Management of Malignant Pleural Effusions

Danielle Noreika, MD
Medical Director, Inpatient Palliative Care Services
Program Director, Hospice and Palliative Medicine Fellowship
Associate Professor of Medicine, Division of Hematology, Oncology and Palliative Care

Javeryah Safi, MD
Interventional Pulmonology Fellow
Virginia Commonwealth University

Palliative Care Project ECHO | April 26, 2021

Case Presentation

Mrs. R is a 57yo F with hx of HTN, CAD, COPD, tobacco use, anxiety

PERTINENT MEDICATIONS:

Oxycodone liquid 10mg q4hrs PRN,
Gabapentin 600mg TID, Tylenol PM

SOCIAL HISTORY

- +tobacco use >30pack year
- +EtOH daily 9-12beers/day

- Reportedly estranged from her parents and brother; sister is supportive
- Has a daughter who is her mPOA and is supportive
- Lives with her husband in a trailer

Clinical Course

- **3/2020:**

- CT done for 2-3months of dysphagia and 20lb weight loss→ **2x4cm mass found in esophagus**

-1st EGD done found mid-esophageal stricture suspicious for malignancy with biopsy→ **+ Squamous Cell Carcinoma of Esophagus**

- **4/2020:**

-PET scan done, **No metastasis;** started on FOLFOX x6 cycles + XRT **with curative intent**

-Port and **1st Esophageal stent placed**→ post-op, suffered stress (Takotsubo's) cardiomyopathy with new HFrEF (EF 30%, later resolved) and NSTEMI

- **6/2020:**

-Worsening dysphagia, unable to manage secretions, 3rd EGD done with **Stent removed bc mass occluding esophagus distally**

- G-Tube placed becoming 100% TF dependent

- **8/2020: Completed chemo/XRT**

-4th EGD, found to have radiation induced stricture, **2nd esophageal stent placed**→ afterwards able to eat soft foods PO

- **10-11/2020:**

-PET showed potential esophageal mass still present and had dysphagia so 5th EGD done showed **stricture above stent→ dilated and biopsies showed NO Residual Cancer**

