Pelvic exenteration via laparoscopy: operating technique, preliminary study

Management of cervical cancer

- Incidence 8/100 000, 3000 to 4000 new cases / year
- Tumour < 4 cm (IB1): no standard (SOR 2000) surgery at first intention or exclusively irradiation or radiosurgical association
- Tumour >= 4 cm : external radiotherapy - chemotherapy using cisplatin +/- surgery
- Stages III and IV : radio-chemotherapy
- Centro-pelvic recurrence: depending on initial treatment (previous radiotherapy or not)

Indications for pelvic exenteration in cases of cervical cancer

- Isolated centro-pelvic recurrence of cervical cancer initially treated by external radiotherapy
- Continued progression (?)
- Latero-pelvic recurrence reaching the pelvic sidewall (?)
Laparoscopy and Cancerology: Experimental data

• Less tumour growth with laparoscopy / laparotomy

• Metastases along trocar trajectory 0.6 to 1%

  Suggested safety instructions for laparoscopy
  (case selection, avoid manipulation of excised tissues, use of bag, trocar site excresis, etc)

• Tumour dissemination: difference between experimental and clinical situation

Laparoscopy and cancerology: Cervical cancer

• First laparoscopic radical hysterectomies in 1990
  Canis et al 1990, Nezhat et al 1992

• Assessment of extension before pelvectomy

• Pelvic and lombo-aortic lymphadenectomy

<table>
<thead>
<tr>
<th>Study</th>
<th>Type</th>
<th>Follow-up</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pommel et al 2003</td>
<td>Descriptive study</td>
<td>44 m follow-up</td>
<td>50</td>
</tr>
<tr>
<td>Pommel et al 2003</td>
<td>Descriptive study</td>
<td>5 years</td>
<td>200</td>
</tr>
<tr>
<td>Steed et al 2004</td>
<td>Sample case study</td>
<td>24 months</td>
<td>51 v 205</td>
</tr>
<tr>
<td>Jackson et al 2004</td>
<td>Sample case study with matching</td>
<td>52 months</td>
<td>50 v 50</td>
</tr>
</tbody>
</table>

Laparoscopy and cancerology: Lower urinary tract cancer

• Radical prostatectomy: large retrospective series (n=1000)
  Guillonneau et al 2003

• Radical cystectomy: 3 series (n=181), no long term data from the oncological and functional point of view
Laparoscopy and cancerology:
Colo-rectal cancer

Randomised prospective studies comparing laparoscopy and laparotomy
- Less per- and post-operative morbidity
- Shorter hospital stay
- Low risk of metasis on the trocar trajectory
- Same rate of recurrence
- Same overall survival rate


<table>
<thead>
<tr>
<th>Age</th>
<th>BMI</th>
<th>Histology</th>
<th>Initial stage</th>
<th>Initial treatment</th>
<th>Type of recurrence</th>
<th>1st laparoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>44</td>
<td>C.Epid</td>
<td>IIIb</td>
<td>RT+CT</td>
<td>Progression</td>
<td>yes</td>
</tr>
<tr>
<td>2</td>
<td>53</td>
<td>C.Epid</td>
<td>IIIc</td>
<td>RT+CT +curieT</td>
<td>R at 9 months</td>
<td>yes</td>
</tr>
<tr>
<td>3</td>
<td>54</td>
<td>C.Epid</td>
<td>IVa bladder</td>
<td>RT+CT</td>
<td>Fistula</td>
<td>yes</td>
</tr>
<tr>
<td>4</td>
<td>53</td>
<td>Adenok</td>
<td>IIIb</td>
<td>RT+CT +broad H +curieT</td>
<td>R at 13 months</td>
<td>no</td>
</tr>
<tr>
<td>5</td>
<td>51</td>
<td>Adenok</td>
<td>Ib</td>
<td>RT+CT +broad H</td>
<td>vagina at 4 months</td>
<td>yes</td>
</tr>
</tbody>
</table>

