



**Pelvic Organ Prolapse Repairs With or without mesh -
Choices and Outcomes
Workshop 48
Tuesday 24 August 2010, 14:00 – 18:00**

Time	Time	Topic	Speaker
14:00	14:10	Introduction:	Firouz Daneshgari
14:10	14:30	Evolution of replacement material	Mauro Cervigini
14:30	14:45	Concomitant Procedures: Hysterectomy	Adonis Hijaz
14:45	15:00	Concomitant Procedures: Anti-incontinence Procedures	Firouz Daneshgari
15:00	15:30	Cochrane Review of Prolapse Repairs	Chris Maher
15:30	16:00	Break	
16:00	17:30	Surgical Procedures for Apical/Advanced Prolapse and their Complications	
		Abdominal Sacrocolpopexy	Chris Maher
		Sacrospinous Suspension without mesh	Mauro Cervigini
		Vaginal Approach with mesh	Michel Cosson
		Uterosacral Ligament Fixation	Adonis Hijaz
		Robotic Abdominal Sacrocolpopexy	Robotic Abdominal Sacrocolpopexy
17:30	18:00	Q&A	

Aims of course/workshop

Successful repair of various compartments of pelvic organ prolapse (POP) remains a challenge for the clinicians. Over the past few years a number of surgical procedures using abdominal, vaginal approaches, laparoscopic, robotic, with or without use of mesh have been proposed with mixed reports on their outcomes. An international panel of experts from urogynecology and female urology will discuss the available choices for repair of POP, pros and cons of currently available meshes; the levels of evidence related to each choice, and the results of recently completed clinical trials.

Educational Objectives

To discuss the available surgical options for repair of POP.

To discuss the different views on use of mesh in POP repair

To discuss the surgical pearls used by the faculty for the POP repairs

To discuss the emerging new technology such as laparoscopy and robotic assistance in repair of POP

To discuss the International Consultation on Incontinence levels of evidence on outcomes of various techniques of POP repairs and results of recently completed clinical trials.

SURGICAL MANAGEMENT OF PELVIC ORGAN PROLAPSE IN WOMEN: A META-ANALYSIS OF RANDOMISED CONTROLLED TRIALS

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Brisbane, Australia

²Pelvic Floor Centre Charite, Berlin, Germany

³University of Aberdeen, Aberdeen, UK

- **Aim**
 - To determine the effects of the different surgeries in the management of pelvic organ prolapse
 - A Major update of 2 previous reviews
- **Methodology**
 - Search strategy:
 - Cochrane Incontinence Review Group
 - RCT's and quasi-randomised controlled clinical trials (CCT)
 - At least one arm is a surgical intervention for pelvic organ prolapse
 - Published or presented between January 2007 and January 2009
 - Trials were assessed by two reviewers independently for their methodological quality and relevance to review objectives
 - Data extracted by two independent reviewers using a pre-determined form with > 400 variables
 - Meta-analyses performed using RevMan 5 (The Cochrane Collaboration, 2008) on a variety of parameters

Results

- 38 RCT's totaling 3773 women included
- 17 new trials (1586 women)
- 3 major updates of prior work (680 women)

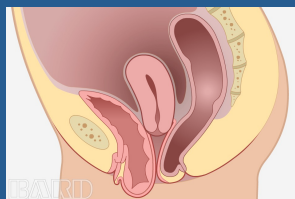


Main Topics

- Upper vaginal prolapse (cervix, uterus and vault)
 - Open Vs. lap sacral-colpopexy (SC)
 - Abd. SC + TAH Vs. Mayo McCall + Vaginal Hysterectomy (VH)
 - Abd. SC Vs. VH + repair
 - Posterior IVS Vs. Vaginal sacrospinous colpopexy
 - High Levator Myorrhaphy Vs. uterosceral suspension
- Anterior vaginal prolapse
 - Anterior Colporrhaphy (AC) Vs. AC + porcine dermis (Pelvicol)
 - AC Vs. AC + Bovine pericardium collagen
 - Anterior repair using different types of mesh
 - AC Vs. Anterior repair using synthetic mesh
- Urinary incontinence following prolapse surgery

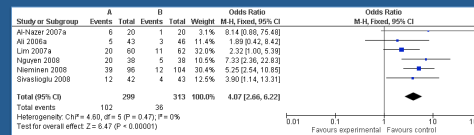
Anterior Compartment

- 19 trials overall, 8 new
- Meta analysis 6 trials, 612 women:
Anterior repair with synthetic mesh

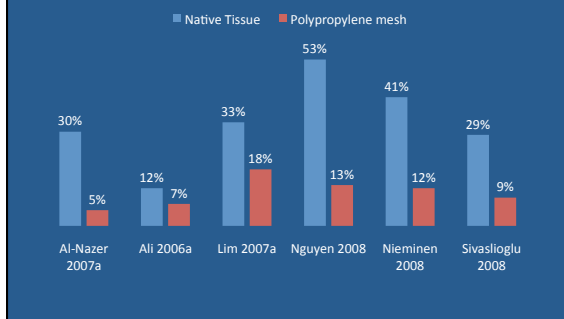


Objective Failure

Native Tissue Vs. Polypropylene Mesh

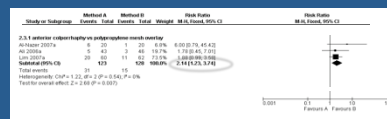


Objective Failure

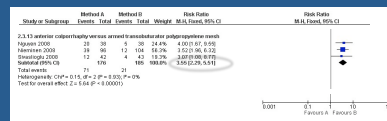


Objective Failure

Anterior Colporrhaphy Vs. Polypropylene Mesh Overlay

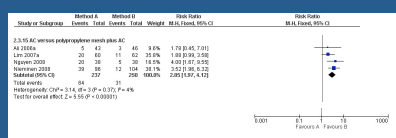


Anterior Colporrhaphy Vs. Armed Transobturator Polypropylene Mesh

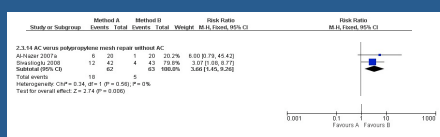


Objective Failure

Anterior Colporrhaphy (AC) alone Vs AC plus Polypropylene Mesh

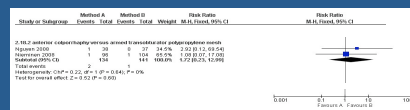


Anterior Colporrhaphy (AC) Vs Polypropylene Mesh without AC



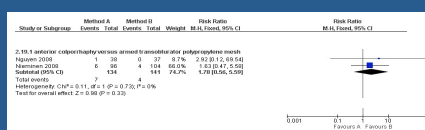
Further Prolapse Surgery

Anterior colporrhaphy Vs Armed Transobturator Mesh



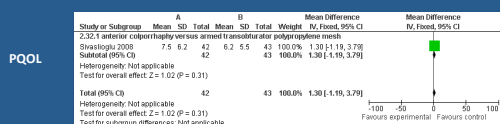
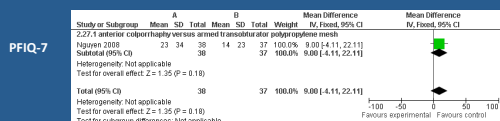
Further Continence Surgery

