Conventional Surgical treatment of apical prolapse

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Kadikoysifa Health Group
Surgical treatment of apical prolapse

Conventional surgery
Vaginal
• Colpocleisis
• Sacrospinous ligament fixation
• Uterosacral ligament suspension
  • Manchester-Fothergill
  • VH+McCall culdoplasty
Abdominal
• Sacrocolpopexy(sacrohysteropexy)

New treatment modalities
• Transvaginal meshes(surgical kits)
• Laparascopic sacrocolpopexy
• Robotic sacrocolpopexy
Which Patient?– Which Approach?

Abdominal Approach is preferred in the following conditions:
• Recurrence after previous vaginal approach
• ‘Pulling up’ preserves vaginal depth and reduces dyspareunia
• Uterine size more than 14 week’s pregnancy
• Concomitant intra-abdominal pathology
• Multiple previous vaginal operations
• Isolated vaginal vault prolapse
Which Approach— Why Vaginal?

Vaginal approach should be preferred in case of:

• Significant uterine prolapse
• Uterine size less than 14 week’s pregnancy
• Presence of large rectocele
• Desire to perform concomitant TVT / TOT
• Frail and elderly patients
Colpocleisis

• Obliteration of vagina
• This procedure is performed on patients who are not sexual active
• It is relatively simple to perform and associated with less common peri-and post-operative complications.

It can be done in two ways
• Partial colpocleisis (Le Fort)
• Total colpocleisis
Preperation for colpocleisis

Patients must undergo:
• Physical examination
• PAP smear
• Transvaginal ultrasound

Endometrial sampling
  – Bleeding history
  – Increased endometrial thickness
Colpocleisis

**Advantages**
- Short operating time
- Fewer and less severe complications
- Possible with regional and local anesthesia
- Short hospitalization time
- Faster recovery
- High success rate

**Disadvantages**
- End of coitus
- Self image issues
- De novo or more severe urinary incontinence
- Difficulty and/or delayed diagnosis of cervical and endometrial neoplasia

FitzGerald MP, Int Urogynecol J. 2006
Partial colpocleisis

- It is described by Le Fort in 1877
- Rectangular piece of anterior and posterior vaginal mucosa are removed.
- Vagina is obliterated with row sutures starting from servix
- A wide longitudinal vaginal septum area and bilateral channels on each side are created
Total colpocleisis (colpectomy)

All vaginal mucosa is removed and vagina is pushed up with circular sutures.

Generally, this procedure is used in vaginal vault prolapse.
Colpocleisis: Complications

Perioperative complications:
- Mortality rate 0.025%
- Major complications due to underlying cardiovascular and pulmonary conditions 2%
- Major surgical complications such as bleeding requiring transfusion 4%
- Minor complications 15%

Late complications
- Urinary incontinence
- Recurrence
- Urogenital fistula
Colpocleisis: Postoperative incontinence

Post operative stress incontinence rate increases due to altered anatomy

- Uretral axis is straightened
- and moves down to toward rectal plane

Some authors recommend adding TVT/TOT to colpocleisis

Hanson GE, Obstet Gynecol. 1969
# Sacrospinous Ligament fixation: Success.

