W4: Current Role of Biological Grafts in the era of Mesh Controversy
Workshop Chair: Elise De, United States
12 September 2017 07:30 - 08:30

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Topic</th>
<th>Speakers</th>
</tr>
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<tr>
<td>07:30</td>
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<td>Mesh complications, FDA warning and cause for concern</td>
<td>Elise De</td>
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<td>07:40</td>
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<td>Elise De</td>
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<td>All</td>
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</tbody>
</table>

Speaker Powerpoint Slides
Please note that where authorised by the speaker all PowerPoint slides presented at the workshop will be made available after the meeting via the ICS website [www.ics.org/2017/programme](http://www.ics.org/2017/programme) Please do not film or photograph the slides during the workshop as this is distracting for the speakers.

Aims of Workshop
The aim of this workshop is to familiarize the audience regarding various biological materials including synthetic meshes which are in use in female pelvic floor reconstruction. What are the complications observed and status of FDA warning.

Learning Objectives
1. To be able to learn about potential mesh complications
2. To learn different types and nature of biological grafts available
3. To learn the efficacy of these grafts and their outcomes.

Learning Outcomes
After the course the students will be able to exercise caution and counsel the patients better in the use of synthetic mesh for pelvic floor reconstruction. This will help them avoid potential morbid complications and avoid any future litigation.

Target Audience
Urologists, Urogynecologists, Nurses, Residents

Advanced/Basic
Advanced

Conditions for Learning
This is not a hands on course but will be interactive and open to at least 50 delegates.

Suggested Learning before Workshop Attendance
The delegates should read about FDA warning issued for the use of meshes in both prolapse and incontinence surgery

Suggested Reading
Vaginal mesh has been in use since the 1970s for prolapse and 1990s for stress incontinence. The FDA first cleared its use in 1996 for SUI (and 2002 for prolapse) on a 510(k) mechanism for medical devices. This mechanism allows for clearance based on ‘substantial equivalence’ to previously marketed devices, and does not require premarket safety and efficacy studies. In this case the previously cleared mesh was developed for hernia repair. In 2008 and 2011, the FDA issued public communications about vaginal mesh through its website. These communications represent only a fraction of the true complication rate, as reporting is not mandatory. The second communication reported that the FDA received more than 1,000 adverse event reports between 2005 and 2008 and 2,874 between 2008 and 2010. Since these reports, the use of vaginal mesh has decreased not only in the US but worldwide.

Backtracking the R and D in response to continually emerging complications and hesitancy to use mesh, elegant work on biomechanics for the pelvic floor has been done. Mechanics contribute to the onset of prolapse as well as the failure of surgical interventions. The loading conditions of the pelvis, the tissues, as well as the repair (native tissue, biologics, and mesh) as well as the healing properties of all components are paramount for outcome.

Clinical evidence in the use of biological materials in female pelvic floor reconstruction

Rahmi Onur, MD.
Department of Urology, Marmara University, Faculty of Medicine, Istanbul-Turkey.

Transvaginal mesh use for prolapse repair became questionable after Food and Drug Administration (FDA) warnings in 2008 and 2011. Recently, there has been a surge in use of biological grafts for pelvic floor reconstruction. Considering apical prolapse repair, current literature continue to support the use of polypropylene mesh. Similarly, National Institute of Health and Clinical Excellence (NICE) recommends polypropylene mesh use in abdominal sacrocolpopexy (ASC) surgery as a safe and efficacious method of vaginal vault prolapse repair. Although biological grafts have similar or slightly less efficacy, synthetics are still preferred since they have a high success rate maintained by a cheaper material, polypropylene mesh without having increased complication rates in long-term for apical compartment repair. Porcine dermis, cadaveric fascia lata, and porcine intestinal submucosa have higher anatomical failure rates compared with polypropylene mesh when used for ASC. The ASC surgery using mesh is accepted as gold standard but may be associated with short term morbidity and potential foreign body problems. Considering posterior compartment repairs, both synthetic or biological grafts did not show significant difference compared to posterior colporrhaphy alone. There’s limited data evaluating the role of mesh or biological graft augmentation for posterior compartment prolapse repair. In many studies, posterior wall repairs with augmentation did not reveal better results than native tissue repair and lack long-term data.

