Management of Postoperative Pleural Effusions

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Disclosure slide

I have no potential conflict of interest to report regarding this presentation

I am a consultant / speaker for:
Genentech, GSK-Bio, Myriad Genetics, Uptake Medical
Outline

• Magnitude of the problem
  • Case 1: basic principles
  • Case 2: indwelling pleural catheters
  • Case 3: delayed referral > trapped lung
  • Case 4: chylothorax
Pleural effusions needing intervention

Post lobectomy:

Rare event, probably less than 3%

Guidelines for CT removal after resection:

450 mls/ 24 hours safe for some, 0.5 % failure needing readmission (Cerfolio 2008)

Others report a 15 % failure (Grodzki 2008)

Post heart surgery

Common, but only about 10% or less occupy 25% of hemithorax or more (Light 2002, Labidi 2009)

2 phases: Early: weeks 1-2 surgical trauma is at cause

Late: weeks 3 + inflammation driven (Dressler’s)
Pleural effusions: the spectrum

If less than 25% of hemithorax, asymptomatic, non chylous or malignant > most will spontaneously resolve

The difficulty is to predict who won’t … and in whom we need to be more aggressive: tighter radiological follow-up, US guided follow-up/ thoracentesis, possibly the use of NSAIDS (colchicine) or even steroids.

The goal is to minimize the risk of developing a trapped lung where the required surgical intervention potentially is more morbid…
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Case 1

- 59 Male
- 28 yrs post mediastinal RT for HD, in remission
- 2/2013 undergoes AVR, MV annuloplasty, LIMA to circ
- DC home Day 5 w dry CXR
- 4 weeks later: 1.75 liter symptomatic effusion tapped by US
- 2 weeks later: another 1.4 liter > steroids started
- 2 weeks later referred for management of recurrence (now 2.5 months post surgery)
Case 1

- Principle #1: completely evacuate the space
- Principle #2: allow full re-expansion of the lung

Options for this patient:
- Chest tube or drain and see
- Tunneled pleural catheter
- VATS exploration, evacuation, possible decortication
Case 1: patient elected for VATS

Findings: 2.2 liter effusion, soft lung > fully re-expanded
DCed home POD 2, without a drain > no recurrence
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TPCs: the new kid on the block..

A Propensity-Matched Comparison of Pleurodesis or Tunneled Pleural Catheter for Heart Failure Patients With Recurrent Pleural Effusion

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A nice option for the frail, high risk patient.
30-45% spontaneous resolution/pleurodesis at 1 month with cardiac etiologies
(Freeman 2014, Bhatnagar 2013)
Case 2

- 82 female
- MVR/ TVR 1999
- 2/2015 undergoes redo AVR/ MVR/ TVR
- Developed symptomatic bilateral pleural effusions 1 week PO
- Required multiple thoracentesis, always with subjective improvement
- Multiple co-morbidities
Case 2

POD 0

POD 7
Successful use of bilateral TPCs

POD 30

POST TPCs D10
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Case 3

- 67 obese male
- 2/2009 CABG: LIMA to LAD, RIMA to RCA, SVG to Marginal
- Post op A fib

- Developed delayed symptomatic right sided pleural effusions which required multiple thoracentesis
- Consulted 3 months post CABG
Case 3

POD 3

POD 90

POD 105
Underwent VATS evacuation 1.3 liter, but lung not expanding > open decortication

- Principle #2: allow full re-expansion of the lung….
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Post op chylothoraces

- Depending on the size/importance of the ductal branch severed, many will respond to conservative management which includes drainage +/- pleurodesis, NPO or MCT diet, TPN support
- High volume leaks that do not promptly respond to the above measures (2-3 days) > intervention
- Historically this meant surgical ligation of the TD (Lampson procedure) (Patterson 1981)
- Interventional radiology may however be able to cannulate the TD and embolize the CC or TD (Itkin 2010)
Delayed chylothorax post EPP

POD 30

POD 45
Conclusions

Post operative pleural effusions that recur despite repeated thoracentesis and optimal medical management: most likely because the effusion was never completely drained and the lung was not given the chance to re-expand.

A delay in achieving these 2 goals may translate in a need for more invasive surgery such as an open decortication.

TPCs are a good option to consider in the frail patient.