Barber and Maher. Int Urogynecol J 2014

<table>
<thead>
<tr>
<th>Author [reference]</th>
<th>N</th>
<th>Length of follow-up</th>
<th>Success rate</th>
<th>Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edelhose [18, 19]</td>
<td>4</td>
<td>0.5–12 months</td>
<td>100%</td>
<td>Pelvic morbidity fast 72 h, one death pulmonary embolus postop 30 days</td>
</tr>
<tr>
<td>Damesin [40]</td>
<td>10</td>
<td>Not stated</td>
<td>Not stated</td>
<td>One death SBO, one myocardial infarction, one thrombophlebitis, one pelvic abscess, one pulmonary embolism, one pneumonia, one high fever postop</td>
</tr>
<tr>
<td>Masson [27]</td>
<td>23</td>
<td>Not stated</td>
<td>100%, 19 of 23 patients followed</td>
<td></td>
</tr>
<tr>
<td>Williams [28]</td>
<td>66</td>
<td>Not stated</td>
<td>95%, 60 “satisfactory results”</td>
<td></td>
</tr>
<tr>
<td>Adams [22]</td>
<td>36</td>
<td>1–14 years</td>
<td>100%</td>
<td>One death POD nine probable myocardial infarction, eight deaths (three coronary, three pulmonary embolism, one pneumonia, one high fever postop)</td>
</tr>
<tr>
<td>Haydon [26]</td>
<td>4</td>
<td>2–34 months</td>
<td>100%</td>
<td>Two postop DVT requiring anticoagulation</td>
</tr>
<tr>
<td>Anderson [41]</td>
<td>18</td>
<td>6–12 months</td>
<td>89%</td>
<td></td>
</tr>
<tr>
<td>Percy [43]</td>
<td>311</td>
<td>Not stated but noted</td>
<td>100% in those followed</td>
<td></td>
</tr>
<tr>
<td>Thompson [3]</td>
<td>11</td>
<td>PIU on 19/11 patients, no treatment over 5 years or less</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Bradbury [9]</td>
<td>43</td>
<td>1–5 years</td>
<td>100%</td>
<td>16 patients with cystitis, 3 with new onset stress incontinence</td>
</tr>
<tr>
<td>Johnson [43]</td>
<td>18</td>
<td>0.5–14 years</td>
<td>100%</td>
<td>One death myocardial infarction, Three hematomas, Two worsening of CHF, one postop pneumonia, two lower UTI</td>
</tr>
<tr>
<td>DeBaun [13]</td>
<td>33</td>
<td>1–18 months postop, questionnaire at 15–51 months</td>
<td>97%, 1 failure at 12 months</td>
<td>One death 28 days postop (lung cancer), two racial pro Masto, 35 (22%) transfusion, 4 (4%) ureteral occlusion, one proctectomy, two (2%) laparotomy during TVH, one CVA, one pulmonary edema, one arterial embolization</td>
</tr>
<tr>
<td>Von Pedersen [34]</td>
<td>92</td>
<td>0–64 months physical exam n = 92, 13–161 months phone follow-up n = 64</td>
<td>98% anesthetic success, by phone survey, 90% satisfied, very satisfied</td>
<td>One CVA, one pulmonary edema, one arterial embolization, One (2%) vascular injury, four (10%) late renal bleeding</td>
</tr>
<tr>
<td>Hoffman [35]</td>
<td>54</td>
<td>Follow-up on 40 patients 6–56 months postop</td>
<td>100%</td>
<td>None stated</td>
</tr>
<tr>
<td>Harman [34]</td>
<td>40</td>
<td>5–65 months</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>LeFort or partial colpotomy, with or without total vaginal hysterectomy, transfixation</td>
<td></td>
<td></td>
<td></td>
<td>Two fevers, one UTI, Two deaths (one myocardial infarction, venous thrombembolism, pneumonia, one pulmonary embolism), seven fevers, three UTI</td>
</tr>
<tr>
<td>Wyatt [7]</td>
<td>8</td>
<td>12–30 years</td>
<td>83%, six of the eight patients followed</td>
<td>One uremia, one endovaginal fistula, Two fevers, five UTI, one pneumonia, one coronary occlusion, one perineorrhaphy infection, three (3%) uterine bleeding remote from surgery</td>
</tr>
<tr>
<td>Baker [44]</td>
<td>14</td>
<td>&gt;4 months</td>
<td>100%</td>
<td>None stated</td>
</tr>
<tr>
<td>Adam [19]</td>
<td>38</td>
<td>3 months to 3 years</td>
<td>95%</td>
<td></td>
</tr>
<tr>
<td>Collins [45]</td>
<td>31</td>
<td>2–11 years</td>
<td>87%</td>
<td>11 UTI, two infected perineorrhaphies, one vaginal infection</td>
</tr>
<tr>
<td>Macn [45]</td>
<td>43</td>
<td>2–11 years</td>
<td>97%, 33/43 followed</td>
<td>Two deaths, one cerebrovascular accident, one PR, 11 (4%) transfusion, 65 (22%) fever fast 48 h, three vaginal bleeding &gt;11 months postop</td>
</tr>
<tr>
<td>Wolf [46]</td>
<td>14</td>
<td>Not stated</td>
<td>Twelve good-excellent, one fairly satisfactory</td>
<td></td>
</tr>
<tr>
<td>Folk [16]</td>
<td>100</td>
<td>3–22 years</td>
<td>96%</td>
<td></td>
</tr>
<tr>
<td>Hasson [16]</td>
<td>288</td>
<td>5 years or more</td>
<td>92%, 216/288 followed by mail</td>
<td></td>
</tr>
</tbody>
</table>
Uterosacral ligament suspension

It was first described by Miller in 1927 and was later popularised by Shull in late 1990s. In this procedure, the vaginal apex attached to the proximal uterosacral ligaments using an intraperitoneal approach.