- G-tube removed

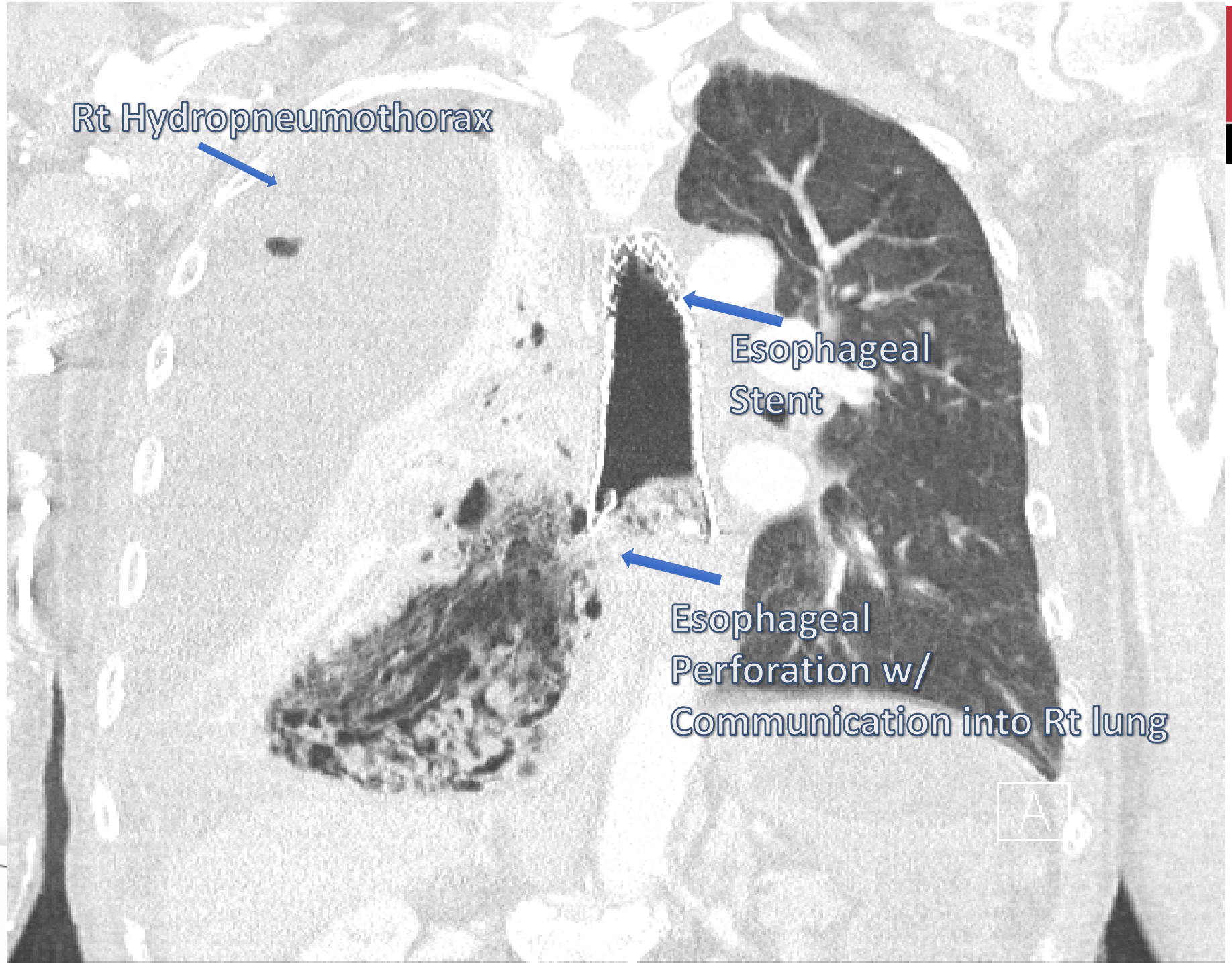
CURRENT ADMISSION 12/2020

- **12/24:**

-presented to OSH w/ dyspnea→ CT chest showed Rt cavitary lung lesion

- **12/25:**

-developed AHRF→ CXR showed **Rt hydropneumothorax so intubated and Rt chest tube placed→** effusion w/ high amylase level concerning for esophageal rupture



Project ECHO®
Virginia Commonwealth University

VCU

- **12/28:**

-Transferred to VCU CT Surgery→ **EGD showed large esophageal perforation w/ esophageal contents going into right chest**

-discussed with family that this is inoperable and a terminal dx

-Palliative care consulted to discuss palliative extubation and end of life care

-**Code status and goals changed to DNAR/Comfort care**

-***Family says they would love to take pt home with hospice if possible***

- **12/29:**

-Family visited and pt **underwent palliative extubation and moved to palliative care unit**

-On IV Fentanyl gtt @ 12.5mcg/hr + 25mcg CB PRN

- **12/30:**

-Ovnt, agitated and dyspneic, received fentanyl boluses x4 and IV Haldol; **was started on scheduled IV Haldol 2mg q6hr**

-In AM, pt alert/talking and ***expressed wish to go home*; had gotten 10 IV fentanyl boluses and continuous rate increased to 20mcg/hr**

-Rt chest tube on low suction and **pt tolerating ice chips and water**

-Enrolled in Inpatient hospice

- **1/1:**

-Nurse notes “CT drainage system changed (full from PO liquid intake)”

- 2/3:

-Continued to have high output from chest tube in setting of increased PO intake and increased dyspnea ovnt; trial 100mcg TID octreotide to minimize secretions

-CT placed to gravity which pt did not tolerate as dyspnea worsened so suction restarted; also CT started leaking at insertion site

- 2/5:

-CT dressing and canister noted to be changed multiple times per day because of high output

-Pt *"frustrated she is still in hospital"* and daughter reached out to hospice agency near their home

- "Barrier to discharge is CT mgmt since such high output and pt wants to continue to take in PO"

- **1/5:**

-Daughter says she really wants to take her mom home

- Team inquired about replacing chest tube with Pleurx but IP said output is too viscous and would plug the tubing; also IP noted air leak when tube not on suction

- **1/7:**

- Teleconference with pt, daughter, inpatient hospice team and Hospice agency director near pt's home

-Discussed barriers to discharge include:

1. **Medications:** still on IV Fentanyl continuous gtt and receiving 4-7 PRNs per day→ discussed trialing switch to liq Methadone and morphine concentrate PRN for home
2. **Chest tube logistics:** May come out and would not be replaced once home and can't be on suction at home which could cause severe respiratory distress at end of life; Hospice could only provide likely 1 canister/day

