What after cystectomy?

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After cystectomy

Ureter

Urethral stump
Urinary diversion

Incontinent versus Continent
Urinary diversion

Incontinent versus Continent

“Bricker versus Vervangblaas”
Urinary diversion

Incontinent $\rightarrow$ skin

Continent
$\rightarrow$ skin
$\rightarrow$ urethra
$\rightarrow$ anus
Cutaneous incontinent urinary diversion

Ureterostomy
Ureteroileostomy or “Bricker”
Ureterocolostomy
• Lt. Col. Eugene M. Bricker, MD
• USA, Washington
• °1908
• Surg Clin N Am (1950):
  Bladder substitution after pelvic evisceration
“Bricker”
Cutaneous incontinent urinary diversion

Ileal conduit
(“Bricker”)
Ileal conduit ( “Bricker” )
Stoma localisation
Ileal conduit

Stoma
Stoma
Ileal conduit
(advantages)

“Well known”
Complications acceptable
Uretero-ileostomy (« Bricker »)

Pro
- Well documented
- Stoma easy to tend

Contra
- Use of bowel
- Total incontinence
Ileal conduit
(contra indication)

Short bowel
Inflammatory disease
Prior radiation therapy
Urinary diversion

Continent

→ skin: pouch
→ urethra: orthotopic bladder
→ anus: ureterosigmoidostomy rectal neobladder
Rectal bladder

Ureterosigmoïdostomy
Augmented valved rectum
Ureterosigmoidostomy
(patients with perfect rectal control)

<table>
<thead>
<tr>
<th>Pro</th>
<th>Contra</th>
</tr>
</thead>
<tbody>
<tr>
<td>No stoma</td>
<td>Cloaca (cave flatus)</td>
</tr>
<tr>
<td>Continence</td>
<td>Ascending pyelonephritis</td>
</tr>
<tr>
<td>After urethrectomy</td>
<td>Metabolic acidosis</td>
</tr>
</tbody>
</table>
Urinary diversion

Continent → anus: rectal neobladder
Urinary diversion

Continent → anus: rectal neobladder
Cutaneous continent urinary diversion

Based upon the confection of a reservoir and a continent stoma
Continent stoma
confection principles

Use of appendix
Tapering small bowel
Intussusception
Hydraulic valve
Cutaneous continent urinary diversion

Appendico-vesico-stomy
New reservoir and continent stoma

Kock pouch
T pouch
Mainz pouch
Indiana pouch
Penn pouch
Cutaneous continent urinary diversion

Kock pouch
Continent pouch
(when patients demand continence)

Pro
- Continence
- After urethrectomy

Contra
- Major surgery
- Self catheterisation
- Incomplete emptying
- Urinary infection
- No long term follow-up
Continent stoma
(disadvantages)

Major intervention
Intermittent catheterisation
Not for disabled
“Umbilical” catheterisation
Orthotopic urinary diversion

- Camey procedure
- Hautmann procedure
- Studer procedure
- Mainz procedure
Orthotopic urinary diversion

Camey
Orthotopic urinary diversion

Studer
Studer
Orthotopic bladder
(patients demanding continence)

Pro
No stoma
Diurnal continence

Contra
Major surgery
Nocturnal incontinence
Incomplete emptying
Urinary infection
No long term follow-up
Post-operative handicap

- Neo-bladder +
- Sigmoidostomy ++
- Pouch +++
- Ureterostomy ++++
- Uretero-ileostomy ++++
Operating time

- Cystectomy 150 minutes
- Ureterostomies + 30 = 180 minutes
- Uretero-ileostomy + 90 = 240 minutes
- Pouch +150 = 300 minutes
- Neo-bladder +150 = 300 minutes
The future?