This can be performed either concomitantly with a vaginal hysterectomy or for post-hysterectomy vault prolapse.

Intra operative cystoscopy is recommended to confirm ureteral patency.
Uterosacral ligament suspension

Margulies (2010), meta-analysis, 10 studies, 820 patients, mean follow up 25 months

- Ureteral reimplantation 0.6 %
- Blood transfusion 1.3 %
- Cystotomy 0.1 %
- Bowel injury 0.2 %
- Success rate for apical prolapse 98 %

Some studies gave the ureteral complication as high as 11 %
### Table 2: Outcomes of transvaginal uterosacral vault suspension procedures

<table>
<thead>
<tr>
<th>Reference</th>
<th>Number of patients</th>
<th>Mean follow-up in months (range)</th>
<th>Definition of anatomical success</th>
<th>Anatomical success—all segments (%)</th>
<th>Anatomical recurrence by segment (%)</th>
<th>Reoperation for prolapse (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jenkins [35]</td>
<td>50</td>
<td>(6–48)</td>
<td>Not defined</td>
<td>48/50 (96)</td>
<td>Anterior (4)</td>
<td>MD</td>
</tr>
<tr>
<td>Comiter et al. [36]</td>
<td>100</td>
<td>17 (6.5–35)</td>
<td>Grade 0–1</td>
<td>96/100 (96)</td>
<td>Apex (4)</td>
<td>4/100 (4)</td>
</tr>
<tr>
<td>Barber et al. [37]</td>
<td>46</td>
<td>15.5 (3.5–40)</td>
<td>Stage 0/1 or stage 2 without symptoms</td>
<td>41/46 (90)</td>
<td>Apex (5); anterior (5); posterior (5)</td>
<td>3/46 (6.5)</td>
</tr>
<tr>
<td>Shull et al. [38]</td>
<td>289</td>
<td>Not stated</td>
<td>Grade 0–1</td>
<td>275/289 (95)</td>
<td>Apex (1); anterior (3.5); posterior (1.4)</td>
<td>MD</td>
</tr>
<tr>
<td>Karram et al. [39]</td>
<td>168</td>
<td>21.6 (6–36)</td>
<td>Grade 0–1</td>
<td>148/168 (88)</td>
<td>Apex (1); anterior or posterior (11)</td>
<td>11/168 (5.5)</td>
</tr>
<tr>
<td>Amundsen et al. [40]</td>
<td>33</td>
<td>28 (6–43)</td>
<td>Stage 0 or 1</td>
<td>27/33 (82)</td>
<td>Apex (6); posterior (12)</td>
<td>MD</td>
</tr>
<tr>
<td>Silva et al. [41]</td>
<td>72</td>
<td>61.2 (42–90)</td>
<td>Symptomatic stage 2 or greater</td>
<td>61/72 (85)</td>
<td>Apex (3); anterior (7); posterior (14)</td>
<td>MD</td>
</tr>
<tr>
<td>Antovska and Dimitrov [42]</td>
<td>32</td>
<td>25 (9–42)</td>
<td>Stage 0 or 1</td>
<td>MD</td>
<td>Apex (0); anterior</td>
<td>MD</td>
</tr>
<tr>
<td>Wheeler et al. [43]</td>
<td>35</td>
<td>24 (0–46)</td>
<td>Stage 0 apical prolapse</td>
<td>28/35 (80)</td>
<td>Apex (20)</td>
<td>2/72 (3)</td>
</tr>
<tr>
<td>De Boer et al. [44a]</td>
<td>48</td>
<td>12</td>
<td>Stage 0–1</td>
<td>23/48 (48)</td>
<td>Apex (4.2); anterior (47.9) Posterior (14.6)</td>
<td>MD</td>
</tr>
<tr>
<td>Doumouchtsis et al. [45]</td>
<td>42</td>
<td>60</td>
<td>Grade 0 of vaginal vault</td>
<td>36/84 (84.6)</td>
<td>Apex (15.4)</td>
<td>5/42 (11.9)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>783</strong></td>
<td><strong>925</strong></td>
<td><strong>Grade 0 of vaginal vault</strong></td>
<td><strong>783/925 (85%) 95%CI (83–87%)</strong></td>
<td><strong>Anterior (4); Apex (4); Apex (5); anterior (5); posterior (5); Apex (1); Apex (1); anterior or posterior (11); Apex (6); posterior (12); Apex (3); anterior (7); posterior (14); Apex (0); anterior; Apex (20); Apex (4.2); anterior (47.9) Posterior (14.6); Apex (15.4)</strong></td>
<td><strong>25/428 (5.8) 95%CI (3.6–7.0)</strong></td>
</tr>
</tbody>
</table>
Sacral spinous ligament fixation