-Daughter stated "even if it's bumpy course or only for a few hours as long as she's home"

-IV Fentanyl switched to Methadone liquid 2mg q12hr + Morphine 5mg q4hrs PRN (20mg/ml concentrate)

Discharge Planning

Responsible Party	Preparation
Palliative physician	Medication adjustment + ensuring home availability, talking to family about home “what ifs”
Palliative care unit nursing	Pleurvac change and management teaching for family, education in medication administration
Palliative care unit SW	Help obtaining pleurvacs and other supplies, insurance follow up, transportation
In facility hospice	Assistance in transferring care and care plan
Home hospice agency	Preparing transition plan on a weekend (!), willing to manage Pleurvac
Interventional Pulmonary Team	Suturing of site of leak, advice on management
Family	Education on above topics, home set up, arranging 24/7 care by family members

1/8:

-Had some pain/dyspnea overnight but tolerated Methadone and Morphine

Discharged Home with Hospice!

MANAGEMENT OF MALIGNANT PLEURAL EFFUSION (MPE)

Javeryah Safi MD 4/26/21

1. >15% of lung cancer patients develop malignant pleural effusions
2. Variable rates of development in non-lung primary cancers
3. Commonly effects breast and ovarian cancer patients
4. Hematologic malignancies also cause significant percentage of malignant pleural effusions

- Presence of MPE signifies advanced stage metastatic cancer
- Usually portends poor prognosis
- Average survival 4-7 months in most solid organ malignancies
- MPEs from hematologic malignancies usually respond well to chemotherapy

INITIAL MANAGEMENT OF MPE

SYMPTOMATIC:

Diagnostic and therapeutic thoracentesis

ASYMPTOMATIC

Diagnostic thoracentesis

VCU Health

RECURRENT MPE MANAGEMENT

- Almost all malignant pleural effusions recur
- Variable time to symptomatic recurrence
- No identifiable predictors for time to symptomatic recurrence
- Often 1-3 weeks in most patients, however, often a few days in lung cancer patients

VCU Health

MANAGEMENT OF RECURRENT SYMPTOMATIC MPE

1.Was there complete lung re-expansion post thoracentesis?

Yes: *Possible pleurodesis*

No: *Pleurodesis not feasible*

2. What is the expected survival?

<2-3 weeks: Attempt least invasive therapies

>2-3 weeks: Consider longer term palliative approaches

3. Is the patient ambulatory?

Yes: *More likely to benefit from fluid drainage*

No: *Less likely to have meaningful benefit*

VCU Health

MANAGEMENT OF RECURRENT SYMPTOMATIC MPE

4. Does the patient have social support and/or home health insurance coverage?

Yes: *Consider Tunneled pleural catheter*

No: *Consider charitable supplies or alternative therapies*

5. What is the patient's preference?

1. *Repeat thoracentesis*
2. *Chest tube with pleurodesis if feasible*
3. *Thoracoscopy with pleurodesis if indicated*
4. *Tunneled pleural catheter*

VCU Health™

REPEAT THORACENTESIS

1. Usually safe to repeat as needed
2. Relatively low acuity, low morbidity procedure
3. Malignant effusions frequently develop loculations over time
4. Repeat pleural interventions particularly thoracentesis may not be feasible

CHEST TUBE WITH PLEURODESIS

- If there is complete lung re-expansion post initial thoracentesis
- Patient has a high performance status/no other significant limiting comorbidities at baseline
- Patient preference, social circumstances and logistics not favorable for pleurx
- Needs few hospitalization days

CHEST TUBE WITH PLEURODESIS

- Pleurodesis can be performed with talc or doxycycline
- Can have significant pain post procedure for upto a week or longer
- May need repeat pleurodesis attempts
- Success rate close to 70%
- Large percentage of malignant effusions are not amenable to chemical pleurodesis due to incomplete lung re-expansion

VCU Health

CHEST TUBE WITH PLEURODESIS

Admit to hospital after chest tube placement

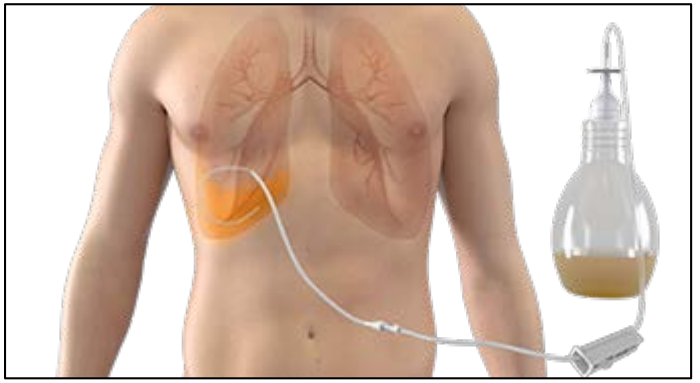
Keep the chest tube to water seal, low wall suction if peri-procedural pneumothorax

