

Doctors  
of Thoracic  
Surgery

# Surgery for Tracheomalacia.

## When is it recommended and how to do it

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# Disclosures

- None

## Tracheobronchomalacia (TBM): Presentation

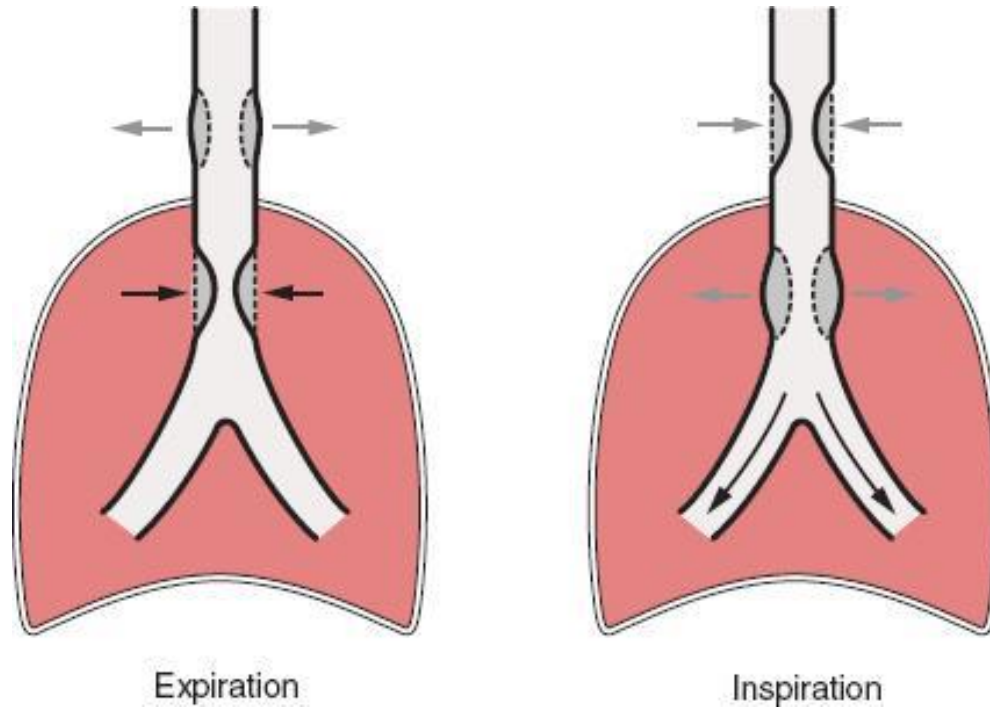
- Dyspnea on exertion
- Recurrent infections
- Intractable cough (barking)
- Expiratory wheeze
- Retained Secretions

## Tracheobronchomalacia (TBM): Underlying Etiologies

- Emphysema
- Chronic Bronchitis
- Idiopathic (chronic inflammation)
- Mounier – Kuhn Syndrome (tracheobronchomegaly)
- Connective tissue disorders
- Granulomatosis with polyangiitis (GPA)
- Relapsing polychondritis