- It is described by Richter in 1968
- It was popular due to Randall and Nichols after 1971
- Vaginal cuff is stitched to sacrospinous ligament.
- Pelvic anatomy must be known well for this procedure

Richter 1968
Randall 1971
Anatomy, Coccyx-Sacrospinous ligament complex
Sacrospinous Fixation: Procedure

• Dissection is made in pararectal fossa
• First, ischial spine and sacrospinous ligament is delineated
• Vaginal apex is anchored to the ligament with the least 2 sutures unilateral on the right side
• Vaginal vault and ligament are approximated with two non-absorbable sutures
• No space must be left between vaginal vault and ligament while tying the sutures
• Miya hook, Dechamps, Capio device or long needle holder with curved tip can be used for suturing
Sacropinous ligament fixation: Equipments

Deschamps

Miya hook

Capio device
Sacrospinous fixation

• **Intraoperative complications 3-6 %**
  
  – Severe bleeding 2-28 %
    0.2 % in 1229 cases and transfusion rate 2 %
    (22 studies, Sze & Karram, 1997)
  – Damage to pudendal vessels and nerves
  – Rectal injury

Morgan et al Obstet Gynecol 2007
Demirci et al. Int Urogynecol J. 2006
Sacrosinuous Ligament Fixation

Late complications
- Persistent gluteal pain due to sacral nerve entrapment, 3 %
- Sexual dysfunction due to shortened vagina
- De novo cystocele
  - 6-28.5 %.
- Stress/urge urinary incontinence caused by
  - Neurologic damage due to dissection
  - Impaired urethrovessical junction
  - Straightened uretral axis
  - Decreased intra urethral pressure due to mentioned changes.

Morgan et al Obstet Gynecol 2007
Holley et al J Am Coll Surg 1995
# Sacrospinous Ligament Fixation: SUCCESS. Barber and Maher 2013

