Thymectomy for MG - transcervical approach

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No Disclosures
Thymectomy for MG

- Benefits first suggested by Blalock (1939)
- Comparison of remission rates vs historical controls convincing
  - CSR approximately 40%
  - Partial remission in an additional 40%

RANDOMIZED STUDY ONLY NOW ONGOING

Transsternal Thymectomy

- “Extended”- many authors
  - all thymic tissue and fat between phrenics
Transsternal Thymectomy

- “Maximal” – Jaretski
  - “transcervical/transsternal”
  - resect all ectopic sites of thymus as seen on study of pathological specimens
Minimally Invasive Thymectomy

• 2 broad categories
  – Transcervical Thymectomy (TCT)
    • “Basic” popularized in 70s by Papathestas
    • “Extended” made possible by Cooper
  – Thoracoscopic Thymectomy (VATS)
    • Robotic
VATS Thymectomy

• A variety of technical variations have been described
  – Left versus right (3:1)
  – Bilateral
  – Sternum or “Anterior CW” Lifting
TCT - Advantages

• No sternotomy
• No intercostal incisions
• No chest drain
• No expensive instruments
• Shortest possible length of stay
• Equivalent results

Disadvantage: +/- cosmesis of cervical inc
TCT - Indications

- **Non-thymomomatous MG**
  - Including ocular-only dz

- Thymectomy for intrathymic parathyroid

- Diagnostic biopsy of ant med masses
  - If poorly located for chamberlain

- *(Non-invasive thymoma < 2.5 cm)*
  Only in VERY experienced hands
TCT - Contraindications

- **Absolute**
  - Redo operation
  - Inability to extend neck – Cspine dz

- **Relative**
  - Substantial obesity
  - A clear thymoma, certainly if > 2.5 cm
NO TCT FOR THESE
Maybe TCT for this
• Most patients simply optimized on drug therapy
• Plasmapheresis for those with moderate or greater generalized disease despite drug therapy
• Steroids at reasonable doses
Operative Technique

- GA w/ 1-lumen ETT
- Position with neck extended
Operative Technique

- Skin incision ~5 cm
Operative Technique

- Dissect out upper poles (surgeon’s view)
Operative Technique

- Insert “Cooper” retractor substernally
Operative Technique

- Dissect gland off of innominate vein
Operative Technique

- Dissect gland off of pericardium, ant chest wall, pleurae, diaphragm
+Technique – thoracoscope

• Have adopted 30 degree scope (Keshavjee)
  – Sometimes during dissection if limited exposure
  – Always at the end to “clean up”
Operative Technique

• Generally home within 3 hours of operation

*NOT hard to DO; tricky to TEACH*
Another 13 patients required conversion to sternotomy.

-98% available for follow-up.
-Mean age 43, Osserman Class 2.3, f/u 53 months.
TCT - Results

• 1 of last 73 admitted to hospital
• Mean Op time 94 minutes
• Complications

<table>
<thead>
<tr>
<th>Complication</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seroma</td>
<td>2</td>
</tr>
<tr>
<td>Pleural effusion</td>
<td>2</td>
</tr>
<tr>
<td>Pneumothorax</td>
<td>2</td>
</tr>
<tr>
<td>Wound infection</td>
<td>2</td>
</tr>
<tr>
<td>Myasthenia flare postoperatively</td>
<td>1</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>1</td>
</tr>
<tr>
<td>Vocal cord paralysis</td>
<td>1</td>
</tr>
<tr>
<td>Total morbidity</td>
<td>11 (7.3%)</td>
</tr>
<tr>
<td>Major morbidity</td>
<td>1 (0.66%)</td>
</tr>
</tbody>
</table>
### TCT - Results

- **Crude Remission Rates**

<table>
<thead>
<tr>
<th>Category of Response</th>
<th>Percent of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete remission</td>
<td>37.1</td>
</tr>
<tr>
<td>Asymptomatic off of all medication</td>
<td>28.8</td>
</tr>
<tr>
<td>Asymptomatic on low-dose prednisone or azathioprine</td>
<td>8.3</td>
</tr>
<tr>
<td>Asymptomatic on more than minimal medication</td>
<td>13.5</td>
</tr>
<tr>
<td>Improved but symptomatic</td>
<td>28.8</td>
</tr>
<tr>
<td>No improvement</td>
<td>19.2</td>
</tr>
<tr>
<td>Died</td>
<td>1.3</td>
</tr>
</tbody>
</table>
Response Rates: 2 def’s of “CR”

- Kaplan-Meier Complete Response Rates

**Broader definition of CR**
- 43% CR at 36 m
- 45% CR at 72 m

**“Strict” definition of CR**
- 33% CR at 36 m
- 35% CR at 72 m
TCT - Results

- Only severity of disease was a sign predictor of CR on multivariate analysis (also looked at duration, histology, drug rx, age, sex)
## TCT vs Transsternal Approaches

<table>
<thead>
<tr>
<th>Authors</th>
<th>Crude Complete Remission Rate (%)</th>
<th>Mean Follow-up (years)</th>
<th>Kaplan-Meier 5-Year Remission Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maximal Transcervical/Transsternal</strong></td>
<td>Ashour et al∗∗[37]</td>
<td>35</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td>Jaretsky et al∗∗[11]</td>
<td>46</td>
<td>3.4</td>
</tr>
<tr>
<td><strong>Transsternal</strong></td>
<td>Huang et al</td>
<td>58</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>Budde et al [19]</td>
<td>21</td>
<td>4.3</td>
</tr>
<tr>
<td></td>
<td>Busch et al [38]</td>
<td>19</td>
<td>7.7</td>
</tr>
<tr>
<td></td>
<td>Klein et al [39]</td>
<td>40</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>Masaoka et al [24]</td>
<td>40/45</td>
<td>5.0/20.0</td>
</tr>
<tr>
<td></td>
<td>Mulder et al [40]</td>
<td>36</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>Stern et al [41]</td>
<td>50</td>
<td>6.8</td>
</tr>
<tr>
<td></td>
<td>Durelli</td>
<td>-</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Extended Transcervical†</strong></td>
<td>Bril et al **[15]</td>
<td>44</td>
<td>8.4</td>
</tr>
<tr>
<td></td>
<td>Calhoun et al **[14]</td>
<td>35</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>Shrager et al</td>
<td>37 (29)</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>(current study)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>dePerrot et al</td>
<td>41</td>
<td>4.0</td>
</tr>
</tbody>
</table>

**Crude CR**: 19-58% vs 35-44%  
**5 yr K-M CR**: 50/30% vs 43/30%
Comparative Results: Issues

- Different severities of disease among studies
- Different preop durations of disease
- Different medical therapies employed

Only carefully matched, prospective data will give more reliable answers

WE CAN SAY THIS: DIFFERENCES IN OUTCOME ARE NOT STRIKING

Either Jaretski’s extracapsular thymus is of limited clinical significance, or we get it
Summarizing TCT vs Sternotomy

• LESS MORBID / LESS COSTLY; SAME / SIMILAR CR RATES
  – Given an *unproven* operation, a highly minimally invasive approach is a reqrmt
  – Early thymectomy consistently associated with improved response rates
    • Far more likely to see early referral with less morbid operation
Summarizing TCT vs VATS

1) TCT response rates are proven and appear higher than w/ VATS (data…)
2) It’s simpler/cheaper
3) It’s probably even *less* morbid
4) It doesn’t even require chest tube or overnight stay

-for *cosmesis* VATS or robotic might be preferable for some