Anterior colporrhaphy Vs Armed Transobturator Mesh



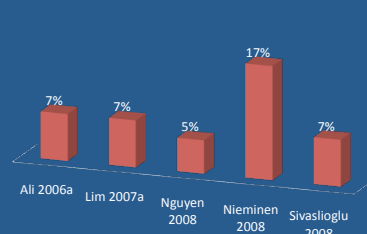
Post-op quality of life

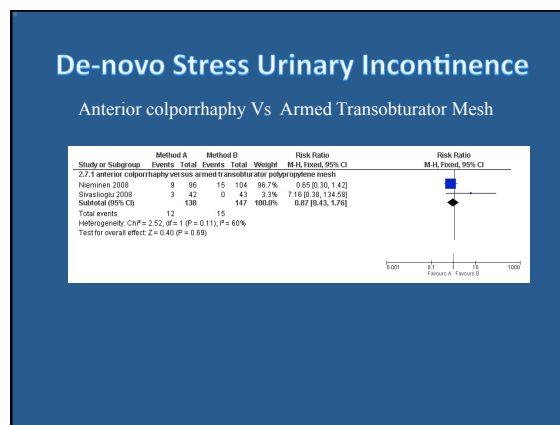
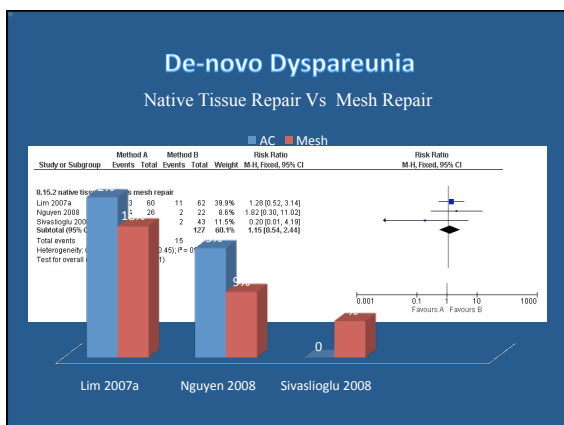
Anterior colporrhaphy Vs Armed Transobturator Mesh



Mesh Erosion

Mean = 10.2% (30/293)



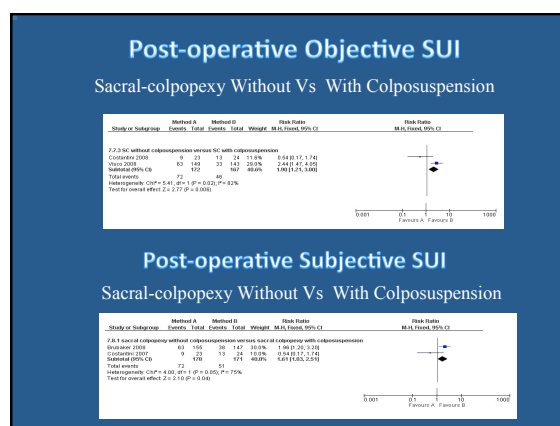
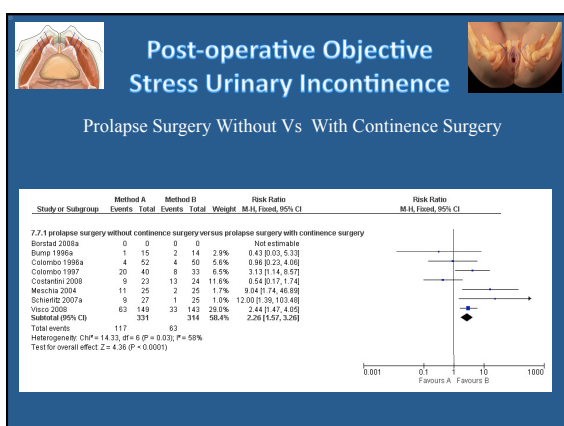


Comments

- One study reported a subjective success rate which was similar in both groups (Niemiinen 2008)
- Blood loss at transobturator meshes was significantly higher compared to anterior colporrhaphy, reported as blood loss in ml (Niemiinen 2008) or Hb change (Nguyen 2008)

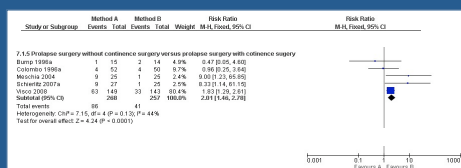
Stress Urinary Incontinence (SUI) Following Prolapse Surgery

- Meta-analysis 8 trials, 630 women
- Continence procedures employed:
 - Pubourethral ligament plication
 - Needle suspension
 - Colposuspension
 - Suburethral tapes



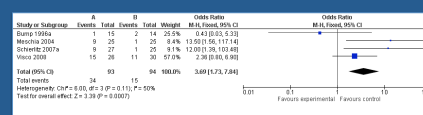
De-novo Stress Urinary Incontinence

Prolapse Surgery Without Vs. With Continence Surgery

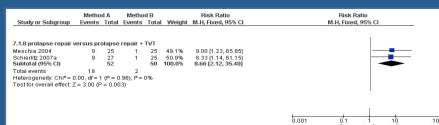


De-novo SUI in Women With Pre-operative Occult Stress Incontinence

Prolapse Surgery Without Vs. With Continence Surgery



Prolapse Surgery Without Vs. With TVT

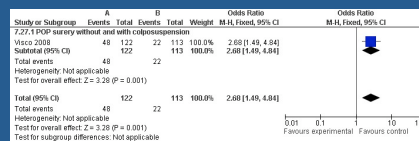


De-novo SUI in Women With Pre-operative Occult Stress Incontinence

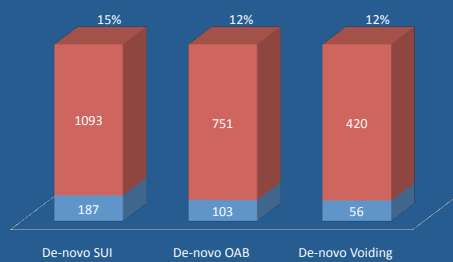
- The benefit remained (RR 5.45 95% CI 1.8, 16.53) even if data from the CARE study was removed
- Performing continence surgery in 94 women with occult SUI prevented 19 (20%) women developing SUI post-operatively

De-novo SUI in Women Without Symptomatic or Occult SUI

Sacral-colpopexy Without Vs. With Colposuspension



Overall Bladder Dysfunction After Prolapse Surgery



Conclusions

- Synthetic mesh at anterior repair:
 - ↓ recurrent cystocele on examination
- This benefit was not translated to a significant difference in patient determined outcomes or re-operation rates for prolapse or incontinence

Conclusions

- POP + continence Sx:
 - ↓ overall post-op SUI (8 trials)
 - ↓ post-op De-novo SUI (5 trials)
 - ↓ post-op De-novo SUI in women with pre-op occult SUI (4 trials)
 - ↓ post-op De-novo SUI in women without pre-op symptomatic or occult SUI (1 trial)
- Adequately powered RCT's are urgently needed on a wide variety of topics

Disclosures

- None of the authors possesses any conflict of interest

Thank you



Apical/Vault Prolapse Surgical Mesh Kits

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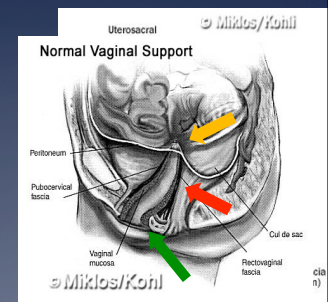
Disclosures

- * Fees for educational sessions for Surgery :
 - * Ethicon
 - * Olympus
 - * Ipsen
- * Development of patents in POP surgery:
 - * Ethicon
 - * Cousin Biotech
 - * Storz
- * Research Grants : Ethicon unconditional grant for biomechanical research on pelvic tissues

Why prolapse Kits ?

- * Standardization of the technique.
- * Simplification of the technique.
- * Reduced incisions and dissections
- * Less peroperative complications ?
- * Less operating time
- * Less morbidity and hospitalization

- * **Support Level I**
 - * **Apex**
- * **Support Level II**
- * **Support Level III**



Mesh Kits for Apical/Vault Prolapse

- * Polypropylene Monofilament Knitted Mesh
- * Sacrospinous suspension « tension free » TVM
 - * Ethicon, Women's Health & Urology
 - * Prolift Post et Prolift Total
 - * Bard
 - * Avaulta Post
 - * Cousin Biotech
 - * Biomesh Soft
 - * AMS
 - * Elevate : direct suspension anchor
 - * Perigee : Arcus Tendineous, Muscle, SSL?