## Table 1: Outcomes of sacrospinous ligament suspension (SSLS) procedures

<table>
<thead>
<tr>
<th>Reference</th>
<th>Study design</th>
<th>Number</th>
<th>Mean follow-up (range)</th>
<th>Definition of anatomical successa</th>
<th>Anatomical success—all segments (%)</th>
<th>Anatomical recurrence by segment (%)</th>
<th>Reoperation for prolapse (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morley and DeLancey [13]</td>
<td>Retrospective</td>
<td>92</td>
<td>51.6 (1–132)</td>
<td>Not defined</td>
<td>90</td>
<td>Apex (4); anterior (6)</td>
<td>4 (5)</td>
</tr>
<tr>
<td>Imparato et al. [14]</td>
<td>Retrospective</td>
<td>155</td>
<td>Not stated</td>
<td>Not defined</td>
<td>90.3</td>
<td>Not reported</td>
<td>None reported</td>
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<tr>
<td>Shull et al. [15]</td>
<td>Retrospective</td>
<td>81</td>
<td>(24–60)</td>
<td>Grade 0–1</td>
<td>82</td>
<td>Apex (4); anterior (12); posterior (1)</td>
<td>4 (5)</td>
</tr>
<tr>
<td>Pasley [16]</td>
<td>Retrospective</td>
<td>144</td>
<td>35 (6–83)</td>
<td>Asymptomatic and above hymen</td>
<td>85.4</td>
<td>Apex (5.6); anterior (7.6); posterior (1.4)</td>
<td>2 (1.3)</td>
</tr>
<tr>
<td>Benson et al. [17]</td>
<td>RCT SSLS vs ASC</td>
<td>42</td>
<td>30 (12–66)</td>
<td>Vaginal walls above hymen or apical descent less than 50 % lengthb</td>
<td>67</td>
<td>Apex (12); anterior (28.5); posterior (2.3)</td>
<td>14 (37)</td>
</tr>
<tr>
<td>Paraiso et al. [18]</td>
<td>Retrospective</td>
<td>243</td>
<td>76. (1–190)</td>
<td>Grade 0 or asymptomatic grade 1</td>
<td>79.7 at 5 years</td>
<td>Apex (4.9); anterior (15.9); posterior (4.9)</td>
<td>11 (4.5)</td>
</tr>
<tr>
<td>Penalver et al. [19]</td>
<td>Retrospective</td>
<td>160</td>
<td>40 (18–78)</td>
<td>“Any symptomatic descent”</td>
<td>85</td>
<td>Apex 6; anterior (6); posterior (2.5)</td>
<td>11 (6.8)</td>
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<tr>
<td>Colombo and Milani [20]</td>
<td>Retrospective</td>
<td>62</td>
<td>83 (48–108)</td>
<td>Grade 0–1</td>
<td>74</td>
<td>Apex 8; anterior (14); posterior (3)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Meschia et al. [21]</td>
<td>Retrospective</td>
<td>91</td>
<td>43 (12–86)</td>
<td>Grade 0–1</td>
<td>85</td>
<td>Apex 4; anterior (13); posterior (9)</td>
<td>None reported</td>
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<tr>
<td>Sze and Karram [22]</td>
<td>Retrospective</td>
<td>75</td>
<td>24 (3–72)</td>
<td>Above hymen</td>
<td>71</td>
<td>Apex 21; other (8)</td>
<td>7 (12.9)</td>
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<tr>
<td>Lantzsch et al. [23]</td>
<td>Retrospective</td>
<td>123</td>
<td>58 (6–108)</td>
<td>Not defined</td>
<td>87</td>
<td>Apex (3.5); anterior (8); posterior (1.6)</td>
<td>2 (1.6)</td>
</tr>
<tr>
<td>Lovatssy and Drutz [24]</td>
<td>Retrospective</td>
<td>293</td>
<td>(12–30)</td>
<td>At or beyond the introitus</td>
<td>97</td>
<td>Apex (3); anterior NR; posterior NR</td>
<td>(3)</td>
</tr>
<tr>
<td>Cruikshank et al. [25]</td>
<td>Prospective cohort</td>
<td>695</td>
<td>43 (6–60)</td>
<td>Reoperation for recurrence</td>
<td>89.4</td>
<td>Apex (5.1)</td>
<td>105 (15)</td>
</tr>
<tr>
<td>Niemenen et al. [26]</td>
<td>Retrospective</td>
<td>138</td>
<td>24</td>
<td>POPQ Stage 2 or greater</td>
<td>78.7</td>
<td>Apex (4.9); anterior (11.5); posterior NR</td>
<td>NR</td>
</tr>
<tr>
<td>Maher et al. [27]</td>
<td>RCT SSLS vs ASC</td>
<td>48</td>
<td>22 (6–58)</td>
<td>Grade 0–1</td>
<td>69</td>
<td>Apex (19); anterior (14); posterior (7)</td>
<td>3 (6.3)</td>
</tr>
<tr>
<td>Hefni and El-Touhy [28]</td>
<td>Prospective</td>
<td>305</td>
<td>57 (24–84)</td>
<td>Vaginal vault at least 6 cm distal to hymen</td>
<td>96</td>
<td>Apex (4); anterior (13); posterior (0)</td>
<td>NR</td>
</tr>
<tr>
<td>Toglia and Fagan [29]</td>
<td>Retrospective</td>
<td>64</td>
<td>26.5 (1–72)</td>
<td>Apex above introitus and no reoperation</td>
<td>78</td>
<td>Apex (9); anterior (17); posterior (0)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>Aigdemir et al. [30]</td>
<td>Prospective</td>
<td>55</td>
<td>84 (24–180)</td>
<td>Above the hymen</td>
<td>64</td>
<td>Apex (7); anterior (29); posterior (5)</td>
<td>5 (9)</td>
</tr>
<tr>
<td>Chou et al. [31]</td>
<td>Retrospective</td>
<td>76</td>
<td>36 (12–60)</td>
<td>Grade 0</td>
<td>91</td>
<td>Apex (5.3); anterior (3.7); posterior (NR)</td>
<td>4 (5.3)</td>
</tr>
</tbody>
</table>
Abdominal sacrocolpopexy
Abdominal Sacrocolpopexy

• It was described by Arthur in 1957 as hysteropexy.

