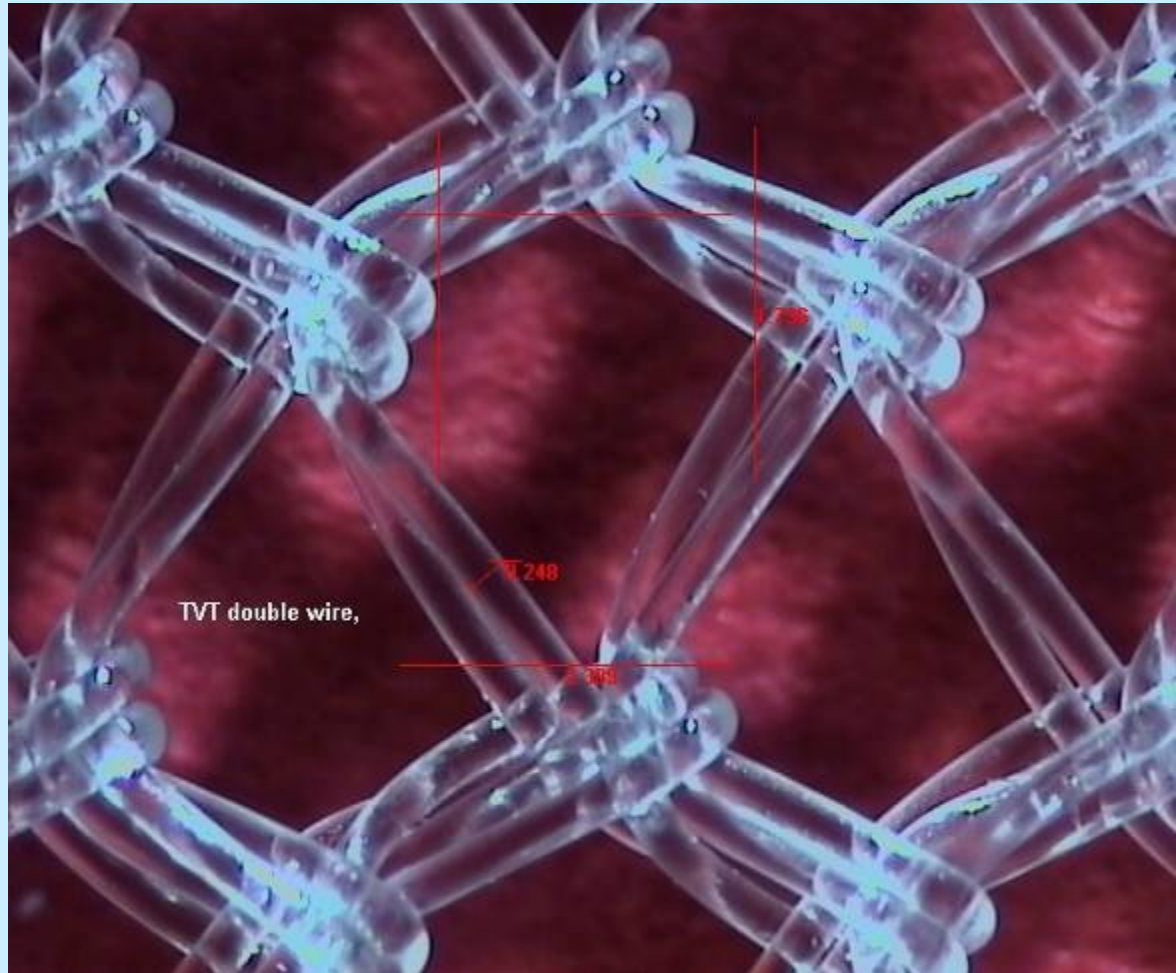
Choice of favorable synthetic material

Prevention of Infection

- Pore size <10 microns prevents entry of macrophages and neutrophils
- Macrophages unable to eliminate bacteria from microporous or multifilament meshes (Type II and III meshes)
- No bacterial harbors
- Totally macroporous meshes (Type I) least risk of chronic infection

Mesh (Type I

- Macroporous
- Monofilament
- Pore size > 75 μm
- High tensile strength
- Flexible
- Elastic
- Excellent VELCRO effect



