Medicolegal sequelae of urinary tract injury during gynaecological surgery; recognised complication or medical negligence?

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I do not see any mode of certainty providing against the mischance of dividing one or both ureters.
I fear that, with all possible care, it is an accident which may occasionally be unavoidable”

Spencer Wells 1882
Case history

A 40 year old woman with a past history of 2 caesarean sections had a routine vaginal hysterectomy and repair performed for menorrhagia and prolapse.

Postoperatively the urine was noted to be blood stained and a bladder injury was suspected. A cystogram was performed which showed rupture of the posterior wall of the bladder, a urologist was consulted who advised a conservative approach with bladder drainage.

After 2 days repeat cystogram showed a persistent defect in the posterior bladder wall. A laparotomy and formal repair with omental graft was performed. Legal action was commenced 1 year later.

Case history

A 48 year old woman had a routine abdominal hysterectomy performed for menorrhagia and fibroids.

Postoperatively she was readmitted to hospital at 5 weeks with fever, abdominal pain and non functioning right kidney from an obstructed ureter.

Legal action was commenced.
Expert opinion for the plaintiff

“Not recognizing an injury at the time of vaginal/abdominal hysterectomy falls below the standard of a reasonable gynaecological surgeon.”

“The injury should have been repaired while the patient was still in the operating theatre, through the vagina without having additional surgery.”

Request for my opinion

1. Was the initial surgical procedure performed to an adequate standard?

2. Is inadvertent injury a recognised complication of hysterectomy that can occur even with careful surgical technique.

3. Should the injury have been detected intraoperatively during the first procedure or was it reasonable to delay performing corrective surgery postoperatively?

4. Would the plaintiff’s outcome been different if the injury was detected intraoperatively?
- Litigation rate of reported cases of urinary tract injury was 56% compared to 23% for other reported obstet/gynaec complications.

- Medical insurance Australia 1998

Risk of litigation was increased 91 fold if a woman received a urinary tract injury compared to other complications during hysterectomy and tubo-ovarian surgery.

Risk of UT injury 3/1000

Gilmour et al Obstet Gynecol 2005
Avoidance of urinary tract injury

- Good surgical technique - good vision, know where ureter is and remove from surgical field
- Should the ureter be dissected out routinely at hysterectomy?
- Preoperative imaging
- Ureteric catheterisation
- Intra-operative cystoscopy
Cystoscopy after pelvic surgery

Routine

High risk

• enlarged uterus or pelvic mass
• difficult dissection around bladder or ureters
• presence of haematuria post-op
• presence of air in Foley bag during laparoscopy

Never –most gynecologists

Intraoperative cystoscopy

Yes

TVT or retropubic M.U.S.
needle urethral suspension.
urethro-vesical fistulae repair
urethral diverticulum

Maybe

Burch colposuspension
TOT/no incision, mini-slings
pubovaginal slings
POP surgery (ant/apical)

No

Hysterectomy
tubo-ovarian surgery
Advantages routine operative cystoscopy

- early diagnosis and repair of bladder/ureteric injury to avoid additional surgery, and the development of urinary fistulae and possible loss of renal function

- diagnosis of other pathology e.g. cancer. FB. Congenital abnormality

- teaching self/others

- routine use – quick and efficient

Disadvantages routine operative cystoscopy

- time/cost

- urinary tract infection
### Ureteric injury rates at benign gynecologic surgery *

<table>
<thead>
<tr>
<th>Surgery type</th>
<th>total injuries/total surgeries</th>
<th>injury rate per 1,000 surgeries</th>
<th>no (%) injuries detected intraoperatively</th>
</tr>
</thead>
<tbody>
<tr>
<td>VH +/- BSO</td>
<td>5/22,263</td>
<td>0.2</td>
<td>0 (0)</td>
</tr>
<tr>
<td>SAH +/- BSO</td>
<td>8/12,926</td>
<td>0.6</td>
<td>2 (25)</td>
</tr>
<tr>
<td>TAH +/- BSO</td>
<td>79/60,423</td>
<td>1.3</td>
<td>7 (9)</td>
</tr>
<tr>
<td>LH +/- BSO</td>
<td>160/20,492</td>
<td>7.8</td>
<td>4 (3)</td>
</tr>
<tr>
<td>OGUS</td>
<td>53/16,842</td>
<td>3.1</td>
<td>8 (15)</td>
</tr>
</tbody>
</table>

VH +/- BSO, vaginal hysterectomy with or without bilateral salpingo-oophorectomy; SAH +/- BSO, subtotal abdominal hysterectomy, TAH +/- BSO, total abdominal hysterectomy, LH +/- BSO laparoscopic hysterectomy, OGUS, other gynecological and urogynecological surgery.

