Laparoscopic partial nephrectomy

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Rational for increasing use of partial nephrectomy

- 10-40% of renal tumors <3 cm
- Local recurrence after open partial nephrectomy: 2-3%
Indication of Laparoscopic partial nephrectomy

- **Established:**
  - Tumor size:<4 cm
  - Normal contralateral kidneys
  - Exophytic or peripheral

- **Evolving:**
  - Central,
  - solitary kidney,
  - >4cm in absolute or relative indication
2. Reflection of colon
3. Pedicle control
4. Tumor excision
5. Suturing
6. Declamping
• **Ischemia time:**
  - Worm: \(<\) 20 minutes
  - Cold: 2 Hs, preferred \(<\) 35 min
    - *Becker et al, 2009*
    - Effect: max after 3m, no increase in postop CVDs or CCI
      - *Propiglia et al 2012*
      - Every min count with hilar clamping
    - *Thompson et al 2010*

• **To minimize:**
  - Selective clamping
  - Off clamp
  - Early unclamp: bleeding, reclamping
    - *Nguyen and Gill, 2008*
Alternative technique: zero ischemia LPN

- Micro dissection of tertiary or higher-order renal arterial branch
- More difficult, increase risk of vascular injury
Alternative technique: OFF clamp LPN

- No vascular clamping, for exophytic lesions
- More difficult, risk of bleeding
Combined technique for multiple renal Tumors
Results

- **Laparoscopic**
  - Success rate: 99%
  - Op time: 3hs (open: 3.9hs)
  - Ischemia: 28min (open: 18min)

  *Gill etal, 2013*

5 years follow up:

56 patients

Overall and cancer specific survival: 86 & 100%

Local recurrence: 2.7%

No distant recurrence

*Lans & gill, 2011*
Complications

- Hemorrhage and Blood transfusion: 13%
- Urinary leakage: 4.5%
- +ve surgical margin (not affect long term oncologic outcome)
- Longer operative time compared to open
• Hemostasis
  – Mainly suturing
  – Assessed by:
    • meticulous suturing of transected blood vessels and open collecting system
    • haemostatic agents: Floseal or surgicell
• Leakage: Separate suturing of the opened collecting system
Results (Mansoura experience)

- 23 cases
- Mean size: 4cm
- M/f: 13:10
- Success: 22
- Conversion 1
Robotic Versus standard LPN

- Articulated instruments, 3d vision: better manipulations, dissection and suturing
- Robotic approach appears to be less affected by tumor complexity compared to LPN with shorter warm ischemia
- Coast: 6000 Us D
- Availability
Robotic Versus standardised LPN

- Robotic versus laparoscopic partial nephrectomy: a systematic review and meta-analysis. Aboumarzouk OM. 2013, Eur Urol

  - There was no difference between the two groups regarding operative times, estimated blood loss, or conversion rates. There was no difference, postoperative length of hospital stay, complications (p=0.86), or positive margins (p=0.93)

  - With early learning curve: The RPN group had significantly less warm ischaemic time than the LPN group (p=0.0008).
Conclusion

- Advantages of laparoscopy:
  - Reduced postoperative narcotic use
  - Earlier hospital discharge, and a faster convalescence.
  - Satisfactory oncologic outcome
  - Coast is less with standard lap versus Robotic
  - Absence of robotic should not contraindicate LPN
Conclusion

• Experience in ablative and reconstructive skills
• Recommended to start with non hilar T1 tumor
• Should be done in high volume center