CONTROVERSIAL INDICATIONS FOR LAPAROSCOPIC ADRENALECTOMY

J. F. HENRY

Department of Endocrine Surgery
University-Hospital La Timone
Marseilles - France

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CONTROVERSIAL INDICATIONS FOR LAPAROSCOPIC ADRENALECTOMY

Large tumors:
- Pheochromocytomas
- Cortical tumors

Metastases
Background

• Laparoscopic adrenalectomy:
  – Less pain / blood loss\(^1\)
  – Less morbidity & shorter hospital stay\(^2\)
  – More rapid return to work\(^3\)

• Procedure of choice:
  – Benign
  – Small secreting adrenal tumours

  – ? Large adrenal tumours

\(^2\)Dudley NE, Harrison BJ. Br J Surg 1999; 86: 656-60
\(^3\)Thompson GB et al. Surgery 1997; 122: 1132-6
PRIMARY ADRENAL TUMORS

4 cm > ∩ > 6 cm

BENIGN

ENDOSCOPIC APPROACH

MALIGNANT

OPEN APPROACH
LAPAROSCOPIC ADRENALECTOMY
TUMORS > 6 cm

Nb : 39*  
(7.9 %)

Pheochromocytoma 16
Cortical tumors 23

* Tumors > 6 cm, solid.
Preoperative demonstration of invasive extra-adrenal carcinoma remains an absolute contra-indication for laparoscopic adrenalectomy.
LAPAROSCOPIC ADRENALECTOMY

Should laparoscopic approach be proposed for large and/or potentially malignant adrenal tumours?
TRANSPERITONEAL OR RETROPERITONEAL ENDOSCOPIC APPROACH?
Transperitoneal approach
Lateral position
3-4 trocars - subcostal area
Dissection: cautery hook, harmonic scapel, ligasure clips (adrenal vein)
Extraction in plastic bag
Drainage: optional
Vein thrombosis prophylaxis
ENDOSCOPIC ADRENALECTOMY FOR LARGE PHEOCHROMOCYTOMAS
LAPAROSCOPIC ADRENALECTOMY FOR LARGE PHEOCHROMOCYTOMAS

Is endoscopic adrenalectomy a safe procedure?

- with adequate preoperative blockers
- CO2 pneumoperitoneum is well tolerated
- laparoscopic versus open: no significant differences in hemodynamic changes and catecholamine secretion


L.A. FOR LARGE PHEO > 60mm  
(16 cases)

<table>
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<th>Category</th>
<th>Count</th>
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<tbody>
<tr>
<td>Mean size</td>
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<tr>
<td>Mortality</td>
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<tr>
<td>Conversion</td>
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<tr>
<td>Hemodynamic complications</td>
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<td>Capsular disruption</td>
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<td>Malignancy</td>
<td>0</td>
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<tr>
<td>Recurrence</td>
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</tbody>
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Dpt of Endocrine Surgery  
Hospital La Timone - Marseilles
L.A. FOR LARGE CORTICAL TUMORS
Predicting malignancy

- **Clinical**
  - Local symptoms
  - Virilization
- **Biochemical**
  - Mixed secretion
  - DHEA-S
- **Radiological**
  - Size
  - CT - low attenuation (?benign)
  - MRI - rapid gadolinium enhancement + washout (benign?)
  - NP59
  - PET
L.A. FOR LARGE CORTICAL TUMORS

- Adrenalectomies 565
- L.A. 489
- Solid cortical > 6cm 23
  - 11 non secreting tumors
  - 12 secreting tumors
L.A. FOR LARGE CORTICAL TUMORS

Results: Demographics/ Histology

• Mean age 49.9 (22-77) years
• Mean tumour diameter 71mm (60-100)
• Histology
  – 8 cortical adenomas
  – 5 adrenocortical carcinomas
  – 10 indeterminate histology
L.A. FOR LARGE CORTICAL TUMORS