From inception to current status

- Concept of continence mechanism
- Choice of favorable synthetic material
- Invention of minimally invasive route and instruments of tape insertion
- Industry driven promotion

TVT

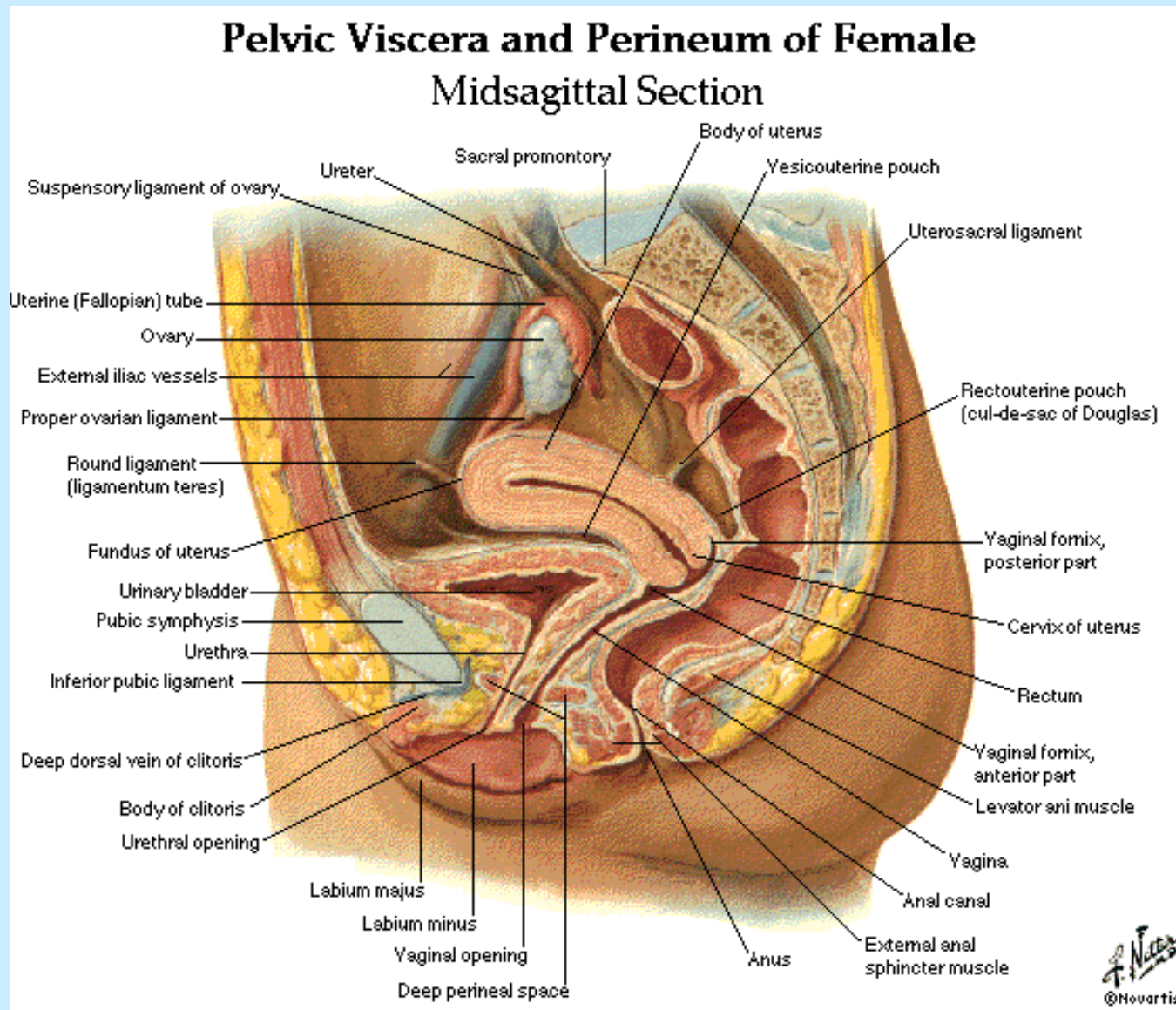


Tension-free Vaginal Tape

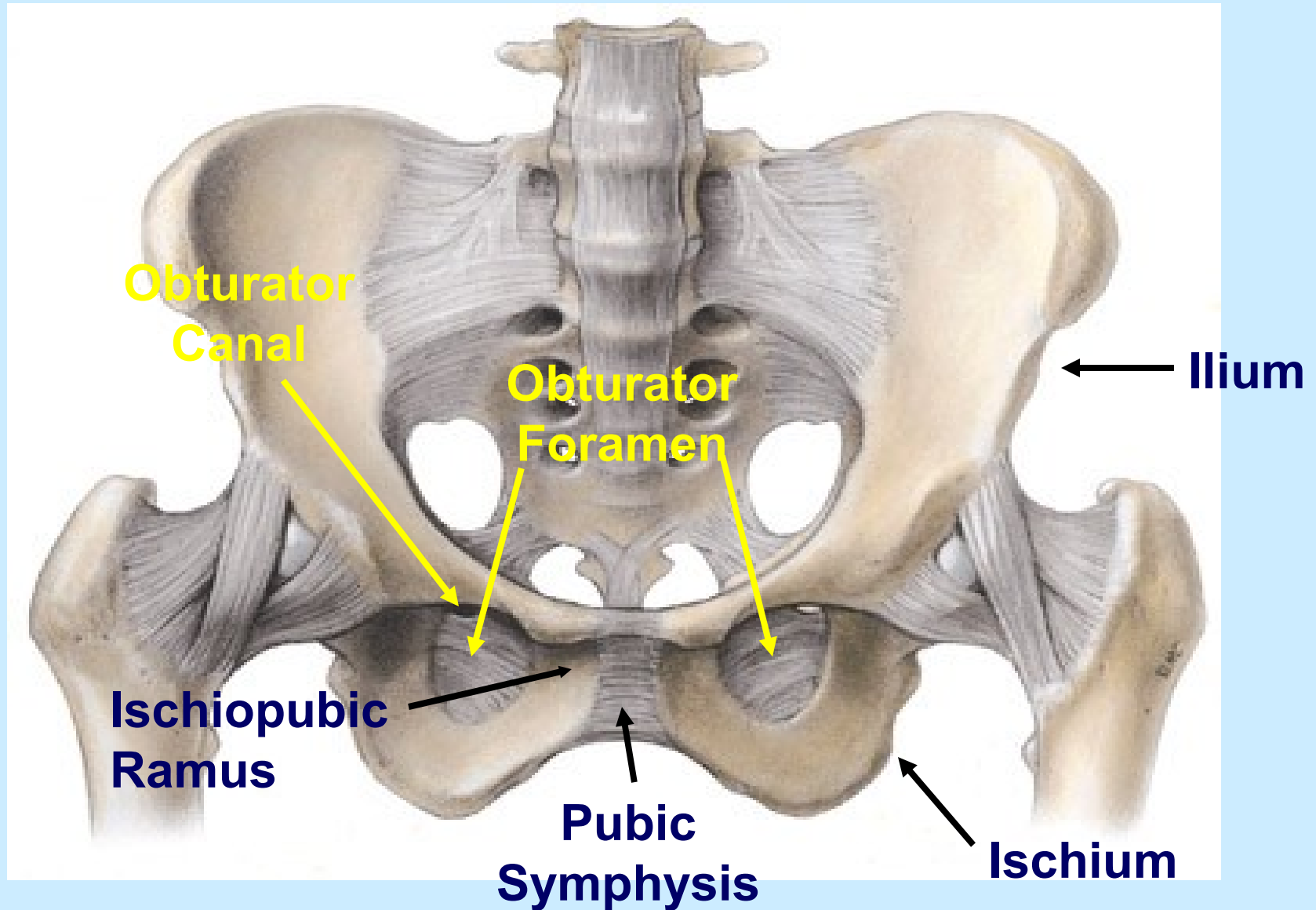
Invention of minimally invasive route and instruments of tape insertion

- Sling type surgery aims either to increase urethral resistance or **enhance its support.**
- This is accomplished by either suspension of the urethra and bladder neck area to a fix point by compressing it ,or merely by **creating a new pseudo-ligament beneath the urethra to support and coapt it.**