The 2012 Cochrane meta-analysis concluded that objective success rate is higher in patients receiving anterior colporrhaphy reinforced with grafts compared to anterior colporrhaphy alone. However, concerns with synthetic graft use still persist such as, mesh extrusion, bleeding, dyspareunia and pain. Although, biological grafts showed improved anatomical outcomes compared to native tissue repairs, conflicting outcomes were reported which may be related to considerable variation in graft material and surgical technique. Proposed benefits include less risk of erosion for biological grafts, decreased operating time with kits, decreased operating time if autologous tissue not harvested. Disadvantages of biologicals in anterior compartment include host versus graft response, durability and risk of infectious transmission.

Continuing experience with transvaginal mesh surgeries for incontinence treatment supports use of polypropylene mesh and biological graft use. After FDA warnings, there became a tendency to use less synthetic mesh sling for the treatment of SUI at some tertiary care centers however, the difference was not significant. Nevertheless it was shown that there’s an increase in the utilization of autologous fascia pubovaginal slings (AFPVS). Cadaveric grafts or
xenograft have also successfully been used in anti-incontinence procedures, however cost-efficiency is the main issue that limit their common use. Biological grafts can be suggested in patients with failed prior surgery, to patients not willing to receive synthetic material or in case of re-inforcement of pelvic floor. Treatment of patients with a failed prior surgical procedure for stress urinary incontinence represent a challenging clinical practice. The selection of surgical technique to achieve continence may vary and ranges from endoscopic bulking agents to re-do midurethral synthetic sling procedures, autologous fascial slings, adjustable devices using meshes or balloons and repeat colposuspension procedures. However, among these alternatives only use of a biological graft, autologous fascia pubovaginal AFPVS has shown long term durability and success rates after failed mesh surgery for SUI.
**W4: Current Role of Biological Grafts in the era of Mesh Controversy**

- **07:30 - 07:40 Elise De:**
  - Mesh complications, FDA warning and cause for concern

- **07:40 - 07:45 Elise De:**
  - Biochemical evidence in tissue repair Elise De

- **07:45 - 08:00 Dirk De Ridder:**
  - What does research say about biological materials

- **08:00 - 08:15 Rahmi Onur:**
  - Clinical evidence in use of biological materials

- **08:15 - 08:30 All Audience:** Discussion

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**Elise De, M.D.**

Affiliations to disclose:

None

Funding for speaker to attend:

- [ ] Self-funded
- [ ] Institution (non-industry) funded
- [ ] Sponsored by:

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**Dirk De Ridder**

Affiliations to disclose:

- Astellas: speaker, consultant, unrestricted research grant
- Medtronic: unrestricted research grant
- Coloplast: clinical study

Funding for speaker to attend:

- [x] Self-funded
- [ ] Institution (non-industry) funded
- [ ] Sponsored by:

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**Rahmi Onur, MD**

Affiliations to disclose:

NONE

Funding for speaker to attend:

- [ ] Self-funded
- [ ] Institution (non-industry) funded
- [x] Sponsored by: Allergan

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**NEW FOR 2017**

Please complete the in-app evaluation in the workshop before leaving.

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**W3 Debates and Controversies on Autonomic Dysreflexia After Spinal Cord Injury**

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28/09/2017
Announcements

- A shortened version of the handout has been provided on entrance to the hall
- A full handout for all workshops is available via the ICS website.
- Please silence all mobile phones
- Please refrain from taking video and pictures of the speakers and their slides. PDF versions of the slides (where approved) will be made available after the meeting via the ICS website.

7:30-7:45

1) Mesh complications, FDA warning and cause for concern
2) Biochemical evidence in tissue repair

Elise De, MD

Question 1

In the past 10 years, for anterior wall prolapse, what percent of the time have you incorporated a synthetic mesh in the repair?

A. 0%
B. 25%
C. 50%
D. 75%
E. 95%

Vaginal Mesh

Vaginal mesh:
- In use since the 1970s for prolapse
- In use since the 1990s for stress incontinence.

In the US, FDA first cleared its use on a 510(k):
- 1996 for SUI
- 2002 for prolapse
- ‘Substantial equivalence’
- Did not require premarket studies.
- Approved based on mesh for hernia repair.