Prolift : Implantation device



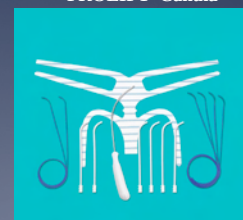
PROLIFT Guide

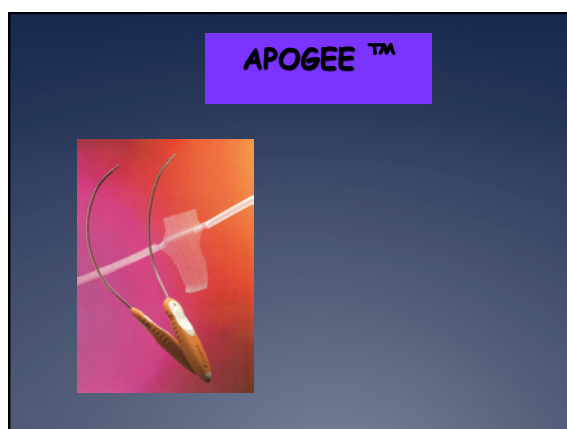
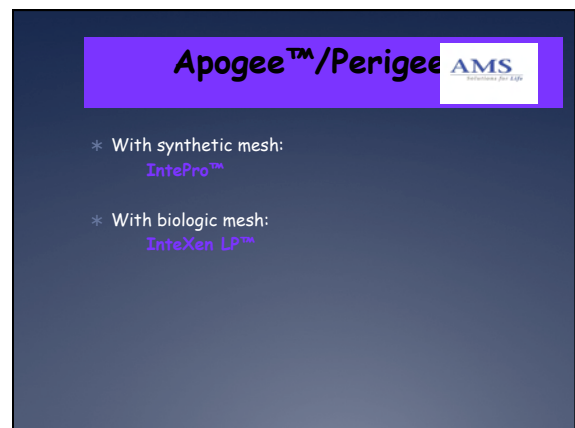
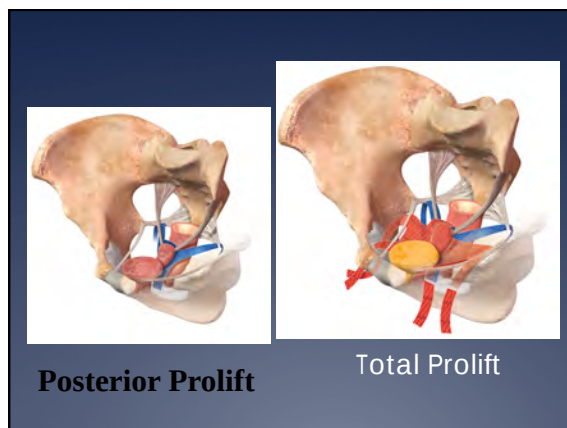
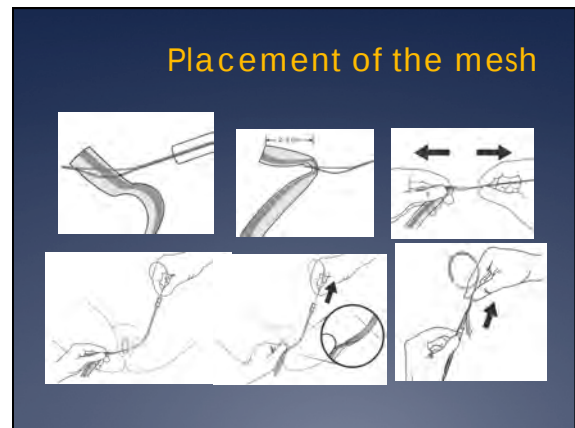
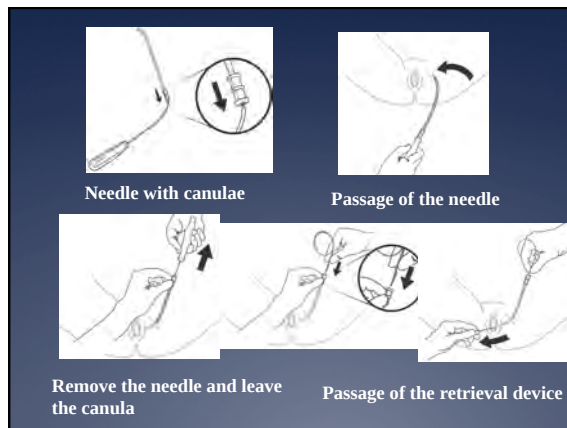


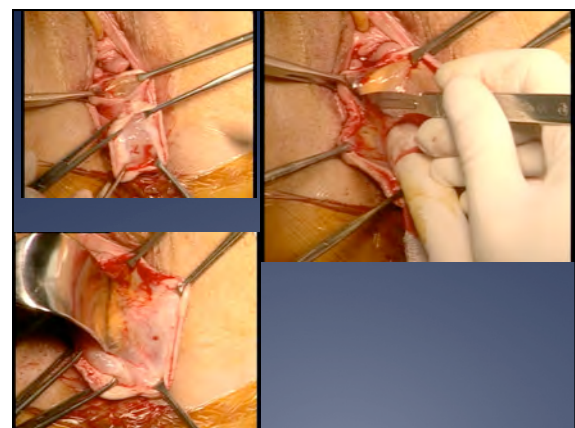
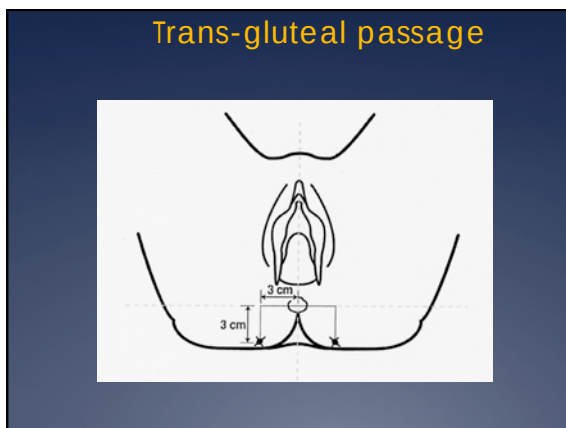
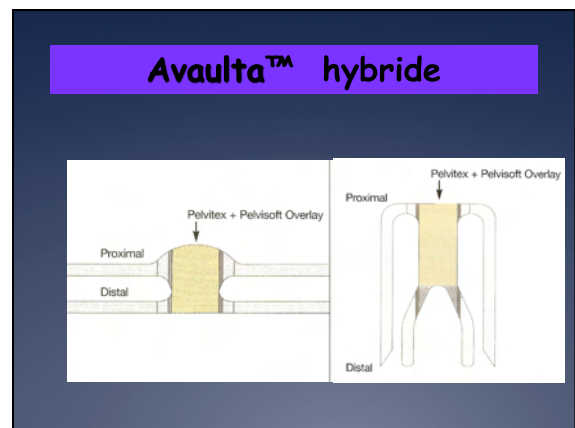
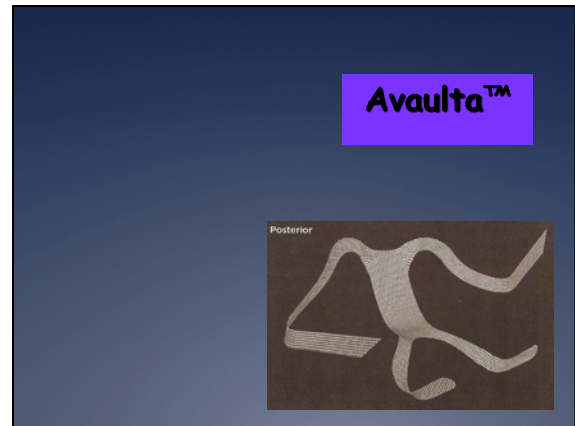
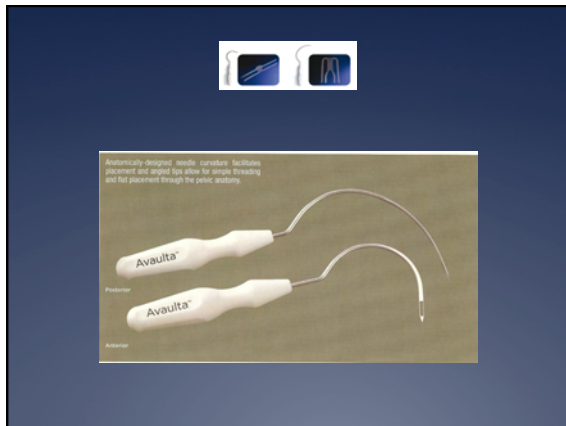
PROLIFT Canula