New Insights in the Surgical Management of Stress Urinary Incontinence in Women



New Insights in the Surgical Management of Stress Urinary Incontinence in Women



New Insights in the Surgical Management of Stress Urinary Incontinence in Women

:Minimal invasive procedures

Retropubic (pre-pubic) TVT

SPARC

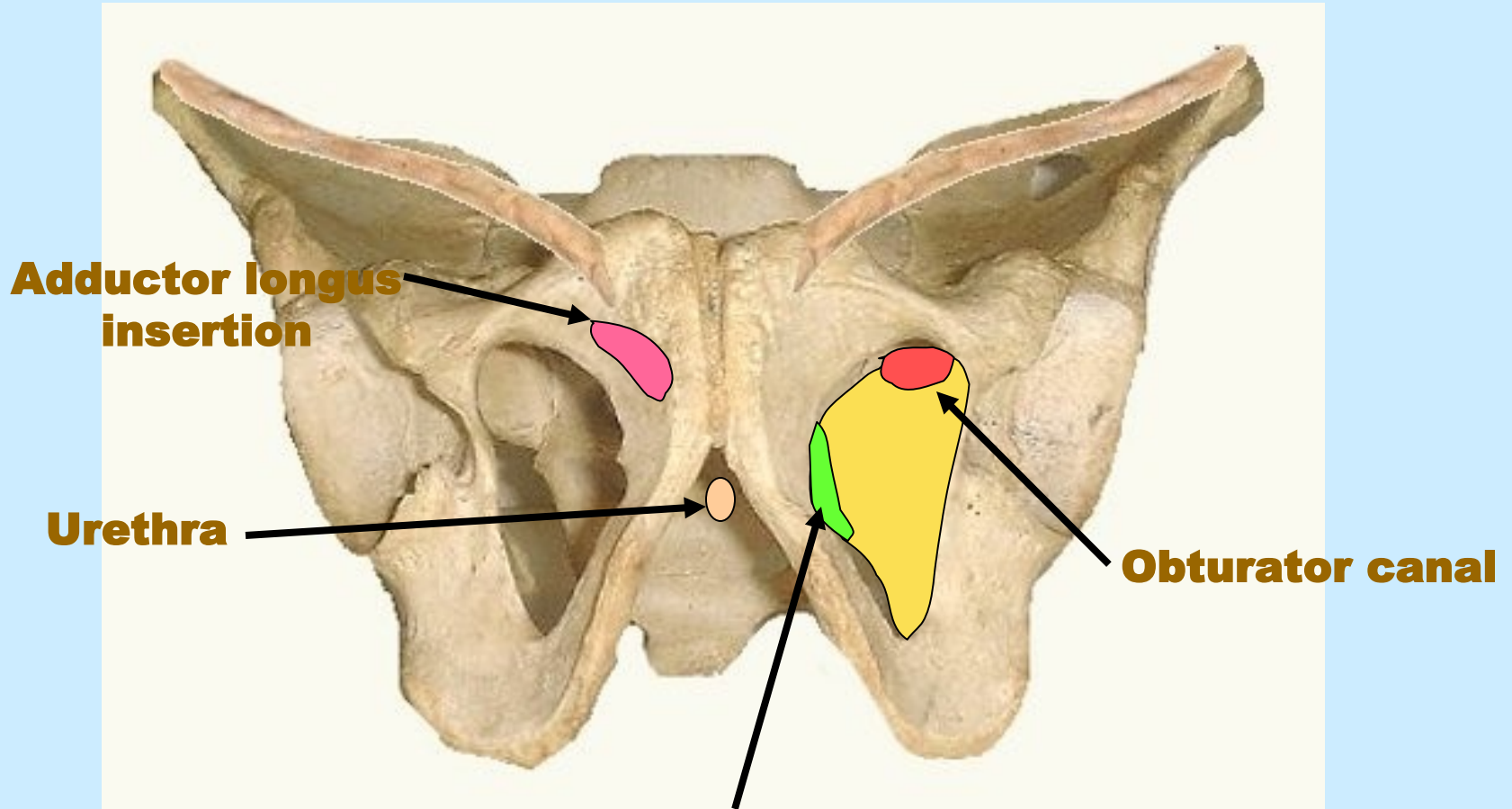
IVS, MONARC

SAFYRE

Obturator ” - “outside inTOT
inside out” TVT-O”