* Based upon results from 30 studies where routine intraoperative cystoscopy was not used.

* Gilmour et al Obstet Gynecol 2006

### Bladder injury rates at benign gynecologic surgery *

<table>
<thead>
<tr>
<th>Surgery type</th>
<th>total injuries/total surgeries</th>
<th>crude injury rate per 1,000 surgeries</th>
<th>no (%) injuries detected intraoperatively</th>
</tr>
</thead>
<tbody>
<tr>
<td>VH +/- BSO</td>
<td>80/22,146</td>
<td>3.6</td>
<td>21 (26)</td>
</tr>
<tr>
<td>SAH +/- BSO</td>
<td>3/10,854</td>
<td>0.3</td>
<td>2 (67)</td>
</tr>
<tr>
<td>TAH +/- BSO</td>
<td>148/56,406</td>
<td>2.6</td>
<td>33 (22)</td>
</tr>
<tr>
<td>LH +/- BSO</td>
<td>136/21,331</td>
<td>6.4</td>
<td>63 (46)</td>
</tr>
<tr>
<td>OGUS</td>
<td>83/6,850</td>
<td>12.1</td>
<td>76 (92)</td>
</tr>
</tbody>
</table>

VH +/- BSO, vaginal hysterectomy with or without bilateral salpingo-oophorectomy, SAH +/- BSO, subtotal abdominal hysterectomy, TAH +/- BSO, total abdominal hysterectomy, LH +/- BSO laparoscopic hysterectomy, OGUS, other gynecological and urogynecological surgery.

* Based upon results from 30 studies where routine intraoperative cystoscopy was not used.

* Gilmour et al Obstet Gynecol 2006
Urinary tract injury during hysterectomy with universal cystoscopy

<table>
<thead>
<tr>
<th></th>
<th>no.</th>
<th>total</th>
<th>bladder</th>
<th>ureteric</th>
<th>detected prior to cystoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vakili</td>
<td>471</td>
<td>4.8%</td>
<td>3.6%</td>
<td>1.7%</td>
<td>U 12%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B 35%</td>
</tr>
<tr>
<td>Ibeanu</td>
<td>839</td>
<td>4.3%</td>
<td>2.9%</td>
<td>1.8%</td>
<td>U 7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B 37%</td>
</tr>
</tbody>
</table>

Vakili et al AmJOG 2005
Ibeanu et al Obst Gynecol 2009

Incidence of adverse events after uterosacral colpopexy for uterovaginal and posthysterectomy vault prolapse
A. Unger, M Walters, et al. AJOG May 2015

983 WOMEN; 88% VAG HYST AND 12 % POST HYSTER VAULT PROLAPSE

<table>
<thead>
<tr>
<th>COMPLICATIONS</th>
<th>no</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intraoperative.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bladder injury</td>
<td>10</td>
<td>1%</td>
</tr>
<tr>
<td>ureteric kinking</td>
<td>44</td>
<td>4.5%</td>
</tr>
<tr>
<td>ureteric injury</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>bowel injury</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Postoperative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>post-op ureteric obstruct</td>
<td>5</td>
<td>0.5%</td>
</tr>
<tr>
<td>small bowel obstruct</td>
<td>8</td>
<td>0.8%</td>
</tr>
<tr>
<td>blood transfusion</td>
<td>16</td>
<td>1.6%</td>
</tr>
<tr>
<td>haematoma</td>
<td>24</td>
<td>2.4%</td>
</tr>
<tr>
<td>reoperation &lt;30 d</td>
<td>5</td>
<td>0.5%</td>
</tr>
</tbody>
</table>
Avoid ligation from urinary tract injury

- diagnose early (intraoperatively and postoperatively)
- deal with injury effectively (early consult with experienced colleague or urologist)
- be honest and straight forward in attitude and speech (not apologetic)
- do not denigrate colleagues
- remain in communication with patient
- notify your medical defence