The Easy Way to do a VATS Lobectomy

Robert J McKenna Jr. MD
Head, Thoracic Surgery
Cedars Sinai Medical Center

AATS Saturday 4/28/2012
VATS Lobectomy
Current Status in US

- STS database: 40%
- Throughout US: 15%
<table>
<thead>
<tr>
<th>VATS Lobectomy</th>
<th>Current Status in US</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you want to lose lung cancer surgery to RFA and SBRT, continue to not do VATS Lobectomy</td>
<td></td>
</tr>
</tbody>
</table>
### VATS Lobectomy

(N=2804)

- **1992-2012**
- **Women** (54.1%)
- **Men** (45.9%)
- **mean age = 71.2 years**
  (range 16-95)
VATS Lobectomy should be:

- Same Operation Performed as an Open Procedure
- Anatomic Dissection
- Node Dissection or Sampling
Operative approach: the start

- Switch from postero-lateral thoracotomy to muscle sparing
- Get used to working from anteriorly
- Make a larger utility incision
Operative approach:
next step

• Make the muscle sparing incision smaller and dissect with VATS
• Set a time limit
• Get used to the VATS incisions and angles
VATS
LOBECTOMY

TECHNIQUE
**VATS LOBECTOMY: INCISIONS**

<table>
<thead>
<tr>
<th>#</th>
<th>Incision Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5mm for trocar, 8th Intercostal space for 30° lens</td>
</tr>
<tr>
<td>2</td>
<td>2cm, 6th Intercostal space, mid-clavicular line</td>
</tr>
<tr>
<td>3</td>
<td>4-6cm, 4th Intercostal space, mid-ax line (Utility Incision)</td>
</tr>
<tr>
<td>4</td>
<td>1cm, in auscultatory triangle</td>
</tr>
</tbody>
</table>
VATS LOBECTOMY: INCISIONS

• 2, 3, or 4 incisions for a VATS lobectomy are OK
• Make enough incisions to get good exposure and good angles for instruments
• No rib spreading
## Operative approach

- Patient in lateral decubitus position
- Surgeon stands anterior to the patient
- Dissection starts in the hilum of the lung
Utility Incision

- For upper and middle lobectomy: at level of superior pulmonary vein
- For lower lobectomy: 1 intercostal space lower
- From edge of latissimus muscle anteriorly
Instruments

- 5 mm 30° thoracoscope
- Standard instruments (not endoscopic instruments)
- Metzenbaum scissors
- DeBakey pickups
- Curved Ring Forceps
- Endoscopic stapler
VL: Technique

• Dissect anteriorly to posteriorly

• Do not move lung back and forth

• Completeness of fissure is NOT an issue
VL: Technique

- Start with removing lymph nodes to define the anatomy
- Dissect on named structures
Remove level 5 and 6 nodes

Phrenic Nerve

PA

Upper Division V.

Lingular V.
VL: Technique

- Create tunnels to transect vessels and fissures
Mobilize Superior Pulmonary Vein

SPV

IPV
Staple Superior Pulmonary Vein (SPV)
VL: Technique

- Completeness of fissure has nothing to do with VL
Dissect PA to create a tunnel
Place Anvil of stapler on PA
Staples through utility incision for which structures

- Minor Fissure
- RUL Bronchus
- Inferior Pulm. Vein
- RML vein, artery, bronchus
Staples through anterior incision for which structures

- Major Fissure
- Minor Fissure
- Lower Lobe Artery
- IPV
- Lower Lobe Bronchus
Staples through auscultatory incision for which structures

- Superior Pulm. Vein
- Anterior Trunk Artery
- RML Artery
- RML Vein
- LUL Bronchus
Right Upper Lobectomy

- Retract lung posteriorly
- Identify the minor fissure to identify upper lobe vein
- Right angle clamp around the upper lobe vein
- Staple the vein
Right Upper Lobectomy

- Complete most of the minor fissure with EZ 45, green stapler
- Preserve middle lobe vein
- Retract lung posteriorly and inferiorly
- Remove hilar lymphatics
Right Upper Lobectomy

- Right angle clamp around the anterior trunk of the artery
- Staple the artery with endo 35 vascular stapler
- Clip or tie additional artery
- Complete more of the minor fissure
Right Upper Lobectomy

- Right angle clamp around the posterior ascending artery
- Tie the artery
- Spread scissors between posterior ascending artery and the upper lobe bronchus
- Remove lymph node between upper lobe and intermediate bronchus
Right Upper Lobectomy

• Staple upper lobe bronchus with EZ 45 green stapler
• Complete fissure between posterior segment of upper lobe and the superior segment of lower lobe with EZ 45 green stapler
• Place lobe in lapsac bag for removal
Right Lower Lobectomy

- Electrocautery on inferior pulmonary ligament
- Remove level 8 and 9 lymph nodes
- Retract lung anteriorly
- Remove subcarinal lymph nodes
- Retract lung posteriorly
- Right angle clamp around IP Vein
Right Lower Lobectomy

- Staple IP Vein with endo 35 vascular stapler
- Retract lung anteriorly and posteriorly
- Complete fissure between the middle lobe and the lower lobe with EZ 45 green stapler
- Dissect bronchus and artery
Right Lower Lobectomy

- Dissect along the surface of lower lobe artery
- Complete the fissure over the artery with EZ 45 stapler
- Right angle clamp around the artery
- Staple the artery with endo 35 vascular stapler
- Dissect posterior edge of bronchus
Right Lower Lobectomy

- Staple the remaining fissure between the lower lobe and the posterior segment of the upper lobe with EZ 45 stapler
- Remove lobar lymph nodes
- Identify middle lobe bronchus
- Staple the lower lobe bronchus
Right Lower Lobectomy

• Completeness of the fissure is not important
Left Upper Lobectomy

- Retract lung posteriorly
- Identify the minor fissure to identify upper lobe vein
- Right angle clamp around the upper lobe vein
- Staple the vein
Left Upper Lobectomy

- Retract lung posteriorly and inferiorly
- Remove hilar lymphatics
- Right angle clamp around the anterior trunk of the artery
- Staple the artery with endo 35 vascular stapler
Left Upper Lobectomy

- Complete fissure between lingula and lower lobe with EZ 45 green
- Identify artery in the fissure and dissect on the surface of the artery
- Remove lymph nodes on artery and by the bronchus
- Complete fissure with EZ 45 green
Left Upper Lobectomy

- Right angle clamp around the lingular artery
- Tie or staple the artery
- Remove lymph nodes around the bronchus
- Right angle clamp around bronchus
Left Upper Lobectomy

- Staple lobar bronchus with EZ 45 green
- Tie or staple additional arteries
- Complete the remaining fissure with EZ 45 green stapler
- Place lobe in bag
VATS Lobectomy: Conclusions

• Reasonable treatment for lung cancer
• Complete nodal dissection is possible
VATS Lobectomy: Conclusions

• Not for all lung cancers
• Not for all thoracic surgeons