Subtotal prostatectomy
Partial cystectomy
with adjuvant brachytherapy
with adjuvant chemotherapy
Chemotherapy
Tx for listening

Questions?
BRICKER: postoperatief

- TPN 5 dagen
- MS tot peristaltiek
- pijnstilling
- urimeters
- IN katheters spoelen met 5 cc fysiologisch
- SC laagmoleculaire heparine
- verwijderen katheters D10-D12 post op
Table 106-5. COMPLICATIONS: ILEAL CONDUIT*

<table>
<thead>
<tr>
<th></th>
<th>Early</th>
<th>Late</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urine leak</td>
<td>2% (9/356)</td>
<td>—</td>
</tr>
<tr>
<td>Bowel leak</td>
<td>2%</td>
<td>—</td>
</tr>
<tr>
<td>Sepsis</td>
<td>3% (7/230)</td>
<td>3% (4/142)</td>
</tr>
<tr>
<td>Acute pyelonephritis</td>
<td>3% (21/700)</td>
<td>18% (133/726)</td>
</tr>
<tr>
<td>Wound infection</td>
<td>7% (17/230)</td>
<td>2% (4/178)</td>
</tr>
<tr>
<td>Wound dehiscence</td>
<td>3% (11/326)</td>
<td>—</td>
</tr>
<tr>
<td>Gastrointestinal bleed</td>
<td>2% (2/90)</td>
<td>—</td>
</tr>
<tr>
<td>Abscess</td>
<td>2% (3/168)</td>
<td>—</td>
</tr>
<tr>
<td>Prolonged ileus</td>
<td>6% (14/230)</td>
<td>10% (18/178)</td>
</tr>
<tr>
<td>Conduit bleed</td>
<td>2% (3/178)</td>
<td>10% (18/178)</td>
</tr>
<tr>
<td>Intestinal obstruction</td>
<td>3% (18/610)</td>
<td>5% (42/878)</td>
</tr>
<tr>
<td>Ureteral obstruction</td>
<td>2% (14/610)</td>
<td>6% (56/878)</td>
</tr>
<tr>
<td>Parastomal hernia</td>
<td>—</td>
<td>2% (9/454)</td>
</tr>
<tr>
<td>Stomal stenosis</td>
<td>—</td>
<td>30% (143/486)</td>
</tr>
<tr>
<td>Stone formation</td>
<td>—</td>
<td>7% (59/822)</td>
</tr>
<tr>
<td>Excessive conduit length</td>
<td>—</td>
<td>9% (26/276)</td>
</tr>
<tr>
<td>Metabolic acidosis</td>
<td>—</td>
<td>13% (27/206)</td>
</tr>
<tr>
<td>Conduit infarction</td>
<td>—</td>
<td>2% (2/90)</td>
</tr>
<tr>
<td>Volvulus</td>
<td>—</td>
<td>7% (2/268)</td>
</tr>
<tr>
<td>Conduit stenosis</td>
<td>—</td>
<td>3% (11/320)</td>
</tr>
<tr>
<td>Conduit-enteric fistula</td>
<td>—</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

*Incidence as a percentage of the total number of reported cases from the literature. Numbers in parentheses are the number of cases from which the percentage is derived.
Early COMPLICATIONS

- leakage
  - Intestinale anastomosis 2%
  - uretero ileal anastomosis 2%
- wound infection 7%
- ileus 3%
- pyelonefritis after catheter removal
Late COMPLICATIONS

chronical pyelonefritis

• 10 - 60 % renal function loss
• 6 % exitus from renal insufficiency
• 75% E Coli infection of terminal ileum
• chronical bacteriuria ≠ significant infection
Surgery

- TUR
- Cystectomy
- Partial cystectomy
Urinary diversion

Continent

Vs

Incontinent
Incontinent urinary diversions

- Uretero-ileostomy (« Bricker »)
- Ureterostomy
 Continent urinary diversions

- Orthotopic bladder
- Continent pouch
- Sigmoidostomy
New reservoir and continent stoma
Cutaneous continent urinary diversion

Tapering small bowel
Cutaneous continent urinary diversion

Mainz pouch
Cutaneous continent urinary diversion

Indiana pouch
Orthotopic urinary diversion

MAINZ pouch
Continent stoma

Benchekroun principle
### Ureterostomy

<table>
<thead>
<tr>
<th>Pro</th>
<th>Contra</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest morbidity</td>
<td>Total incontinence</td>
</tr>
<tr>
<td>No bowel</td>
<td>Stoma(ta)</td>
</tr>
<tr>
<td></td>
<td>Ureteral stricture</td>
</tr>
<tr>
<td></td>
<td>Stoma appliances</td>
</tr>
</tbody>
</table>
Peristomatitis
Cutaneous incontinent urinary diversion

Ureterocolostomy