OPERATION RECORD

DATE OF PROCEDURE: 5/9/17

PREOPERATIVE DIAGNOSIS:
Loculated empyema.

POSTOPERATIVE DIAGNOSIS:
Loculated empyema, a trapped lung, a necrotic lung, with severe inflammatory rinds surrounding the entire right lung.

PROCEDURES:
1. VATS converted to open thoracotomy.
2. Partial lobectomy.
3. Diaphragm repair.
4. Decortication.
5. Partial rib resection.

FINDINGS: Significantly trapped, necrotic lung with empyema, loculated fluid collections, and a significant inflammatory rind.

INDICATIONS: The patient is a 63-year-old female who has been in the hospital for 2 weeks with IR drainage of different fluid collections in the lung. Repeat CT scan shows continued loculated fluid collection, and white count continued to be elevated despite antibiotic therapy. Risks and benefits discussed with the patient, who agreed with the treatment plan.

OPERATION IN DETAIL: After obtaining proper informed consent, the patient was prepped, draped, and positioned in the usual fashion. Antibiotics were given. SCDs were placed by nursing before general anesthesia. Timeout was performed and was correct.

With the patient in the left lateral decubitus position, the sixth intercostal space was injected with lidocaine. An incision was made, carried through skin and subcutaneous tissue. The muscle superior to the seventh rib was incised approximately 2 cm, and a trocar was inserted. The pleural space was entered.

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Upon palpation in the pleural space, there was a significant amount of adhesions to the point where they could not be loosened. A second trocar site was made more cephalad with a similar incision in the fourth posterior-lateral intercostal space. Immediately upon entering the pleural space again, the lung was completely stuck with a very thick inflammatory ring. Noted to be some blebbing at this point, so a thoracotomy was made in the sixth intercostal space. This was carried down through the skin and subcutaneous tissue. The muscle was divided, and a rib spreader was used to spread the ribs. There was a fracture of ribs superior and inferior to the incision.

The thoracic cavity was entered. The lung was not expanding with air despite full ventilation. The entire left lobe was trapped in a very thickened, approximately 6-7 mm, thick, inflammatory rind. This was slowly and bluntly taken down. In the process of doing this, as it was adherent to the diaphragm, the muscle diaphragm was separated from the chest wall, and there was a hole into the abdominal space. The rind was continued to be freed. The underlying lung was friable and necrotic and fell apart upon touching. After significant mobilization, the inferior part of the lower lobe was completely trapped and did not expand despite decortication. With decortication, the upper lobe expanded with good air flow, and the upper portion of the lower lobe did as well. The trapped portion of the lower lobe was transected with Endo-GIA 60-mm vascular load staples, an approximately 6 x 6 inch segment of the lower lobe was transected, and this was sent to pathology. The rind of the abscess cavity was sent to pathology as well as microbiology, and cultures were taken from the fluid.
After a significant amount of time freeing and mobilizing the lung, there was a significant amount of air leak coming from the parenchyma. These were oversewn with a PDS suture. Tisseel was placed over the leak as well. There still was a small amount of air leak through the necrotic tissue that looked viable. Further oversewing was made and appeared to be very small air leaks coming from tissue that was part of the decortication. The diaphragm was freed and was oversewn back to its original position with a 2-0 Prolene suture, thus closing the defect in the diaphragm. The lung expanded with ventilation. There was no significant loss of pressure or volume return per anestheisa. The bleeding was contained.

The thoracic cavity was irrigated with several liters of normal saline. A 32-straight and a 33-French curved chest tube were placed and brought out through the lateral aspect of the chest inferior to the incision. The mid portion of the seventh rib, which was broken in 2 spots, was excised. The remainder of the ribs were reapproximated with #1 Vicryl suture. The muscle layers were closed in layers of 2-0 Vicryl suture. The subcutaneous tissue was reapproximated with 3-0 Vicryl suture, and the skin was closed with staples.

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The chest tubes were secured into position. Placed to wall suction, there was a small air leak that was seen in the chest tubes. The patient remained intubated and was taken to the ICU. She tolerated the procedure well.