Pore Size

2008 and 2011, U.S.:

- FDA issued public communications about vaginal mesh through its website.
- Since these reports, the use of vaginal mesh has decreased not only in the US but worldwide.
Currently Available Mesh

Publications and internal industry emails document:

- Shrinkage approx 30%
- Degradation
- Altered geometry
- Folding
- Bacterial colonization
- Inflammation
- Rigidity

Tensile Loading impacts Pores

Gynemesh Ultrapro Restorelle

Degradation over time

Pro-inflammatory macrophages: CD68
a) AMS Perigee Mesh   b) Gynemesh TVT Secure   c) Control Vaginal Tissue

After 2011

FDA required post-market surveillance studies:

- “522 studies”
- To evaluate success and complications of such devices
- Included manufacturers of xenografts (animal-derived)
- Did not require manufacturers of allografts (human cadaveric tissue) to run these studies.

European Consensus 2017

Risk factors for mesh materials, consider:

1. Overall surface area of the material used (which is greater for POP than for SUI)
2. Mesh design (e.g., physical characteristics of the mesh, size of the pore as a predisposing factor to infection—in particular with a pore size of <75 microns)
3. Material (biocompatibility, long-term stability, flexibility, elasticity, etc.)
4. No discussion of biologic grafts!


Types of grafts

1. Allografts (eg, cadaveric fascia and dura mater)
2. Xenografts (eg, porcine and bovine)
3. Autografts (eg, fascia lata and rectus fascia)
4. Synthetic meshes (nonabsorbable, eg, PP mesh as well as absorbable)

Grafts differ in:

- Origin (autograft, allograft, xenograft)
- Source (eg, dermis, fascia, pericardium, small intestinal submucosa)
- Life stage (fetal, adult)
- Proprietary processing (washes, enzymes, chemicals, lyophilization)
- Cross-linking (eg, gluteraldehyde)
- Sterilization (eg, ethylene oxide, gamma irradiation).

Currently Available in the U.S.

<table>
<thead>
<tr>
<th>TABLE</th>
<th>Overview of clinically available biological grafts for pelvic floor reconstruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Name</td>
<td>Source</td>
</tr>
<tr>
<td>AllograftTM</td>
<td>Human Dermis</td>
</tr>
<tr>
<td>XenoformTM</td>
<td>Human Pericardium</td>
</tr>
<tr>
<td>MatriStemTM</td>
<td>Human Pericardium</td>
</tr>
</tbody>
</table>

Xenografts:
- XenoformTM (Boston Scientific): noncross-linked fetal porcine dermis. Matrix undergoes chemical viral inactivation as well as sterilization with ethylene oxide gas.
- MatriStemTM (ACell): 6-layer acellular and noncross-linked matrix derived from porcine urinary bladder.

Allografts:
- RepliformTM (Boston Scientific Corporation), acellular cadaveric, noncross-linked dermal matrix, which is sterilized to ensure clinical safety.
- AxisTM (human dermis) and SuspendTM (human fascia lata) Coloplast
  - Both noncross-linked and sterilized using a proprietary process (Tutoplast) to prevent the transmission of pathogens.

Allograft Concerns

- Transmission of bacterial or viral disease
- Transmission of prions
- Durability
- Degradation of allograft
- Inconsistent quality from some tissue banks
- Cost
- Depletion of tissue banks
- Unpredictable host response

Ideal Material

- Biocompatible
- Acellular
- Abundant collagen
- Abundant elastin
- Preserved extracellular matrix
- High tensile strength
- Durable
- Free of infection and erosion
- Inexpensive

Slide Courtesy Ajay Singla
What does research say about biological materials
From bench to bedside in pelvic floor surgery is preclinical research relevant?

Dirk De Ridder, Andrew Feola, Bia Mori, Maarten Albersen, Frank Van der Aa, Jan Deprest

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Jan-Paul Roovers
Amsterdam, Netherlands

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28-9-2017

Implants

Xenografts
End 1990s
FDA approved for urogyneacology
CE marked

Non-cross linked
Small intestinal submucosa « SIS » InteXen (LP)

Cross linked
Pelvicol Pelvisoft

different host response, local side effects and durability?

Can we learn from experiments?

Textile structure: Amid (1958) classification

Ob tape: Siegel AL et al J Urol 2005
Yamada BS et al J Urol 2006

Adverse effects of microporous materials were predicted by a preclinical study in rats

IVS multifilament sling was removed from market based on Konstantinovic M et al, IUGJ 2007

Xenografts performed clinically as predicted by experiments

Claerhout et al, Ozog et al, Konstantinovic et al, Zheng et al 2006-2010

Adenoma type I (microporous materials) are recommended SCENIHR Report 2016

Can we learn from experiments?

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Question

Do you think that biomeshes are a good alternative for mesh augmented repairs, now that synthetic mesh is out?