• Sacrocolpopexy was described by Lane in 1962.

• Vaginal apex is suspended to sacrum using non absorbable mesh

Arthure 1957
Lane 1962

01.05.2014 TAJEV Congress, Antalya
Sacrocolpopexy: Anatomy
Sacrocolpopexy: Anatomy

Bergman et al. 400 olgu
01.05.2014

TAJEV Congress, Antalya
Sacrocolpopexy: Surgical technique

- Lower midline or Pfannenstiel incision
- Vaginal probes are used to elevate and identify vagina
- Right ureter is mobilised laterally
- Rectum and sigmoid colon are retracted to the left
- Retroperitoneal tunnel can be created above vaginal vault towards anterior sacral ligament
Y-shaped macroporous monofilament mesh is stitched to anterior and posterior wall to create artificial ‘uterosacral ligament.

If anterior and posterior strips of mesh are taken down adequately cystocele and rectocele might be resolved.

It is not necessary to prolong the mesh downwards in isolated apical prolapse.
Sacrocolpopexy: Surgical technique

- Posterior leaf can be stitched to perineal body along posterior vaginal wall (Sacrocolpoperinopexy)
- Non absorbable sutures are used for vagina and sacrum
- Gentle elevation of mesh is done without tension
- It can be combined with colposuspension or TVT/TOT
Mesh placement area on sacrum

- The most appropriate and safest area of sutures is on promontorium. Therefore it is generally used

In fact, suturing at the level of lower sacral part (S3-4) is more anatomicly correct than promontorium, since there is a 150 degrees of vaginal angle above levator plate

White 2009
Birnbaum 1973
Abdominal sacrohysteropexy

Indications

• In young women
• Wishing to preserve fertility or uterus
• Avoiding morbidity and complications of hysterectomy
• Recently, it is gained importance in prolapse surgery, especially in transvaginal mesh surgery
Sacrohysteropexy
Sacrohysteropexy

20 Sacrohysteropexy de novo dyspareunia / pelvic pain in 3 patients (7.5 %)

Mean follow-up 25 months success rate: 95 %

Sacrocolpopexy - Complications

Perioperativ

- Injury
  - Right ureter, sigmoid, rectum
- Bleeding
- Presacral vein or mid sacral arter

• Late
  - Incontinence
    • Alteration of the vaginal axis
  - Mesh erosion
  - Prolapse
    • Apical
    • Anterior wall
    • Posterior wall
# Sacrocolpopexy: Complications

Meta-analysis, 65 studies, 3827 patients.

## Intraoperative

<table>
<thead>
<tr>
<th>Condition</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleeding/transfusion</td>
<td>4.4</td>
</tr>
<tr>
<td>Bladder injury</td>
<td>3.1</td>
</tr>
<tr>
<td>Intestinal injury</td>
<td>1.6</td>
</tr>
<tr>
<td>Ureteral injury</td>
<td>1</td>
</tr>
</tbody>
</table>

## Postoperative

<table>
<thead>
<tr>
<th>Condition</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urinary infection</td>
<td>10.9</td>
</tr>
<tr>
<td>Incisional problems</td>
<td>4.6</td>
</tr>
<tr>
<td>Intestinal obstruction</td>
<td>1.1</td>
</tr>
<tr>
<td>Íleus</td>
<td>3.6</td>
</tr>
<tr>
<td>DVT/pulmonary embolism</td>
<td>3.3</td>
</tr>
<tr>
<td>Mesh erosion</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Nygaard et al. Obstet Gynecol 2004
Sacrocolpophexy vs. Sacrospinous fixation