Specimen
A. RIGHT LUNG RHINE; B. RIGHT LOWER LUNG PARTIAL RESECTION; C. RIGHT RIB

Final Diagnosis:
A. RIGHT LUNG, RIND, EXCISION:
   -- PLEURAL RIND FIBROSIS ACUTELY INFLAMED GRANULATION TISSUE AND ABSCESS (HISTORY OF EMPYEMA).
B. RIGHT LOWER LUNG, WEDGE EXCISION:
   -- BRONCHIOLITIS OBLITERANS ORGANIZING PNEUMONIA (BOOP)-LIKE CHANGES.
   -- ACUTE BRONCHITIS.
   -- PLEURA WITH ACUTE AND CHRONIC INFLAMMATION AND ABSCESS CONSISTENT WITH EMPYEMA.
   -- MYCOBACTERIAL AND FUNGAL STAINS: PENDING.
C. BONE AND SOFT TISSUE, RIGHT RIB, PARTIAL RESECTION:
   -- VIABLE BONE AND MARROW WITH NO EVIDENCE OF OSTEOMYELITIS.
   -- SOFT TISSUE WITH ACUTELY INFLAMED GRANULATION TISSUE.

Comment:
The right lower lung shows organizing pneumonia/BOOP-like changes with prominent tissue plugging, dense interstitial fibrosis and acute and chronic inflammation. There is also acute bronchitis. Abscess formation is also seen, consistent with empyema. Mycobacterial and fungal stains are pending, and addendum report is to follow. Correlate with clinical and radiographic findings.
Gross Findings:

Received are three formalin-filled containers, labeled with the patient's name and further designated:

A. "Right lung rhine" - consists of multiple fragments of dull, gray-tan, membranous tissue with adherent red-brown blood clot, 12.1 x 0.2 x 2.1 cm in aggregate. One side of the tissue has a diffuse, ragged appearance, while the opposite side is smooth and glistening. The specimen is sectioned, and no discrete masses or dissimilar areas are grossly identified. Representative sections are submitted as A1-A5.

B. "Right lower lung partial resection" - consists of a wedge of lung, 7.6 x 4.4 x 2.7 cm, that weighs 4.1 gm. The specimen is closed along one edge with a silver-colored, metallic staple line, 7.6 cm long x 0.2 cm in diameter. The pleural surface has a diffuse, dull, ragged, gray-tan appearance, grossly similar to "A". The pleura adjacent to the staple line is inked orange, while the remaining pleura is inked black. The lung parenchyma is sectioned and has a diffuse, pale tan, rubbery appearance. No discrete dissimilar areas or normal residual lung parenchyma is grossly identified. Representative sections are submitted as follows:

SLIDE KEY:
B1-B2-sections closest to staple line (margin submitted in its entirety)
B3-B8-random sections from remainder of lung

C. "Right rib" - consists of a segment of pale white bone with adherent tan-red soft tissue grossly consistent with rib and intercostal muscle, 8.6 x 2.2 x 1.1 cm. No markers for orientation are given. Identified on the surface are scant, scattered tags of dull, gray-tan, soft tissue, grossly similar to the tissue identified in specimens "A" and "B", measuring up to 1.1 cm in greatest dimension. The specimen is inked black, sectioned, with the soft tissue having a diffuse, rubbery, dull, gray-tan appearance. The medullary bone of the rib is grossly unremarkable. Representative sections are submitted as follows:

SLIDE KEY:
C1-C2-margins
C3-C5-random sections of rib, with adjacent, adherent soft tissue

Specimen
A. RIGHT LUNG RHINE; B. RIGHT LOWER LUNG PARTIAL RESECTION; C. RIGHT RIB

ADDENDUM

Mycobacterial (AFB) and fungal (GMS and PAS-F) stains were performed on block B4 and are negative.

Final Diagnosis:

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Clinical History / Diagnosis:

EMPYEMA

Microscopic Examination:
Microscopic findings substantiate the above-cited diagnosis.

Gross Examination:

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B. "Right lower lung partial resection" - consists of a wedge of lung, 7.6 x 4.4 x 2.7 cm, that weighs 41 gnm. The specimen is closed along one edge with a silver-colored, metallic staple line, 7.6 cm long x 0.2 cm in diameter. The pleural surface has a diffuse, dull, ragged, gray-tan appearance, grossly similar to "A". The pleura adjacent to the staple line is inked orange, while the remaining pleura is inked black. The lung parenchyma is sectioned and has a diffuse, pale tan, rubbery appearance. No discrete dissimilar areas or normal residual lung parenchyma is grossly identified. Representative sections are submitted as follows:

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