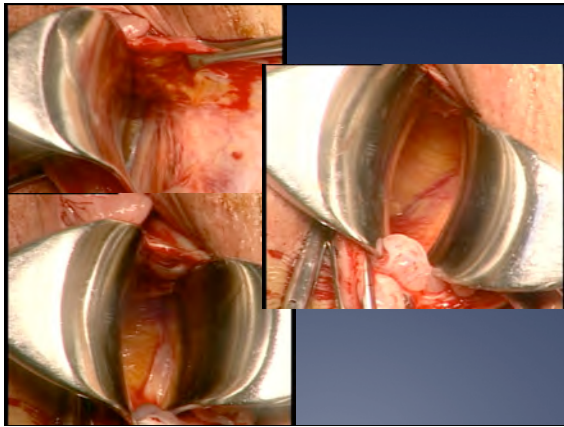


PROLIFT™ retrieval device

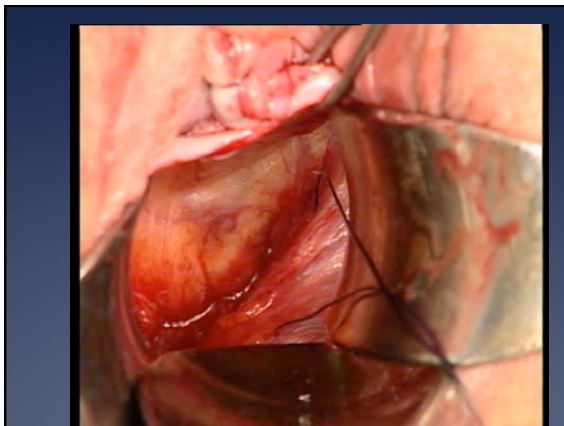
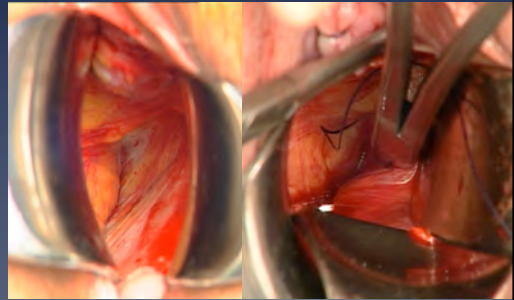








Dissection of the sacrospinous ligament

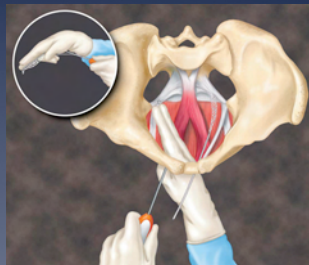


Costs in France

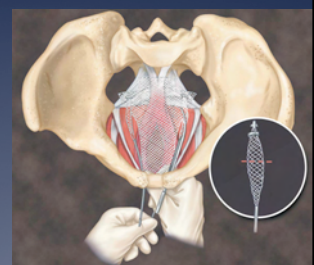
- * Gynemesh Soft®: 15x10 cm= **220 €**
- * Intexen LP™: 6x8 cm= 385 €, 8x12cm=725 €
- * Avaulta™ ant or post 250 €
- * Biomesh® : 317 € (without needles)
- * Prolift™
 - * Isolated Ant or Post: 520 €
 - * Total: 755 €
- * Apogee IntePro™: 600 €
- * Perigee IntePro™: 900 € (A+P: 1500 €)

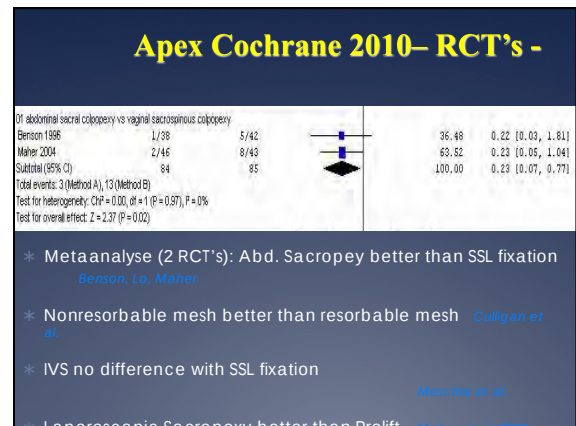
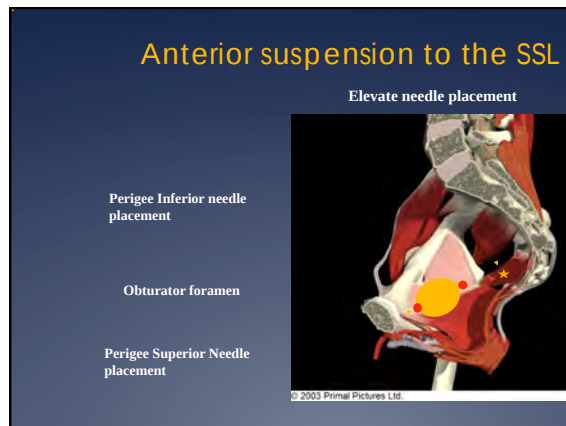
Elevate

- * Suspension to the sacrospinous ligament
- * Direct suspension



Elevate after implantation

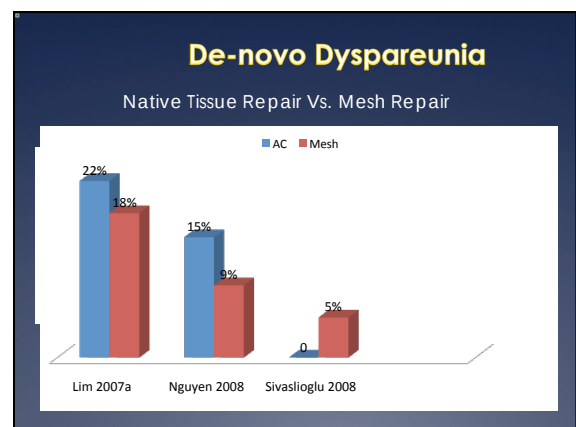




Apex Cochrane revue– RCT

lap sacropey versus Prolift(Prolift, Gynecare): 2 years analysis

	LSC	TVM
* Operative time	97 min	50 min
* Hemorragia	100 ml	150 ml
* Failures		
apical	96%	94%
anterior	69%	89%
posterior	94%	70%
* Vaginal length	8,8 cm	7,8 cm
* De Novo Stress Incontinence	33%	16%



Complications of 1882 Prolift from published series :

COMPLICATIONS	rate	COMPLICATIONS	rate
Bladder injury	0 – 2,5%	Micturition disorders	0 – 10%
Rectum injury	0 – 1,6%	De novo urinary incont.	0 – 11%
Haemorrhage ≥ 500 ml	0 – 2,5%	De novo urgency	0 – 7,8%
Vésico-vaginal fistula	2 cases	Transient retention	0 – 11%
Deep haematomas	0 – 3%	Mesh contraction	0 – 17%
Mesh exposure	0 – 12%	dyspareunia	0 – 9%
Urinary tract infections	0 – 11%	Inguinal pain	0 – 5%

- ### Our experience with posterior meshes
- * Monocentric retrospective cohort study
 - * Between january 2005 and january 2009
 - * Data obtained from
 - * Hospital notes
 - * Phone interviews
 - * To check if patients had re-intervention in an other hospital
 - * 475 patients included
 - * Posterior Prolift mesh repair
 - * Isolated
 - * Associated with anterior Prolift mesh repair

Patients characteristics (n=475)

Age (years)	64 (26-90)
Vaginal deliveries (n)	3 (0-11)
Follow up duration (months)	37 months (14-62)
Previous Surgery	
- Previous hysterectomy	93 (19.6%)
- Previous prolapse surgery	82 (17.3%)
- Previous continence surgery	61 (12.9%)

Type of prolift	n (%)
- Isolated posterior mesh	103 (21.7%)
- Anterior and posterior (with uterine conservation)	286 (60.2%)
- Anterior and posterior (without uterine conservation)	22 (4.6%)
- Total mesh	64 (13.5%)
Total	n=475