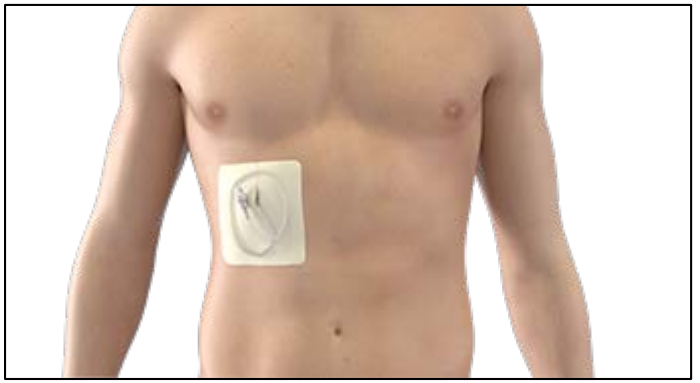
Attempt chemical pleurodesis with talc after complete evacuation of pleural space

VCU Health™

TUNNELED PLEURAL CATHETER (Pleurx)

- Most common intervention for recurrent symptomatic effusions
- Approx 500cc of pleural fluid needed for safe pleurx catheter placement
- Performed on outpatient basis under local anesthetic
- IV pain medication can be given, though often not needed
- Approx 45 min procedural time, no hospitalization necessary





VCU Health

TUNNELED PLEURAL CATHETER (Pleurx)

- Can be accessed and drained by family members, bedside RNs, home health nurses and physicians
- Recommend drainage usually every other day (MWF or TTS)
- Drainage frequency can be increased or decreased as needed
- 1/3 of the patients will achieve auto-pleurodesis in 4-6 weeks and Pleurx can be removed

VCU Health

TUNNELED PLEURAL CATHETER (Pleurx)

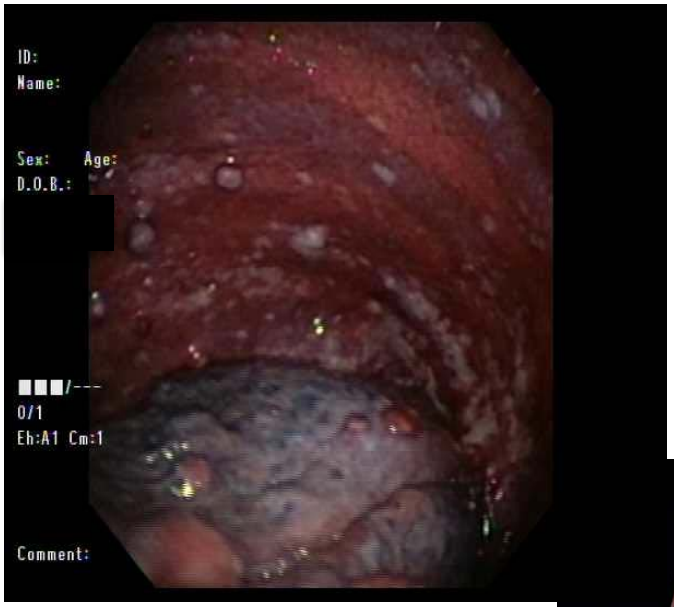
COMPLICATIONS:

- Superficial skin and infections
- Infection of the pleural space
- Catheter dislodgement
- Occluded catheter

VCU Health

PLEUROSCOPY w/ Pleurodesis

- If patient is undergoing pleuroscopy for biopsy
- Chemical pleurodesis w/ talc can be performed during same procedure



VCU Health

CHEST TUBE: *Alternative to tunneled pleural catheter?*

- Only in rare cases with limited life expectancy
- Continuous drainage for large volume and high viscosity/thick consistency pleural effusions
- High risk of dislodgement and infection
- Need inpatient hospice stay or home hospice nursing management
- If wall suction needed due to air leak, cannot discharge home with hospice in most cases.

VCU Health