Table 3 Complications in the two groups

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Abdominal group (n=45)</th>
<th>Vaginal group (n=60)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major complications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bladder injury, n (%)</td>
<td>1 (2.2)</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Rectal injury, n (%)</td>
<td>–</td>
<td>1 (1.7)</td>
<td></td>
</tr>
<tr>
<td>Hemorrhage, n (%)</td>
<td>4 (8.9)</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Overall major complications, n (%)</td>
<td>5 (11.1)</td>
<td>1 (1.7)</td>
<td>0.01</td>
</tr>
<tr>
<td>Minor complications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urinary retention (&gt;5 days), n (%)</td>
<td>7 (15.6)</td>
<td>5 (8.3)</td>
<td></td>
</tr>
<tr>
<td>Urinary infection, n (%)</td>
<td>7 (15.6)</td>
<td>6 (10.0)</td>
<td></td>
</tr>
<tr>
<td>Febrile morbidity, n (%)</td>
<td>4 (8.9)</td>
<td>2 (3.3)</td>
<td></td>
</tr>
<tr>
<td>Wound infection, n (%)</td>
<td>5 (11.1)</td>
<td>1 (1.7)</td>
<td></td>
</tr>
<tr>
<td>Wound dehiscence, n (%)</td>
<td>3 (6.7)</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Overall minor complications, n (%)</td>
<td>26 (57.8)</td>
<td>14 (23.3)</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Demirci et al. Int Urogynecol J. 2006

01.05.2014 TAJEV Congress, Antalya 36
Colposuspension at Sacrocolpopexy in Continent women

Multicentre RCT
• 231 patients, follow up 2 years
• Randomised as SCP with or without colposuspension during surgery
• Report of SUI : 32 % Burch group
  45.2 % Non Burch group
• No difference in other LUTS
• Burch colposuspension did not affect outcome of apical support
• Colposuspension at time of SCP in continent women significantly decreases post op SUI

Brubaker et al, 2005

At 7 years follow up, 90 patients
• Report of SUI : 62 % Burch group
  77 % Non Burch group

Nygaard JAMA 2013
Prolapse surgery with or without stress incontinence surgery for POP. Meta-analysis of randomised trials. Van der Ploeg, BJOG 2014

Figure 2. Postoperative stress urinary incontinence (SUI) after combination surgery versus prolapse surgery only.
Combination surgery reduces the risk of postoperative stress incontinence, but short-term voiding difficulties and adverse events were more frequent after combination surgery with a midurethral sling.

Prolapse surgery with or without stress incontinence surgery for POP. Meta-analysis of randomised trials. Van der Ploeg, BJOG 2014
Abdominal sacrocolpopexy + Burch? /TOT?

Prolapse cases with USI

49 abdominal sacrocolpopexy + Burch colposuspension

60 abdominal sacrocolpopexy+ TOT

In abdominal sacrocolpopexy+ Burch colposuspension group:

- Longer operation time
- More frequent urinary retention
- Longer hospital stay
- More De novo urgency
- Less success rate (% 70 vs. % 98) were found

Moon ve ark. Int J Gynecol Obstet 2010
## Sacrocolpopexy: Success

<table>
<thead>
<tr>
<th>Year</th>
<th>Patients</th>
<th>Follow up (mts)</th>
<th>Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snyder ve Krantz 1991</td>
<td>147</td>
<td>43</td>
<td>93</td>
</tr>
<tr>
<td>Timmons 1992</td>
<td>163</td>
<td>33</td>
<td>99</td>
</tr>
<tr>
<td>Sandra and Stanton 1994</td>
<td>43</td>
<td>21.2</td>
<td>88</td>
</tr>
<tr>
<td>Lecuru et al 1994</td>
<td>203</td>
<td>32.5</td>
<td>87-100</td>
</tr>
<tr>
<td>De Vries et al 1995</td>
<td>101(29)</td>
<td>48</td>
<td>71</td>
</tr>
<tr>
<td>Benson et al 1996</td>
<td>60</td>
<td>60</td>
<td>84</td>
</tr>
<tr>
<td>Occelli 1999</td>
<td>271(54)</td>
<td>66</td>
<td>98</td>
</tr>
<tr>
<td>Pastner 1999</td>
<td>175</td>
<td>&gt;12</td>
<td>97</td>
</tr>
<tr>
<td>Sullivan et al 2001</td>
<td>236</td>
<td>64</td>
<td>100</td>
</tr>
<tr>
<td>Lefranc et al 2002</td>
<td>85</td>
<td>10.5 years</td>
<td>98</td>
</tr>
<tr>
<td>Culligan et al 2002</td>
<td>245</td>
<td>61.2</td>
<td>85</td>
</tr>
<tr>
<td>Collopy ve Barham 2002</td>
<td>89</td>
<td>56.7</td>
<td>100</td>
</tr>
<tr>
<td>Wesley et al 2003</td>
<td>38</td>
<td>13.7 years</td>
<td>74</td>
</tr>
<tr>
<td>Hilger et al 2003</td>
<td>69</td>
<td>14 years</td>
<td>74</td>
</tr>
<tr>
<td>Brizzolara ve Allen 2003</td>
<td>124</td>
<td>26-36</td>
<td>98</td>
</tr>
<tr>
<td>Maher et al 2004</td>
<td>47</td>
<td>24</td>
<td>94</td>
</tr>
<tr>
<td>Bessinger et al 2005</td>
<td>121</td>
<td>6</td>
<td>--</td>
</tr>
</tbody>
</table>
# Sacrohysteropexy: Success