Post Op Reinterventions : Specific complications 3 years FU

Indication Re-intervention	Total Complications
<u>Prolift Complication</u>	
- Mesh exposure	7 (1.5%)
- Mesh retraction : pain	2 (0.4%)
- Mesh infection	1 (0.2%)
- Vaginal synechia	2 (0.4%)
- Rectal compression	2 (0.4%)

Reintervention rate : Prolapse recurrences Post Prolift

3 years Follow Up	Total Complications
<u>Prolapse recurrence</u>	
- Direct	9 (1.9%)
- Indirect	2 (0.4%)
Total	n=11 (2.3%)

Conclusion

Comparison of kits with synthetic meshes

- * Surgical principles are very close
- * Same dissection
- * Small difference of sizes and shape of meshes
- * Very close anatomical suspensions
- * No evidence of clinical consequences for patients / single mesh : simplification ++
- * No differences between kits
- * Therefore no recommendations

Conclusion : mesh kits

- * Operative adverse events
 - * safe procedures
 - * low peroperative complications rate
 - * decreasing with experience
- * Immediate postoperative adverse events
 - * painless procedure
 - * short hospital stay
 - * low rate of serious adverse events
- * Better evaluation of adverse events +++

Conclusion

- * No benefit / non mesh SSL susension ?
 - * Safety
 - * Post operative results
 - * Morbidity, reproducibility ?
- * Same postoperative adverse events
 - * painless procedure
 - * short hospital stay
 - * low rate of serious adverse events
- * Need for long term randomized studies / classical techniques - laparoscopic suspensions +++

Pelvic Organ Prolapse Repairs With or without mesh- Choices and Outcomes

Chair: Firouz Daneshgari, M.D. (U.S.A.)

Faculty:

Mauro Cervigni, M.D. (Italy)
Michel Cosson, M.D. (France)
Adonis Hijaz, M.D. (U.S.A.)
Christopher Maher, M.D. (Australasia)

Background- Successful repair of various compartments of pelvic organ prolapse (POP) remains a challenge for the clinicians. Over the past few years a number of surgical procedures using abdominal, vaginal approaches, laparoscopic, robotic, with or without use of mesh have been proposed with mixed reports on their outcomes.

An international panel of experts from urogynecology and female urology will discuss the available choices for repair of POP, pros and cons of currently available meshes; the levels of evidence related to each choice, and the results of recently completed clinical trials.

Objectives:

1. To discuss the available surgical options for repair of POP.
2. To discuss the different views on use of mesh in POP repair.
3. To discuss the surgical pearls used by the faculty for the POP repairs
4. To discuss the emerging new technology such as laparoscopy and robotic assistance in repair of POP
5. To discuss the International Consultation on Incontinence levels of evidence on outcomes of various techniques of POP repairs and results of recently completed clinical trials.

Pelvic Organ Prolapse Repairs With or without mesh- Choices and Outcomes

0:00-0:10: Introduction:	Firouz Daneshgari
0:10-0:30: Evolution of replacement material:	Mauro Cervigini
0:30-0:45 Concomitant Procedures: Hysterectomy Anti-incontinence Procedures	Adonis Hijaz
0:45:01 Cochrane Review	Chris Maher
01:00-01:15-	Break
01:15-02:45	Management of Apical/Advanced Prolapse and Complications
Abdominal Sacrocolpopexy	Chris Maher
Sacrospinous Suspension without mesh	Mauro Cervigini
Vaginal Approach with mesh	Michel Cosson
Uterosacral Ligament Fixation	
Robotic Abdominal Sacrocolpopexy	Firouz Daneshgari
02:40- 03:00	Q&A

2010 ICS Workshop

Pelvic Organ Prolapse Repairs With or without mesh- Choices and Outcomes

Introduction

Female Pelvic Organ Prolapse (FPOP) leads to more than 300,000 surgeries in the United States (Subak 2001). Up to 11% of women have surgery for POP or related conditions by age 80 years. More than half of the women with urinary incontinence have associated POP (Olson 1997). With the expanding portion of population at risk for urinary incontinence or FPOP, an increasing number of urologists are involved in diagnosis and treatment of FPOP. Training for management of FPOP is missing from a large portion of urology residency training programs (Daneshgari 2005).

An international panel of experts from urogynecology and female urology will discuss the available choices for repair of POP, pros and cons of currently available meshes; the levels of evidence related to each choice, and the results of recently completed clinical trials.

Please note:

1. a bullet type text has been prepared for hand out for a more efficient reading
2. Please send us your comments in how to enhance the course handout, method of presentation and additional topics to be covered in the future courses.
3. Copies of the demonstrated video and movies will be available by sending a written request to Dr. Daneshgari.

For Research, Clinical Fellowships or Preceptorship for practicing clinicians (available from 1-3 months), please contact:

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Introduction

Female Pelvic Organ Prolapse

Prevalence and Risk Factors for POP

1. Prevalence:

- a. How common is POP
 - i. According to some studies 75% of women over the age of 18 have some element of POP
 1. Majority are asymptomatic
 2. Only 5% beyond introitus
- b. Frequency of types of POP
 - i. With uterus: uterine prolapse – 14%, cystocele – 34%, rectocele – 19%
 - ii. Without uterus: cystocele – 33%, rectocele – 18%
- c. Distribution of stages of POP
 - i. According to one multicenter study 24% stage 1, 38 % stage 2, 35% stage 3, 2 % stage 3
- d. Risk of need for POP or POP related surgery
 - i. 11 % lifetime risk by age 80
 - ii. 300,000-400,000 American women per year
 1. 30 % of these are reoperations
- e. Dollar cost to society
 - i. in 1997 the cost of POP procedures was \$1.012 billion in the USA

2. Risk factors

- a. Childbirth
 - i. Vaginal deliveries
 - ii. Larger babies
 - iii. Higher parity
 1. 8x risk with 2 deliveries
 2. 12x risk with 4 or more deliveries
 3. Only 4% of women with POP have not had a pregnancy or delivery
- b. Pelvic surgery
 - i. Hysterectomy
- c. Other
 - i. Race
 1. More common in white and Hispanic women
 2. Rare in Asian women
 - ii. Increasing age
 - iii. Collagen disorders
 - iv. Neurologic disorders – MS, muscular dystrophy
 - v. Conditions that increase intra-abdominal pressure
 1. Increased BMI
 2. Chronic cough/Smoking;
 3. Chronic constipation - straining

Classification:

The following terminology describes the various components of the FPOP:

Anterior Vagial Wall or Cystocele

Posterior Vaginal Wall or Rectocele

Apex of the Vagina or Vaginal Vault prolapse with (entrocele) or without protruded bowel and peritoneal sac