Mini slings: no use of trocars

Obturator Anatomy



SAFE ENTRY ZONE FOR NEEDLE INSERTION
(2001, Delorme)

New Insights in the Surgical Management of Stress Urinary Incontinence in Women

Rationale for a Trans-obturator Approach

- Avoiding the retropubic space reduces the risk of perforation to the bladder, bowel and major pelvic vessels
- Hammock-shape mesh with lateral fixation mimics normal pubo-urethral support

Invention of minimally invasive route and
:instruments of tape insertion

Results of types synthetic sling surgery

Complications of surgery

Management of complications

Management of recurrent SUI /failed procedure

Results of types synthetic sling surgery

A multicenter study of tension-free vaginal tape (TVT) for surgical treatment of stress urinary incontinence.

Ulmsten U, Falconer C, Johnson P, Jomaa M, Lannér L, Nilsson CG, Olsson I.

Int Urogynecol J Pelvic Floor Dysfunct. 1998;9(4):210-3

“...Based on the results, we conclude that TVT is a safe and effective ambulatory procedure for surgical treatment of genuine stress urinary incontinence. ”

TVT vs. Colposuspension

Ward and Hilton BJU 2002

Multicentred Randomised Comparative Trial

344 women with GSI- 175 had TVT and 169 colposuspension

66% in TVT group and 57% in colpo group objectively cured

Bladder injury 9% in TVT group vs 2% in colpo group

Operation time, duration of hospital stay and return to normal activity all longer after colposuspension

Results of types synthetic sling surgery

Tension-free midurethral slings in the treatment of female stress urinary incontinence: a systematic review and meta-analysis of randomized controlled trials of effectiveness

Eur Urol. 2007 Sep;52(3):663-78 Novara G, Ficarra V, Boscolo-Berto R, Secco S, Cavalleri S, Artibani W.

This meta-analysis showed that TVT outperformed Burch colposuspension; efficacies of TVT and pubovaginal sling were similar. TVT was more efficacious than IVS and SPARC, whereas retropubic and trans-obturator tapes showed overlapping cure rates.

Invention of minimally invasive route and instruments of tape insertion

Results of types synthetic sling surgery

Complications of surgery

Management of complications

Management of recurrent SUI /failed procedure

Complication of surgery

: Peri-operative/early

Hemorrhage	0.6-2.5%
Bladder Injury	2.7-13.8%
Urethral Injury	0-0.1%
Vascular(Iliac)	0-0.6%
Pelvic Hematoma	0.7-3.4%
Urinary Retention	2.3-19.7%
UTI	0.7-22.3%

: Late

De Novo Urgency	0.2-15%
Vaginal Extrusion	0.5-1.3%
Bladder/Urethral erosion	0.02%
(Groin Pain (ob.tape	
Obturator hematoma/abscess	
Dysparunea	
Chronic Pelvic pain	

Invention of minimally invasive route and instruments of tape insertion

Results of types synthetic sling surgery

Complications of surgery

Management of complications

Management of recurrent SUI /failed procedure

Invention of minimally invasive route and instruments of tape insertion

:Management of complications

**CAREFUL FOLLOW UP TO DETECT
!AND TREAT**

New Insights in the Surgical Management of Stress Urinary Incontinence in Women

Conclusions:

- SYNTHETIC TENSION FREE TAPES HAVE SIMILAR CURE RATES OF SUI.
- COMORBID CONDITION REQUIRE ALTERNATIVE CHOICE OF SURGICAL PROCEDURE

New Insights in the Surgical Management of Stress Urinary Incontinence in Women

:Choice of surgery

Patient's preference

Surgeon's preference

Adverse factors- Co morbid conditions:

- body habitus

- prior incontinence surgery

- previous radiotherapy

- prolapse

- neuropathic bladder

- concomitant urethral surgery

The Rise of the Tape “”

: Closing Remarks

TVT -1998 Ulmstein

- Minimally invasive
- Monofilament polypropylene tape
- Tension Free
- Mid-urethral
- Day surgery: local /short
aneesthesia
- Excellent short and mid term results

New Insights in the Surgical Management of Stress Urinary Incontinence in Women



DRY IS BEAUTIFUL!



תודה על ההקשבה!