



Pneumothorax during pregnancy in a patient with CF

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Case presentation- C.B.

- 24 y.o female ultra-orthodox patient
- CF-PI, CFRD, BMI ~20, FEV₁ ~62%
- Past history of rt. pneumothorax (4 yrs. before), treated successfully by pleurodesis (although, FEV₁ dropped from ~80 to ~60 and did not recovered)
- Married, 1st pregnancy
- CF exacerbation (w/ 21)- was admitted for IV treatment, with slowly improvement
 - FEV₁ 2 weeks before admission: ~62%
 - FEV₁ at admission: 49%
- 2 weeks later, (w/ 23): lt. tension-pneumothorax

Chest tube was inserted, and the lt. lung was re-expanded

Lt. Pneumothorax



After chest tube insertion



During hospitalization

- Recurrent pneumothorax- Chest tube re-inserted repeatedly
- Continued with aggressive treatment:
 - IV antibiotics (although, pan-resistant mucoid *Pseudomonas* growth in sputum)
 - Inhalations with HS 7% and Pulmozyme
 - Chest physiotherapy (3 daily)
 - Vitamins, Creon, high calorie diet
 - Insulin
 - IV pulse steroids once a month (+ Celestone at week 24)
 - ...and continuous oxygen therapy by mask

- Moderate-severe lung disease, recurrent pneumothorax, high risk pregnancy....
- Obstetricians suggested termination of pregnancy (w/24)
- *What do you suggest at this point...?*

Discharge home, after 4 weeks

- Chest tube was removed repeatedly, with no success
- C.B. continued to be hypoxic
- She was discharge home, after insertion of one-valve direction chest tube (Heimlich valve for chest drainage), with the same treatment (including O₂ and IV Abx) and routinely follow up every 2-3 days



End of the pregnancy....when and how?

Several discussions around week 28, between:

- Obstetricians
- Neonatologists
- Surgeons
- Anesthesiologists
- Pulmonologists
- ...and the patient

When and how to end the pregnancy?

- Prematurely?
- C/S?
- Induction of labor?

She continued to be hypoxic, on-and-off hospitalizations, intensive treatment, with air leak and with chest tube

And still, the question, when and how to end the pregnancy...

At week 34, after induction and normal delivery

A healthy boy was born



C.B's vital signs 6 hrs.
post delivery



Chest tube was removed



Pleurodesis 40 days post-delivery

HRCT 4 days post-delivery



Pleurodesis with talc

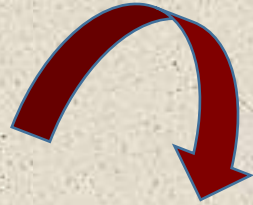


Persistent Air-leak

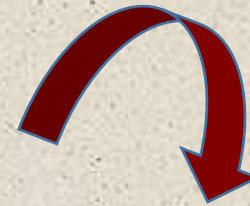


Recurrent pneumothorax

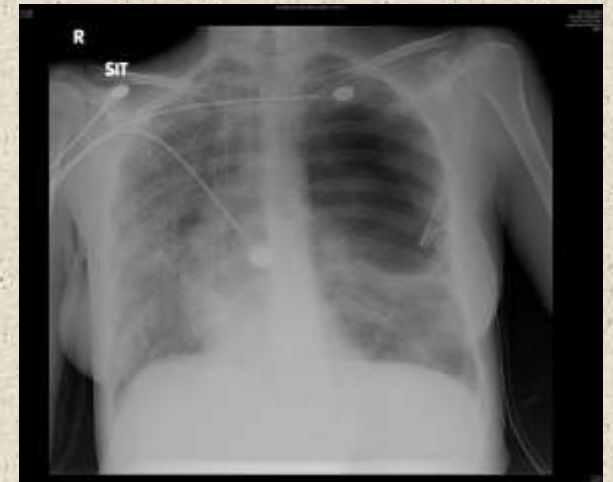
60 days post delivery



75 days post delivery



100 days post delivery



...and the question was: *how to proceed?*

Surgeons:

- Thoracotomy and lobectomy
- Wait and see

Pulmonologists:

- Thoracoscopy
- Bronchoscopic approach, to close the air leak....
- Wait and see

The patient:

- Wait (*to the Mashiach*) and see....

In the literature

PubMed

- Pneumothorax and Pregnancy
 - Pregnancy and CF
 - Pneumothorax and Pregnancy and CF
- Some reports
- 0 results

Pneumothorax during pregnancy

- Caused by the rupture of small apical blebs/bullae; potentially serious for patient and fetus
- Management as standard protocol for drainage in large symptomatic primary pneumothorax, similar to that followed in a non-pregnant woman
- No difference in outcome to the mother or fetus if a *conservative approach* (observation or tube thoracostomy) is used compared with *surgery* prior to the delivery of the baby
- If persistent air leaks/recurrent pneumothorax, VATS with pleurectomy or pleural abrasion would be the ideal procedure to be undertaken
- Chemical pleurodesis is an alternative procedure
- The mode of delivery should be selected only for obstetric indications



Concise Clinical Review

Cystic Fibrosis Pulmonary Guidelines

Pulmonary Complications: Hemoptysis and Pneumothorax

Patrick A. Flume¹, Peter J. Mogayzel, Jr.², Karen A. Robinson³, Randall L. Rosenblatt⁴, Lynne Quittell⁵, Bruce C. Marshall⁶, and the Clinical Practice Guidelines for Pulmonary Therapies Committee*

- The average annual incidence of pneumothorax 1 in 167 patients per year
- Approximately 3.4% of individuals with CF will experience a pneumothorax during their lifetime
- More commonly in older patients with advanced disease

Management of pneumothorax in CF

- In small pneumothorax and clinical stability, close observation in the outpatient setting is suggested
- In large pneumothorax or small pneumothorax with clinical instability, chest tube has to be placed
- In recurrent large pneumothorax (50-90%), pleurodesis (chemical- tetracyclines, talc- or surgical) is recommended to prevent recurrence
- The patient should not perform spirometry for 2 weeks after the pneumothorax has resolved

CFF Guidelines recommendations

- Hospital admission
- Chest tube placement
- Preventing recurrence
- Airway clearance
- Inhaled medications
- Antibiotics
- Restricting activities



What happened with our patient?

September 2015

7 months after the first episode,
no air leak was observed-
the chest tube was removed

Now, 6 months later, she returned
to the same condition that she was
before pregnancy-
same weight, same FEV₁ ~62%



Thank You