Uterus hypermobility or prolapse

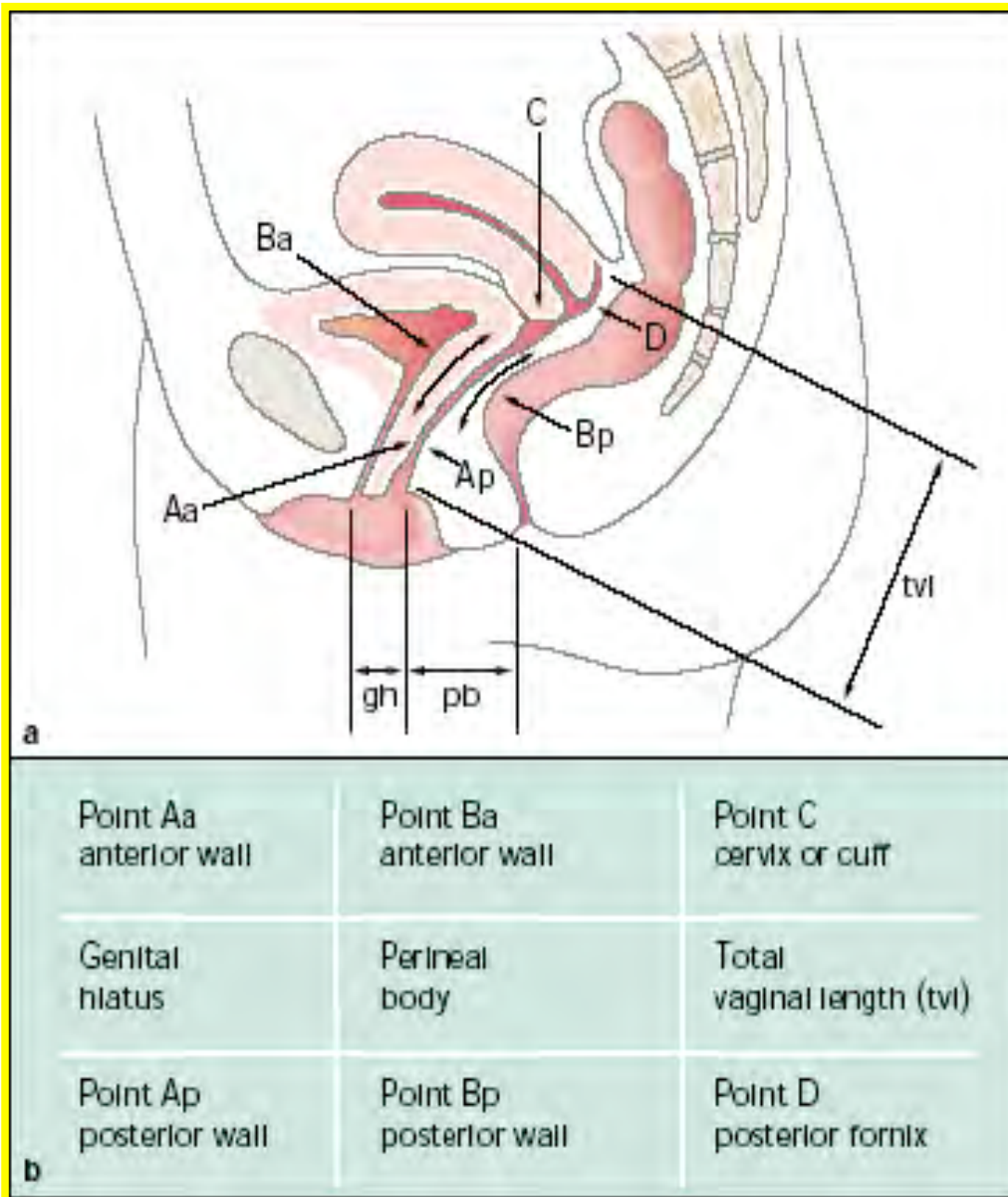
Perineal Body or Perineocele

Pelvic Organ Prolapse Quantification (POP-Q) has been adopted by major professional organizations and is currently considered as the gold standard for quantification of POP{ {1959 Bump,R.C. 1996; } }.

POP-Q scale has replaced the former methods of FPOP classifications (see figure)

Several studies have confirmed the inter and intra stability of the POPQ scale{ {930 Hall,A.F. 1996; } }

POP Q Scale involves localization of 9 positions within the female genitalia as followings:



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38th ICS Annual Meeting
POP repairs with or without mesh
Choice & Outcomes

Evolution of Replacement Material

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Graft selection criteria

Tissue under strain permanence strength	Tissue reinforcement may reabsorb enhancement
– <i>Sacrocolpopexy</i> – <i>Sling procedures</i>	– <i>Anterior repair</i> – <i>Posterior repair</i>
Synthetics	Biologic grafts Synthetics

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3

Characteristics of Mesh

<u>ADVANTAGES</u>	<u>DISADVANTAGES</u>
• Strong • Tensile Strength • Durable, Flexible • Inert • Knit Patterns, Porosity • Intense Inflammatory Response	• Infection • Rejection • Fistula • Erosion • Encapsulation • Poor Tissue Function

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What happens when a mesh is implanted in the body?

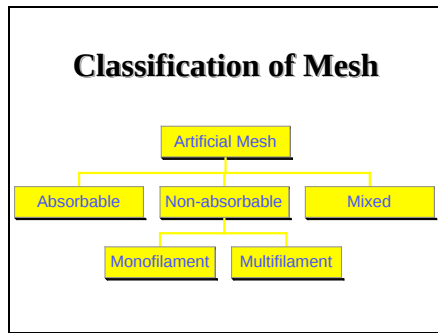
- Foreign body reaction (*Antibody Mediated*)
- Blood flow increase
- Temperature rise
- Macrophages Migration
- Macrophages attempt to eat the foreign body

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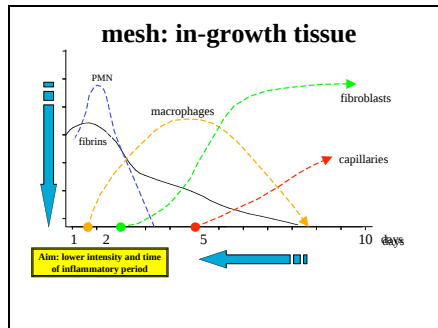
Mesh Incorporation Process

- Inflammation
- Fibroblast proliferation (*Fibroplasia*)
- Blood vessel proliferation (*Angiogenesis*)
- Collagen synthesis
- Collagen maturation (*Cross Linking*)

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Diapositiva
7



Diapositiva
8

- ### Evolution of Synthetic Mesh
- PTFE – polytetrafluoroethylene 1630 i m
 - Mersilene™ Mesh – polyethylene
 - Marlex® Mesh – polypropylene
 - Goretex® Mesh – expanded PTFE, 800 i m
 - Prolene® Mesh (Ethicon) – polypropylene 1500 i m
 - ProLite™ Mesh (Atrium) – polypropylene thin 800 i m
 - Parietene® Mesh – polypropylene 1440 i m
 - GyneMesh™ Mesh – polypropylene 1500 i m
 - Vypro™ Mesh – polyglactin
 - Avaulta / Pelvitex™ Mesh – collagen coated polypropylene, 1440 i m

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- ### New Bio-Synthetic meshes
- Porcine Collagen coated monofilament Polypropylene**
- Coating composition:**
- Oxidized atelocollagen type I
 - Polyethylene glycol
 - Glycerol
- Physic properties of this coating:**
- Hydrophilic (80% H₂O)
 - Elastic
 - Transparent
- Biological properties:**
- Biocompatible
 - Resorbed in 10-21 days

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10

- ### Why a biologic Graft?
- Indications:**
- Patients with a history of poor vaginal healing
 - Pelvic radiation therapy or urethral reconstruction
 - Surgeon's preference*
- Contraindications:**
- Patient with known sensitivity to Porcine or Bovine products
 - Patients with history of multiple or serum allergies
 - Not for reconstruction of cardiovascular defects
 - Not for reconstruction of central venous system or peripheral nervous system defects
- *Source: Amrut, Female Incontinence: a review of biomaterial and minimally invasive techniques.

Uterine sparing in POP surgery: Is there an added value from performing hysterectomy?

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“Hysterectomy at the time of POP repairs is the standard practice in most parts of the world despite the fact that descent of the uterus may be a consequence, not a cause of POP. Surprisingly, given its widespread use, concomitant hysterectomy is not an evidence-based practice.” International consultation on Incontinence 2008

Women may wish to avoid hysterectomy at the time of POP repairs because of factors such as desire for further childbearing, the belief that the uterus is important for sexual satisfaction, and the success of recent conservative procedures for uterine bleeding and Fibroids

1- Epidemiology:

Each year in the United States, more than 600,000 women undergo a hysterectomy at cost in excess of US\$5 billion.¹

By the age of 40, 20% of US women will have had a hysterectomy, with the incidence increasing to 33% by the age of 65 and 43% by the age of 85.²⁻⁴

13% of hysterectomy done in the US are performed for POP. (Nationwide Inpatient Sample (NIS) of the Healthcare Cost and Utilization Project (HCUP). Available at: www.hcupnet.ahrq.gov. December 28, 2007).

