Operative Considerations for the Thoracoscopic Surgery Team

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Lobectomy in STS Database

- Thoracoscopy
- Thoracotomy

Year | Patients (Number) | Thoracoscopy | Thoracotomy
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2002 | 23 | 200 | 601
2003 | 70 | 601 | 723
2004 | 111 | 723 | 882
2005 | 165 | 882 | 1290
2006 | 370 | 1290 | 1346
2007 | 542 | 1346 | (29%)

Yearly Percentage:
- Thoracoscopy: 10%, 13%, 16%, 22%, 29%
- Thoracotomy: 90%, 87%, 84%, 78%, 71%
Breakout Plan

- **Day 1**
  - Set up and preparation for a thoracoscopic case
  - Team, Equipment and Instruments, Positioning
  - Brief

- **Day 2**
  - Tricks of the trade and helpful thoracoscopic assisting maneuvers
  - More video intensive
The Thoracoscopic Lobectomy Team

- **Surgeon**
- **Camera Pilot**
  - Goal is seamless view with minimal communication and correction by the surgeon
- **Scrub tech**
  - Should know the instruments and backup plans (sponge stick)
  - Should aspire to familiarize with the intended steps and common maneuvers of the procedure
    - Sxn-dissecting clamp-sxn-stapler
- **Circulator**
  - Should know the types of staple loads used and where to find them quickly
  - Support Personnel who are familiar with ordering procedures
Building a Team

- Consistency
  - Consistent assistants are more important than the level of training
    • Partner, Resident, Physician Assistant, Nurse, Scrub Tech
  - However, the higher the level of training and/or experience, the better the procedural insight, understanding of thoracic anatomy, etc.
  - Ex. Understanding the difference between a PTX vs Tension PTX
Building a Team

Communication

- Clarify the names of instruments
  - Often local names
    - “long curved empty”
    - “Scanlan clamp”
  - Clarity is essential among Surgeon, Scrub, Circulator and First Assist (Camera Pilot)
- Over time the surgeon and camera pilot should develop a language that quickly and efficiently communicates the needs of the surgeon
  - “The Sterile Cockpit”
The First Assistant = Camera Pilot

- What to look for in a Camera Pilot
  - Interest in minimally invasive surgery
    - Passion, patience, reverence
  - Experience in thoracic surgery
  - Willingness to learn thoracoscopic anatomy
    - (hilar perspective as opposed to “fissure” perspective)
  - Knowledge of instrumentation
  - Knowledge of equipment
  - A resonant appreciation for the technical contribution to the case

- Of the above only Interest is mandatory the rest can be learned and developed
Poor Camera operation can make for a painfully long case

- When the scope has to be removed to be cleaned
- When the pilot has difficulty reintroducing the scope into a complex hemithorax
  - Smudge
  - Reproducing the a consistent view in scope angle and horizon

Poor Camera operation can impact the safety of a case

- If the surgeon cannot visualize.......
**Camera Operations**

- Camera Pilot needs a working knowledge of the function of the camera/scope/monitors
  - Proper use of 30 degree, flexible tip or other scope optimizes the surgeon’s view
  - In the HD world it is VERY IMPORTANT to understand how the technology functions and what the technological implications are for the surgeon.
    - Ex. Low light = grainy picture = loss of resolution = loss of ability to visualize planes…
  - Helpful in troubleshooting
Camera Operations

- Camera Pilot should understand the steps for the intended procedure
  - Allows anticipation of the surgeon’s next move
- The camera view is very much a dance, the surgeon must be allowed to move within the frame as opposed to being led.
- Goal is for the only perception of movement on the monitor to be the maneuvers of the surgeon
- The Pilot must come to appreciate the value and contribution of controlling the surgeon’s eyes
Camera Operations

- A great case is a case where the surgeon rarely has to verbally direct the camera view.
- Tomorrow we will discuss verbal cues in greater detail.
Thoracoscopic Equipment
Thoracoscopic Equipment
Thoracoscopic Equipment - Storz
Thoracoscopic Equipment - Storz
Thoracoscope - Design

- All Thoracoscopes are VERY fragile.
- 10lbs of force will break a 10mm scope
  - The weight of the camera alone can damage the outside casing
  - A dent in the casing means that light fibers can be broken.
  - Think of the times where you THINK the scope is in focus but it is not in certain areas of the field.
- 3lbs of force will snap a 5 mm scope
  - Will bow 20 degrees before resistance can be detected
Thoracoscope Design

Hopkins II Rigid Telescope (10mm)
Thoracoscopic Equipment - Olympus
Thoracoscopic Equipment - Olympus
Thoracoscopic Equipment - Olympus
Thoracoscopic Instruments
Thoracoscopic Instruments
Thoracoscopic Instruments - Scanlan
Thoracoscopic Instruments
Thoracoscopic Instruments
Thoracoscopic Instruments - Wexler
Thoracoscopic Instruments - Covidien
Thoracoscopic Instruments - Covidien
Thoracoscopic Instruments - Ethicon
Patient Positioning for a Thoracoscopic Procedure
Patient positioning - Bean Bag
Patient Positioning - Bean Bag
Patient Positioning - Secure Strap Location (Anterior)
Patient Positioning - Stability
Posterior
Patient Positioning - Secure to Table
Patient Positioning- Table Break (flex)
Table Flex
Patient Positioning - Axilla and Securing Arms
Patient Positioning - Axilla
Patient Positioning - Axilla
Patient Positioning - Marking Incision
Putting it all together to start a case

- Consistent approach is an operative strategy
- Use of a consistent patient position and incisions provides consistent exposure for the surgeon
- Consistent exposure, regardless of the planned anatomic resection, provides the surgeon a familiar field to develop consistent maneuvers
- Beware the theory of triangulation etc.
- Predictable and Consistent angles of approach and retraction are key to a successful procedure
Consistency

- **Key**
- Reverence for set up is the only opportunity to have a sound foundation for troubleshooting
Tomorrow we make the incision