<table>
<thead>
<tr>
<th>Year</th>
<th>Material</th>
<th>Patients</th>
<th>Follow up</th>
<th>Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stoesser et al 1955</td>
<td>Fascia</td>
<td>22</td>
<td>--</td>
<td>100</td>
</tr>
<tr>
<td>Addison et al 1993</td>
<td>Mersilen</td>
<td>3</td>
<td>2-240</td>
<td>100</td>
</tr>
<tr>
<td>Van Lindert et al 1993</td>
<td>Gore-tex</td>
<td>8</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>Banu et al 1997</td>
<td>Mersilen</td>
<td>19</td>
<td>36-60</td>
<td>100</td>
</tr>
<tr>
<td>Costantini et al 1998</td>
<td>Gore-tex</td>
<td>7</td>
<td>33</td>
<td>100</td>
</tr>
<tr>
<td>Buonaguidi et al 2000</td>
<td>Gore-tex</td>
<td>3</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Leron &amp; Stanton 2001</td>
<td>Teflon</td>
<td>13</td>
<td>16</td>
<td>100</td>
</tr>
<tr>
<td>Barranger et al 2003</td>
<td>Gore-tex</td>
<td>30</td>
<td>45</td>
<td>93</td>
</tr>
<tr>
<td>Roovers et al 2004</td>
<td>Gore-tex</td>
<td>41</td>
<td>12</td>
<td>95</td>
</tr>
<tr>
<td>Costantini et al 2005</td>
<td>Marlex</td>
<td>34</td>
<td>51</td>
<td>91</td>
</tr>
<tr>
<td>Demirci et al 2006</td>
<td>Polypropylene</td>
<td>20</td>
<td>3-60</td>
<td>95</td>
</tr>
</tbody>
</table>
Sacrocolpopexy vs. Sacrospinous fixation

- The successful anatomical repair in SCP operations is reported to be better than SSF.
Sacrocolpopexy vs. Sacrospinous fixation

Cochrane review

• Abdominal sacrocolpopexy
  – High success rate (reccurence RR: 0.23)
  – Lower dyspareunia rate (RR: 0.46)

• Sacrospinous fixation
  – Fast
  – Cost-effective
  – Short recovery time

Maher et al 2010
Selection of Patients. Which conventional approach?

We should consider following conditions:

- Age
- Sexual activity
- Expectation of patient from the surgery
- Isolated vaginal vault prolapse
- Multiple previous vaginal operations
- Co-existing lower urinary tract symptoms
- Concomitant intra-abdominal pathologies
- Concomitant anterior or posterior wall defects
- Capability of the surgeon
Conclusion

- **Colpocleisis**
  - Short operation and recovery time
  - Relatively simple to perform
  - Less morbidities and complications.

- **Uterosacral ligament suspension**
  - Longer vaginal depth
  - Ureters must be checked

- **Sacrospinous fixation**
  - Short operation and recovery time
  - Less morbidities and complications
  - Relatively less success rate than abdominal SCP

- **Abdominal sacrocolpopexy**
  - High success rate
  - Low dysparunia
  - Higher morbidities and complications
Thank you for your attention.
I celebrate with all of you this labor day.