At least 20% of hysterectomies were performed for the primary indication of POP in Germany, France and England.⁵

80-90% of POP surgeries are done vaginally in the US (Boyles S 2003). National Hospital discharge Survey 1979-1997

30% re-operation rate for POP

2-Uterine preserving surgery

Rationale for uterine sparing

Uterine prolapse in young women

Uterus is important sexual organ

Removing uterus might affect bladder function

Removing uterus shortens vagina

Removing uterus changes the anatomical relationships in the pelvis

If using mesh reconstruction (Vaginal mesh or Abdominal sacrocolpopexy) hysterectomy increases the risk of mesh erosion (OR 4.9 in the CARE trial)

Contraindication of Uterine Preserving Surgery

post-menopausal bleeding,

previous cervical intraepithelial neoplasia (CIN)

abnormal cervical smears

uterine disease including uterine enlargement or cervical ulceration

3-Rationale for hysterectomy

Need for continuous surveillance

Risk for endometrial cancer

Risk for cervical cancer

traction force !!

4-Complication of hysterectomy: What are the drawbacks of removing the uterus?

(eVALuate Trial : Garry R et al: BMJ 2004;328:129-36)

Major hemorrhage requiring transfusion: 2.4-5.1%

Bowel injury 0.2-1%

Ureteral injury 0.3-0.9%

Bladder injury 0.9-2.1%

5-Lifetime risks of uterine and cervical cancer development

Cervical Cancer: Nationally, the lifetime probability of developing cervical cancer is 1:128. Although screening programs in the United States are well established, it is estimated that 30% of cervical cancer cases will occur in women who have never had a Pap test.⁶ The mean age for cervical cancer in the United States is 47 years, and the distribution of cases is bimodal, with peaks at 35 to 39 years and 60 to 64 years of age.⁷

Uterine Cancer: The median age for endometrial adenocarcinoma is 61 years, with most women diagnosed between the ages of 50 and 60 years. Ninety percent of cases occur in women over 50 years of age.⁸

6-What are the uterine sparing procedures?

Laparoscopic assisted high McCall for hysteropexy

Abdominosacrohysteropexy (lap, robotic)

Sacrospinous hysteropexy

Mesh vaginal reconstruction

7-Uterine sparing POP repair clinical data

Maher used a laparoscopic suture hysteropexy where the pouch of Douglas was closed and the uterosacral ligaments were plicated and reattached to the cervix. Forty-three women with symptomatic uterine prolapse were prospectively evaluated at mean follow-up of 12 months (range 6-32). On review, 35 women (81%) had no symptoms of prolapse and 34 (79%) had no objective evidence of uterine prolapse.⁹

Banu reported 100% success in a case series of 19 women aged 17-27 years following sacrohysteropexy using mersilene mesh at 3-5 year follow-up.¹⁰

Leron reported 92% success with the sacrohysteropexy using teflon mesh in 13 patients aged 38 years (range 27-60) at a mean follow up of 16 months.¹¹

Jeon reported outcomes after a median follow-up of 36 months in their retrospective comparison of 168 patients in 3 groups: sacrocolpopexy with synthetic mesh and hysterectomy (N=63); abdominosacral uteropexy with mesh (N=35), and abdominal uterosacrocardinal colpopexy and hysterectomy (N=70). Recurrence in the latter group III was 6.2 times higher than in the sacrocolpopexy/hysterectomy group.¹²

Dietz and co-workers observed 133 Dutch women undergoing a sacrospinous hysteropexy, and examined 60 of these women with mean follow up of 22.5 months. Eight-four percent of women were highly satisfied about the outcome of the procedure, and the rate of reoperation for uterine descent was 2.3%. The recurrence of anterior wall defects was 35%.¹³

Maier et al reported a retrospective comparison of 34 sacrospinous hysteropexies and 36 vaginal hysterectomies with sacrospinous fixation. Uterine preservation was associated with significantly less blood loss (198 vs 402 ml) and decreased operating time (59 vs. 91 minutes). At a 36 month mean follow up in the hysterectomy group and 26 months in the hysteropexy group, there was no differences in subjective success (86% vs. 78%, $p=0.70$), objective success (72% vs. 74%, $p=1.00$) or patient-determined satisfaction (86% vs. 85%, $p=0.10$) respectively.¹⁴

Hefni et al reported a nonrandomized prospective controlled study of 109 women who underwent sacrospinous cervicocolpopexy with uterine preservation [61 (56%)] and sacrospinous colpopexy + vaginal hysterectomy [48 (44%)]. Uterine conservation was associated with significantly less blood loss, decreased operating time and complication rate. At approximately 34 months, anatomic success was similar for the upper vaginal support (93.5% vs. 95%), anterior wall (11.4% vs. 10.4%, $p=0.9$) and re-operation (5% vs. 4.2%) for the uterine conserving vs. hysterectomy groups respectively.¹⁵

Van Brummen performed a retrospective comparison of the same two procedures. One hundred and three women underwent sacrospinous hysteropexy ($n=54$) or vaginal hysterectomy with a vaginal vault suspension ($n=49$) for the management of uterine prolapse. The women recovered significantly more quickly after sacrospinous hysteropexy. There were no differences in anatomical outcome or recurrence rate. The adjusted odds ratios for urge incontinence was 3.4 and for overactive bladder 2.9 greater after vaginal hysterectomy.¹⁶

Rosen et al performed a prospective non-randomized comparison between laparoscopic pelvic floor repairs with or without hysterectomy in 64 patients with stage 2 to 4 uterine prolapse (32 patients in each treatment arm). Time of surgery was greater in hysterectomy group (+35 minutes), as was estimated blood loss and inpatient stay. No difference between groups was detected in the rate of de novo postoperative symptoms. At 12 months, 4 (12.9%) patients in hysterectomy group had recurrent prolapse as did 6 (21.4%) patients in group non-hysterectomy group. At 24 months these figures were 6 (22.2%) and 6 (21.4%), respectively. These differences were not statistically significant ($p=.500$ at 12 months and .746 at 24 months). In the group not having hysterectomy, 4 (14.3%) of 28 patients had cervical elongation or level-1 prolapse by the 12-month assessment.¹⁷

De Vita et al reported prospectively on a cohort of 80 patients with stage 3 and 4 uterine-vaginal prolapse who wished to conserve their uterus. Those patients underwent a sacrospinous colposuspension with polypropylene mesh. Severe pelvic prolapse, evaluated with the POP-Q System, was completely treated in all the patients and no recurrences were observed. Sexual activities improved in all patients. Three vaginal erosions were reported.¹⁸

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Surgical Repairs of Apical Compartment

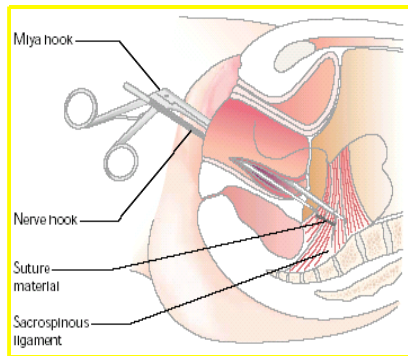
Over 40 types of techniques have been described for repair of prolapsed apical portion of the vagina including the enterocele and uterus prolapse. The following table lists some of the more commonly performed procedures.

Abdominal Approach:

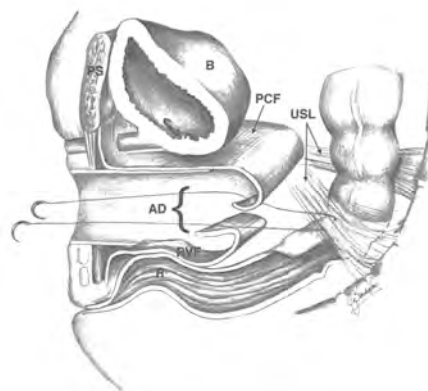
1. Abdominal Sacrocolpopexy
2. Pouch of Douglas Obliteration for Entrocele:
3. Moschkowitz
4. Mayo\McCall Culdoplasty
5. Halban Procedure
6. Concomitant procedures:
7. Paravaginal Repair
8. Burch Colposuspension
9. Abdominal and Vaginal Sacrospinous ligament fixation
10. Laparoscopic and Robotic Techniques:
11. Abdominal Sacrocolpopexy
12. Uteropexy
13. Parvaginal Repair

Vaginal Approaches

1. Sacrospinous ligament fixation (SSLF)
2. Without Mesh
3. With Mesh
4. Uterosacral Ligament Fixation (USLF);
5. Extraperitoneal
6. Intraperitoneal



Sacrospinous ligament
Fixation (above)



Uterosacral Ligament
Fixation (right)

Surgical Steps:

SSLF (without mesh):

- Midline incision is made through the vaginal cuff
- Endopelvic fascia is dissected away from the SSL
- SSL position is confirmed by palpation between the bony landmarks (ischial spine and sacrum)
- One or more permanent stitches are put through the SSL at 1 cm medial to the ischial spine. Most surgeons use Mayo hook for placement of the stitches
- Bilateral SSLF can be done by repetition of the above steps on the contralateral side.
- The stitches are passed through full thickness of vaginal cuff.
- Upon tie of the sutures, the vaginal cuff is suspended to the SSL.