- Yes, the scientific base is sound
- Don’t know
- No, there are not enough data
- New stem cell based technology will be the future

Can we learn from experiments?

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In vivo animal studies
Rat (3-90 d) and rabbit model (30d-2 yrs)

Xenografts – experimental data
Host response to acellular collagen matrix
Weak inflammatory response
Less pro-inflammatory profile
Poor integration
Poor vascularization and collagen deposition

polypropylene provokes "pro-inflammatory" response = rejection
xenografts induce anti-inflammatory cytokines = "tolerance"

pelvicol
prolene

H&E stain
immunohistochemistry
specimens @ 7d
PCR

Pelvicol
prolene

Cross linked products

Experimental long term studies
60d
365d
720d
Clinical
rehernation
Improving materials

- Tissue engineering: non-textile matrices
  - Polylactic acid (Roman Regueros, MacNeil & Deprest, 2014, 2016)
  - Ureidopyrimidone (Mori de Cunha, IUSA 2016)
- New coatings for drug or cell delivery
  - Anti-inflammatory ibuprofen (Canton, 2010)
- Antibiotics
  - Subclinical infection has been demonstrated; clinical relevance uncertain (Boulanger 2008; Marny 2011; Clave 2011; de Tayrac 2011; Vollebreght 2012)
  - Pro-angiogenics (VEGF, Heparin)
  - Estrogenas (Rizk 2008, 2009; Higgins AJOG 2009)
  - Anti-oxidant ascorbic acid (Mangir 2016)
  - Cell carrier (Chu, 2013)

Cell based slings/meshes

Electrospun nanoyarn seeded with myoblasts induced from placental stem cells for the application of stress urinary incontinence sling: An in vitro study

Kai-Zhe Zhang,1,3, Xuran Guo,1,3, Yan Li4,4, Quan Fu5,6, Xiangli Mo5,6, Kyle Nelson5,6, Weimin Zhao1,3
Conclusions

Xenografts “ideal template” for remodelling?
  • Experimental evidence for induction different host response
  • Non-cross linked materials
    • Poor early tensiometric resistance
    • Also disrupt more easily in the implant
  • Cross linked
    • Stronger on tensiometry
    • Occasional degradation and loss of elasticity

Hybrids: electrospun scaffolds + Cells
  • Ongoing research

Ideal biomesh not designed yet

Thank you to all co-workers

Dirk.deeridder@uzleuven.be and/or Jan.Deprest@uzleuven.be
Clinical evidence in the use of biological materials in female pelvic floor reconstruction

Rahmi Onur, MD.
Department of Urology,
Marmara University, Faculty of Medicine,
Istanbul-Turkey.

Biological grafts are mostly preferred in case of…
A. Recurrent cystoceles
B. Advanced prolapse
C. Coexistent risk factors such as obesity, chronic constipation, asthma... etc
D. Patients not willing to receive synthetic mesh
E. All

Most of the RCT and metaanalyses related to use of graft augmentation in pelvic floor reconstruction revealed:
A. Higher subjective cure rates for prolapse treatment using adjuvant material
B. Similar mesh and biological graft extrusion rates
C. Increased short term objective anatomical cure rate
D. Better role in posterior repairs.

Question
Do you think that biomeshes are a good alternative for mesh augmented repairs, now that synthetic mesh is out?
• Yes, the scientific base is sound
• Don’t know
• No, there are not enough data
• New stem cell based technology will be the future

Clinical evidence for use of biological grafts

• Is there enough evidence?
  (Evidence based use)
• Success rates
• Benefit / complication ratio?
Apical prolapse: Abdominal sacrocolpopexy:

- 74% success rate even after 13 yrs
- Laparoscopic / Robotic Scx has similar success
- Exposure risk: 1-2% with polypropylene

<table>
<thead>
<tr>
<th>Author</th>
<th>No.</th>
<th>Follow-Up (mos)</th>
<th>Success Rate</th>
<th>Complications</th>
<th>Mesh Type</th>
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<tbody>
<tr>
<td>Ogunyade et al.</td>
<td>25</td>
<td>12</td>
<td>89</td>
<td>None</td>
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<tr>
<td>Collins et al.</td>
<td>18</td>
<td>12</td>
<td>87</td>
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<tr>
<td>Aigner et al.</td>
<td>17</td>
<td>12</td>
<td>86</td>
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<tr>
<td>Alvex et al.</td>
<td>20</td>
<td>12</td>
<td>84</td>
<td>None</td>
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<tr>
<td>Trussell et al.</td>
<td>15</td>
<td>12</td>
<td>84</td>
<td>None</td>
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<td>Calvino et al.</td>
<td>10</td>
<td>12</td>
<td>81</td>
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<td>Freitas et al.</td>
<td>10</td>
<td>12</td>
<td>80</td>
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<td>Siddiqui et al.</td>
<td>7</td>
<td>12</td>
<td>71</td>
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<td>Hunsberger et al.</td>
<td>6</td>
<td>12</td>
<td>71</td>
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</tbody>
</table>