Results: Deaths

• 2 DNRD
  – 77 female
    • 65mm non secreting tumour “cortical adenoma”
  – 71 female
    • 65mm non secreting tumour “cortical adenoma”

• 2 DRD: 2º liver mets without local recurrence:
  – 44 female 10/12
    • 80mm Cushings - “indeterminate histology”
  – 77 female 19/12
    • 70mm Non secreting ACC
L.A. FOR LARGE CORTICAL TUMORS

Results

• 1 local recurrence:
  - 43 woman, Recurrence at 54 months
  - 60mm
  - Cushing’s
  “Indeterminate histology”

• 1 local recurrence associated with distant metastases
  - 62 man, Recurrence at 12 months
  - 75mm
  - Aldosteronoma
  - Malignant
Conclusions

• Laparoscopic adrenalectomy produces acceptable medium term results in adrenal cortex tumours >6cm where there is no pre or intraoperative evidence of malignancy.

• Laparoscopy should be considered an assessment tool as well as therapeutic in the management of large adrenal tumours.
Adrenal Cortex Tumour

Evidence of local invasion

No evidence of local invasion

Laparoscopic Approach

No signs of local invasion

Complete LA - minimal touch technique, include surrounding periadrenal fat

Open surgery - radical compartmental resection

Signs of invasion
LAPAROSCOPIC ADRENALECTOMY FOR METASTASES

Nb : 25
(5 %)

- Lung: 14
- Melanoma: 4
- Mesothelioma: 1
- Rhabdomyosarcoma: 1
- Colon ADK: 1
- Renal cell: 4
LA FOR METASTASES

- Synchronous AM (n=15), Metachronous AM (n=9)
- 13/16 patients presented other metastatic sites in their history (controlled at the time of LA)
LA FOR METASTASES

- All patients: lateral, transperitoneal approach
- Conversion 6/25 (24%) (<5% conversion rate)
- Macroscopic complete resection: 75%
- Microscopic complete resection: 56%
- Minor Complications: 4/25
- Hospitalisation: 5 days (3-18)
Follow up (16 patients)

- Observed FU 25 months (1-68 months)
- 5 years O. Survival: 42% (24.4 months) (KM)
- 8 Patients alive with a mean FU of 35 months
  - 3 without evidence of disease at 60, 24, 19 months after surgery
- We did not identify any prognostic factors such as primary tumour, meta/synchronous
Conclusions (1)

• Appropriate evaluation close before surgery:

  - To avoid conversion: loss of the advantages of laparoscopy compared to open approach, and conversion often means incomplete resection

  - To avoid incomplete resection (AM incomplete resection or other uncontrolled metastatic sites)

⇒ Complete and appropriate evaluation using at least **thin cut CT scan and PET scan** performed close to the time of surgery
Conclusions (2)

- When AM matches the « good criteria » for resection (confined to the adrenal gland...), subsequently the AM may be resected by LA in most cases.

- AM which match those criteria are rare...

- AM that would require open adrenalectomy with a curative intent are probably rarer...
Conclusions (3)

• Some factors are usually related to good prognosis...

• In our series, a majority of patients presented synchronous AM or others metastatic sites in their history. Despite these characteristics, survival compared favourably...

• When “classical” favourable factors are absent, patient should not be excluded de facto from a surgical approach

• A patient specific multidisciplinary approach is required.
Conclusions

• If all these conditions are respected, patients may benefit from both surgical resection with the comfort of laparoscopy.
ENDOSCOPIC ADRENALECTOMY

- Invasive adrenal carcinoma is an absolute contra-indication for laparoscopic adrenalectomy
- Whether the laparoscopic approach should be considered for large-volume (>5-6 cm) and potentially malignant adrenal tumors remains debatable
- Endoscopic adrenalectomy may be considered for solitary adrenal metastases in patients in whom a primary carcinoma has been completely resected