USLF: This transvaginal approach was originally described by Dr. Bob Shull.

- An ellipsoidal of vaginal epithelium from the cuff is excised to facilitate transvaginal access to the peritoneal cavity
- The Uterosacral ligaments are identified by pulling on the remnants of cardinal ligaments transvaginally
- The vaginal cuff on each side is suspended to USL by helical sutures placed to the USL at high intraperitoneal position. We recommend 0 Vicryl on CT-1 needle
- Injuries to ureters are potential complication of this procedure and are avoided by identification of the ureters and use of blue dye with cystoscopy.

COCHRAN REVIEW

Christopher Maher

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ICS 2009
39th Annual Meeting

Pelvic Organ Prolapse Repairs
With or without mesh - Choices & Outcomes

**SacroSpinous Suspension
without mesh**

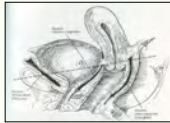
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EFFICACY OF SPECIFIC PROCEDURES

-The apex is the keystone of Pelvic Organ Support

-Vaginal support in hysterectomy
is recommended by most authorities
(Level 4 evidence)



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SacroSpinous Suspension
without mesh

**APICAL SUPPORT PROCEDURES
TRANSVAGINAL**

Supportive

1. High Uterosacral Ligament Suspension
(level 3 evidence)
2. Iliococcygeus Fascial Fixation
(level 3 evidence)
3. Mayo Culdoplasty
4. Sacrospinous Ligament Suspension (SSLS)
(level 3 evidence - Michigan modification)
5. Levator Myorrhaphy

Obliterative

1. Le Fort Colpocleisis
2. Total Colpectomy

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SacroSpinous Suspension
without mesh

INDICATIONS

In post-hysterectomy Vaginal Vault Prolapse

- * Symptomatic prolapse of the vaginal vault

In pats. with uterus

- * adjunctive step: during a hysterectomy for procidentia
- * prophylactic step: against subsequent Vag.Vault eversion
- * in young pats. desiring to retain fertility
- * in elderly pats. to reduce surgical time and morbidity

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SacroSpinous Suspension
without mesh

HISTORY

1. Zweifel in 1892
2. Richter in 1968
3. Randall & Nichols 1971

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**SacroSpinous Suspension
without mesh**



Surgical Technique

1. midline posterior vaginal wall incision
2. entry into the perirectal space
3. ischial spine is identified
4. long Deschamps & nerve hook with Briesky-Navratil retractors
5. two sutures are passed 2 fingerbreadths medial to the ischial spine

Randal & Nichols '71

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**SacroSpinous Suspension
without mesh**

Sacrospinous Ligament Suspension Procedures

Author	N	F-U in mo	Success	Complication
Morley 88	92	1mo-11y	82%	subj, objec
Imparato 92	155	?	90%	objec
Shull 92	81	2 - 5 y	65%	objec
Pasley 95	144	6 - 83 mo	94%	subj, objec
Benson 96	42	12 - 66 mo	29%	objec, RCT
Hardman 96	125	26.4 mo	98%	objec
Penalver 98	160	18 - 78 mo	85%	objec
Colombo 98	62	4 - 9 y	73%	subj, objec
Meschia 99	91	1 - 6.8 y	94%	objec
Sze 99	54	7 - 7.2 y	67%	objec
Lantsch 01	123	6 mo - 9y	97%	objec

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ROUTE OF SURGERY

ICI '05

? Level I evidence that abdominal route is more effective and durable in correcting anatomy and more effective in correcting or preserving vaginal and lower tract function.

? Level I evidence that vaginal route surgery has fewer serious complications.

? Level I evidence that vaginal route utilizing SSLS has a significant higher risk of recurrent anterior-apical prolapse than abdominal route

However the overall quality of life following either route of surgery appears similar !

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**SacroSpinous Suspension
without mesh**

COMPLICATIONS

- * Hemorrhage
- * Buttock pain
- * Nerve injury
- * Rectal injury
- * Stress Urinary Incontinence
- * Vaginal stenosis
- * Recurrent Anterior Vaginal Wall Prolapse

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a further step ?
Minimally Invasive Surgical (MIS) kits

PROLIFT
(Gynecare)

PERIGEE/APOGEE®
(AMS)

AVAILTA®
(Bard)

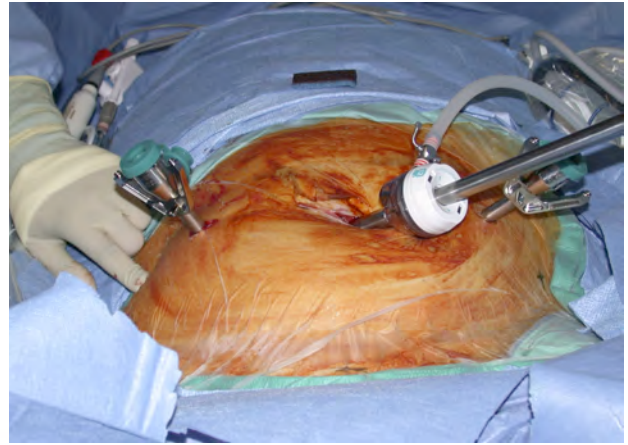
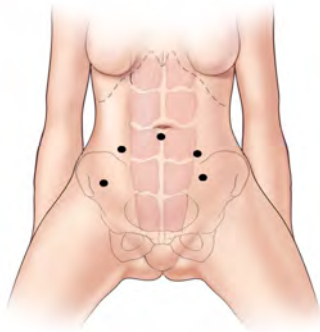
Transvaginal Repairs Using Kit Mesh

Michel Cosson, M.D.

Robotic & Laparoscopic Repairs

Robotic laparoscopic repair of POP with or without uteropexy provides a less invasive approach to the repair of pelvic organ prolapse. Lesser invasive nature of this approach also provides an opportunity for organ-preserving repair in the case of uterine prolapse.

- Robotic laparoscopic procedures can be performed in presence or absence of uterus. The use of robotic laparoscopic repair alleviates the need for an abdominal incision and accelerates the patient's recovery.
- Surgical steps are similar to those of open abdominal sacrocolpopexy
- Exposure to the pelvis is accomplished using trendelenberg positioning and a laparoscopic retractor to reflect the colon to the left
- Incision of the posterior peritoneum is begun at the level of the sacral promontory and continued distally to the cul-de-sac.
- The posterior vaginal wall is incised to the level of the vaginal cuff
- In a sacrocolpouteropexy, the incision is carried to the level of the cervix.
- Two 3X15 cm pieces of polypropylene mesh are sutured to the vaginal vault- one anteriorly and one posteriorly- making a cup support of the prolapsed vault
- In a sacrocolpouteropexy, only one mesh is sutured to the exposed portion of the cervix at two proximal and two distal sites.
- The single mesh in the sacrocolpouteropexy and both meshes in the sacrocolpopexy are then sutured to the anterior spinous ligament. Non-absorbable sutures are used for suspension sutures. The peritoneum is closed using running or interrupted absorbable sutures.
- During Robotic and Laparoscopic approach, concomitant procedures such as paravaginal repair or Burch colposuspension can be performed.



In Robotic and Laparoscopic approach, five ports (12 mm x 3; 8 mm x2) are placed. In Robotic cases, the three of the ports are attached to the robot arms with two free hand ports controlled by the surgeons' assistant.

Reported Outcomes:

Summary of the reported outcomes in Robotic AS is presented in Table 1.

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