Success between 71-100%

The Use of Biological Materials in Urogynecologic Reconstruction: A Systematic Review

Role of biological grafts for apical prolapse

- Treatment of apical prolapse: Best with polypropylene mesh
- High success with less erosion rates: 2% as suggested by IUGA/ICS.
- Why biological grafts not commonly used in abdominal sacrocolpopexy?
  - low success rate?
  - High success rate by a much cheaper material (polypropylene mesh)

Apical prolapse treatment by graft use

<table>
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<tr>
<th>Author</th>
<th>No.</th>
<th>Follow-Up (mos)</th>
<th>Success Rate</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>Lento et al.</td>
<td>55</td>
<td>12</td>
<td>85</td>
<td>No graft-related complications.</td>
</tr>
<tr>
<td>Prostigal et al.</td>
<td>55</td>
<td>12</td>
<td>84</td>
<td>No graft-related complications.</td>
</tr>
<tr>
<td>Thrane et al.</td>
<td>19</td>
<td>11</td>
<td>84</td>
<td>5% recurrence.</td>
</tr>
</tbody>
</table>

Success between 61-100%

Native tissue repair vs mesh repair

- Five randomized controlled trials - 4 out 5 trials favored mesh use in Abd. Scx.

- Native tissue repair was better in only one trial: 87% success with uterosacral ligament fixation vs 68% success with open sacrocolpopexy) - Superior efficacy and durability with Abd Scx & mesh
- Lower rate of recurrent vault prolapse, reduced rate of residual prolapse and less dyspareunia with Abd Scx

Anterior compartment: Graft or not to graft?

- Risk for failure : 30%
- Anterior colporraphy success: 37-57%
- Graft use allows a broader base of support - Not dependent on existing weakened tissue
Porcine dermis vs anterior colporrhapsy alone: 93% vs 81%

Kobashi et al., used cadaveric fascia lata for treatment of primary cystocele. No failures or complications were observed at a short follow-up.

Frederick et al., examined 251 patients and at a short follow-up (6 months), cadaveric graft used for anterior prolapse showed 93% cure.

Anterior colporrhaphy vs AC with small intestine submucosa (SIS) graft: Objective failure rate was significantly higher after the AC 33% compared to SIS group 14% (4/28).

Results of biologic grafts for the anterior compartment

- If 10% of women were aware of prolapse after a native tissue repair, between 7% and 15% would be aware of prolapse after biological graft repair.

- This suggests that if 30% of women had recurrent prolapse after a native tissue repair, then between 18% and 33% would have recurrent prolapse on examination after a biological graft repair.
Adding biological graft for cystocele repair

Evidence: Conflicting

- Considerable variation in graft material and surgical technique.
- No benefit with porcine dermis compared with anterior colporrhaphy.
- The only other biologic graft that showed potential benefit was porcine small intestine submucosa.

Mesh, graft, or standard repair for women having primary transvaginal anterior or posterior compartment prolapse surgery: two parallel-group, multicentre, randomised, controlled trials (PROSPECT)

Two pragmatic, parallel-group, multicentre, randomised controlled trials
Between 2010, and 2013, 1352 women allocated to treatment,
(430 to standard repair alone, 435 to mesh augmentation)
&
(367 to standard repair alone, 368 to graft)

Similarly, in the first 2 years after surgery: No benefit to women having their first prolapse repair from the use of transvaginal synthetic mesh or biological graft to reinforce a standard anterior or posterior repair, either in terms of prolapse symptoms or in short term anatomical cure.

Conclusion: Biological grafts in anterior repair

- Mixed evidence: Conflicting results
  - Variety of materials & techniques
  - Short followup, non-standardised evaluation of results (i.e. definition of success, evaluation of success)
- Graft reinforcement in women with recurrent cystocele does appear to improve short-term outcomes.