Exenteration Operating time Blood loss Hospital stay Healthy margins
Total (Bricker, manual colo-anal) 9 h 250mL 17d Yes
Posterior (manual colo-anal) 6h 300mL 14d Yes
Anterior (Miami pouch) 6h 200mL 20d Yes
Anterior (Bricker) 4h30 300mL 7d Yes
Total (Bricker, colo-anal clip system) 8h 400mL 30d No (1 site µ)
Photos

<table>
<thead>
<tr>
<th>Exenteration</th>
<th>Postoperative complication</th>
<th>Time till recurrence</th>
<th>Metastases</th>
<th>Status</th>
<th>Survival after surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (Bricker, manual colo-anal)</td>
<td>0</td>
<td>8 months</td>
<td>Lung metastases</td>
<td>Deceased</td>
<td>11 months</td>
</tr>
<tr>
<td>Posterior (manual colo-anal)</td>
<td>0</td>
<td>6 months</td>
<td>Liver metastases</td>
<td>Deceased</td>
<td>7 ½ months</td>
</tr>
<tr>
<td>Anterior (Miami pouch)</td>
<td>0</td>
<td>0</td>
<td></td>
<td>Alive, no recurrence</td>
<td>15 months</td>
</tr>
<tr>
<td>Anterior (Bricker) Perineal eventration</td>
<td>0</td>
<td>0</td>
<td></td>
<td>Alive, no recurrence</td>
<td>11 months</td>
</tr>
<tr>
<td>Total (Bricker, colo-anal clip system)</td>
<td>Colo-anal fistula</td>
<td>4 months</td>
<td>Abdominal recurrence and liver metastases</td>
<td>Deceased</td>
<td>6 months</td>
</tr>
</tbody>
</table>

Feasibility of laparoscopic exenteration

- No major complications
  - Inferior vena cava afference
  - Obturator vein injury
- No laparoconversion
- Extended operating time
  (5 h on average by laparotomy Ho et al 2001)
- No major surgical difficulty
- Dissection of the para-vesical and para-rectal fossas made easier by laparoscopic magnification
- Series by Querleu and Ferron (3 posterior and 1 total with Bricker)
Patient selection

• General condition, BMI
• Past history of surgery
• Time between end of initial treatment and recurrence
• Pre-operative work-up: chest CAT, abdomino-pelvic MRI, PET FDG
• Initial laparoscopy: détection CI, optimise theatre time (LA excision ?)

Morbidity

• Less blood loss (2 litres on average by laparotomy Ho et al 2001)
• Shorter hospital stay (17.6d v 22d)
• Smaller scars, less pain
• Post-operative complications rate: 30 to 70% for laparotomy (20% urinary or bowel fistula)
• In our series:
  – 1 fistula on anastomosis but margins not healthy and no omentoplasty
  – 1 perineal hernia but broad cut levator ani muscles

Survival

• Survival at 5 years with laparotomy: 23 to 61% depending on the series in the literature
• IGR series: 14% postoperative mortality, 24% survival at 5 years
• Change in indications since the time of radio-chemotherapy
• Prognostic criteria (Shingleton et al 1989)
  – Tumour larger or smaller than 3 cm
  – More or less than 1 year since initial treatment
  – Tumour fixed to pelvic sidewall or not
Type of urinary derivation

- Development of continent pouches (no pouch, less kidney lesions)
- Various techniques depending on bowel segment used
- Miami: technique recommended if past history of irradiation, or if total exenteration
- Well-motivated and informed patient
- Long operating time (4h30 Bricker, 6h Miami)
- 1st case of Miami pouch by laparoscopy
- Not enough follow-up for functional results

Exenteration for "comfort"?

- Fistula not checked by radio-chemotherapy?
- Tumour evolving under radio-chemotherapy treatment?
- Reduce convalescence time for patients with limited life expectancy??
- No vaginal reconstruction in this series (1 case in the Querleu and Ferron series), prefer musculocutaneous flap (right internal)

Conclusion

- Development of laparoscopy in cancerology
  - Reduced hospital stay, blood loss, pain
  - Oncologically reliable
- Laparoscopic exenteration is feasible, provided there is strict patient selection (first laparoscopy, PET FDG)
- A larger series needed, together with sufficient follow-up in order to say whether this operation should be done (ethics committee)