Posterior repair with graft reinforcement

- Biological graft use in posterior compartment (porcine dermis, porcine SIS, dermal allografts)
- A single RCT and 2 comparative cohort studies did not show improved outcomes with biological grafts.

<table>
<thead>
<tr>
<th>Author</th>
<th>Graft</th>
<th>Mean Follow-up (months)</th>
<th>Success rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oster and Astrop, 1981 [95]</td>
<td>Dermis, autogipose</td>
<td>31.2</td>
<td>100%</td>
</tr>
<tr>
<td>Kolbe and Miklos, 2003 [96]</td>
<td>Dermal allograft</td>
<td>12.9</td>
<td>93%</td>
</tr>
<tr>
<td>Alman et al., 2005 [97]</td>
<td>Polydioxanone</td>
<td>12</td>
<td>82%</td>
</tr>
<tr>
<td>Alman and O’Rourke, 2006 [98]</td>
<td>Polydioxanone</td>
<td>38</td>
<td>49%</td>
</tr>
</tbody>
</table>

Standard posterior colporraphy

- Success rate with traditional repair: 76%-96%
- Use of grafts: questionable
- Synthetic graft use: more complications
- Should we use ANY grafts?

Use of biological grafts for incontinence

- Transobturator and retropubic mid-urethral slings using cadaveric fascia lata, xenograft: similar success but expensive
- Autologous biological grafts: rectus fascia-Fascia lata: for treatment of failures or in cases where synthetic mesh is contraindicated

Pubovaginal sling surgery using 2 x 12 cm cadaveric demis.

- Outcome at 1 year assessed by the Urogenital Distress Inventory short form and standardized follow-up questionnaires.
- 80% patients were cured (20 patients: 17 dry, 3 improved)
- 76% percent of the patients indicated that urinary incontinence was no longer negatively affecting their daily life and were satisfied with the procedure.

Use of biological materials in failed mesh slings for incontinence treatment

- Challenging clinical practice.
- Endoscopic bulking agents?
- Re-do mid-urethral synthetic sling procedures?
- Autologous fascial slings?
- Adjustable devices using meshes or balloons?
- Repeat colposuspension procedures?
- Artificial sphincter?
Patients suffering from recurrent pelvic floor symptoms after mesh removal: practices of native tissue repair in vaginal reconstructive surgery.

55 yr-old woman: TAH + BSO: 12 years ago
- Anter. repair + post. repair: 3 yrs
- Abd. Scx: 1 yr

55 yr-old woman: presented with intermittent vaginal bleeding, progressive vaginal pain, dyspareunia, recurrent UTIs and SUI
- 1 cm area of mesh extrusion at the apex
- 2 cm area of mesh extrusion at the anterior vaginal wall
- 1 cm mesh extrusion posteriorly

Management: Transvaginal exploration, complete removal of mesh products

Concomitant laparotomy + sacrocolpopexy
mesh excision
Autologous fascia sacral colpopexy

55 yr-old woman: Repeat sacral colpexy with autologous tissue

Now developed persistent SUI: requiring 5 pads/day.

SUI treatment using autologous fascia (pubovaginal sling)

55 yr-old woman: 9 mo later presented with anterior and posterior vaginal wall prolapse

Anterior colporraphy with plication of underlying perivesical fascia
Posterior native tissue repair

Conclusions

1- Use of biological grafts on apical prolapse

✓ Abdominal sacrocolpopexy with synthetic grafts: Better or similar results compared to biological grafts. Cheap, durable, long term success.

✓ Biologics: in case of complications, failure, no more mesh use

Synthetic mesh use is more common!
### Conclusions

#### 2- Use of biological grafts for incontinence

- For index patient with no contraindication: MUS with mesh: long term durability with less morbidity
- Biological grafts can be suggested in patients with failed prior surgery, to patients not willing to receive synthetic material

#### 3- Biological material for repair of posterior compartment

- Limited data for mesh augmentation in posterior repair.
- Use of biologicals in posterior wall did not reveal better results than native tissue repair.
- Same data for synthetic grafts

Native tissue repair is common!

#### 4- Biological material for anterior repair

- Mixed evidence
- In primary cystocele: evidence is mixed for repair reinforced with or without augmentation of any type of graft
- Graft reinforcement in women with recurrent cystocele does appear to improve short-term outcomes
- Patient reported outcomes: similar for native and graft use

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**8:15 – 8:30**

Discussion with Audience