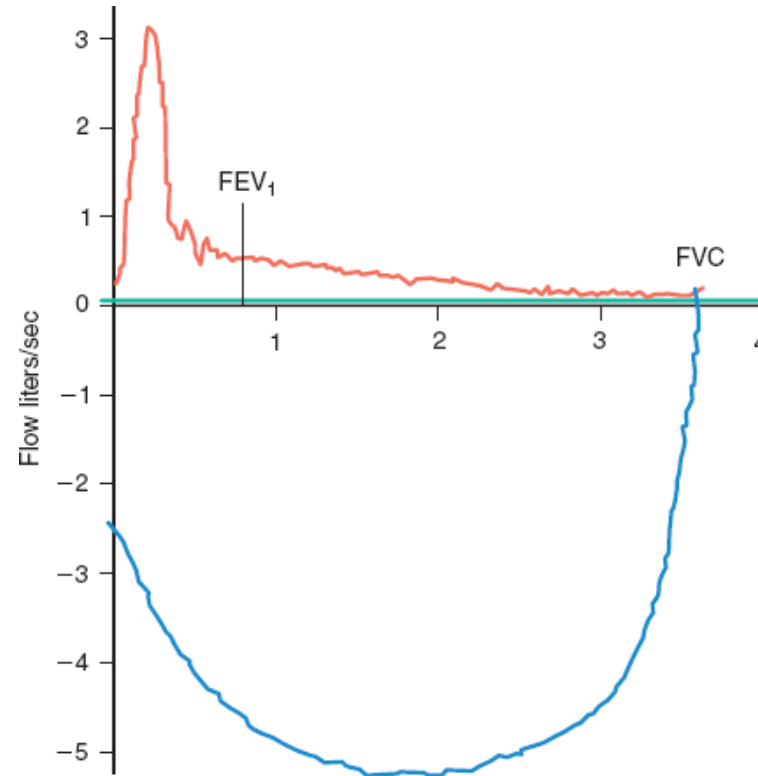


# Inspiration and Expiration → Intrathoracic and Extrathoracic Tracheal Collapse



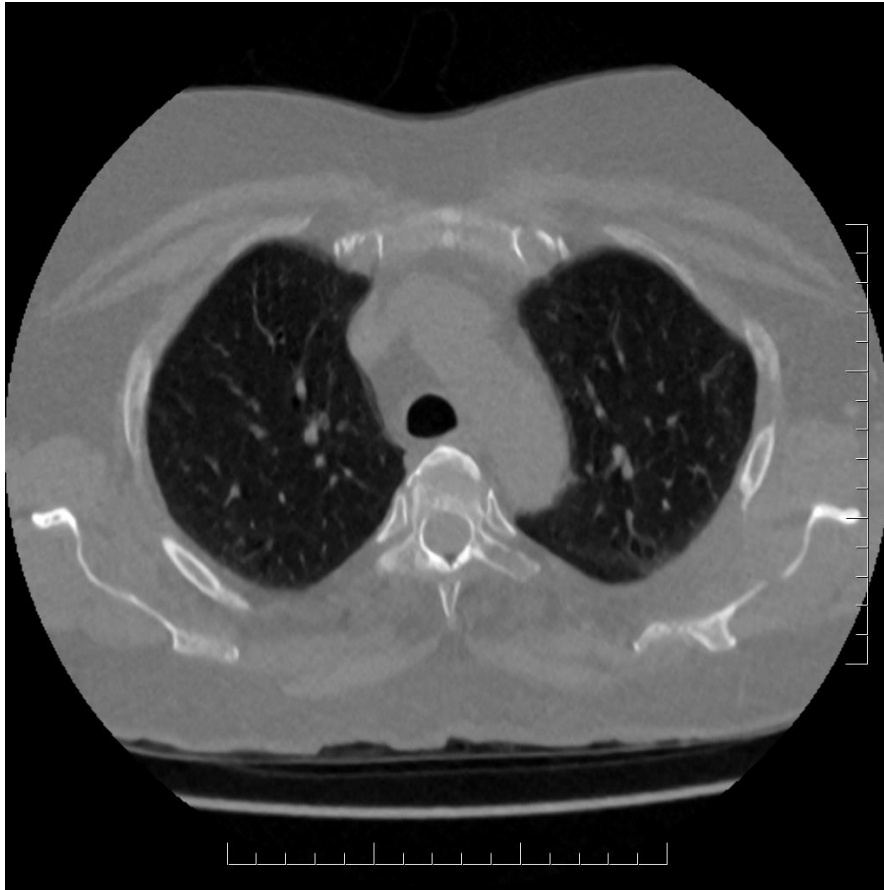


## PFT Flow volume loop: Normal inspiration, abrupt reduction in expiratory flow with prolonged expiratory plateau



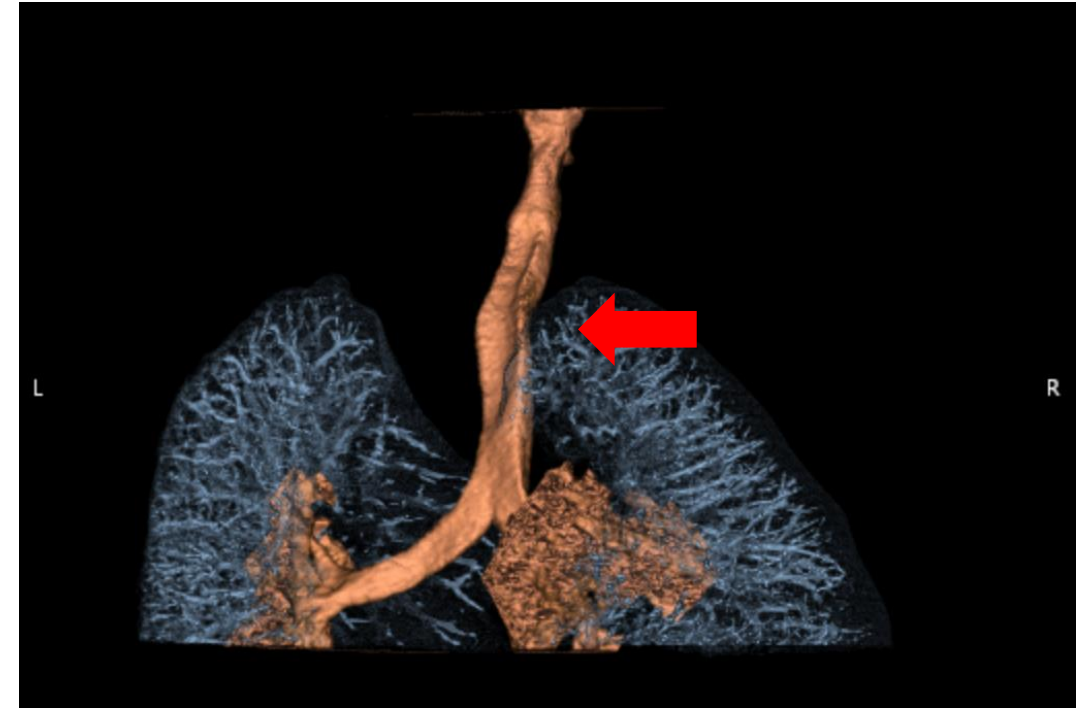


# Case 1: Inspiratory and Expiratory CT Scan





# Case 1: Tracheomalacia: 3D CT Reconstruction





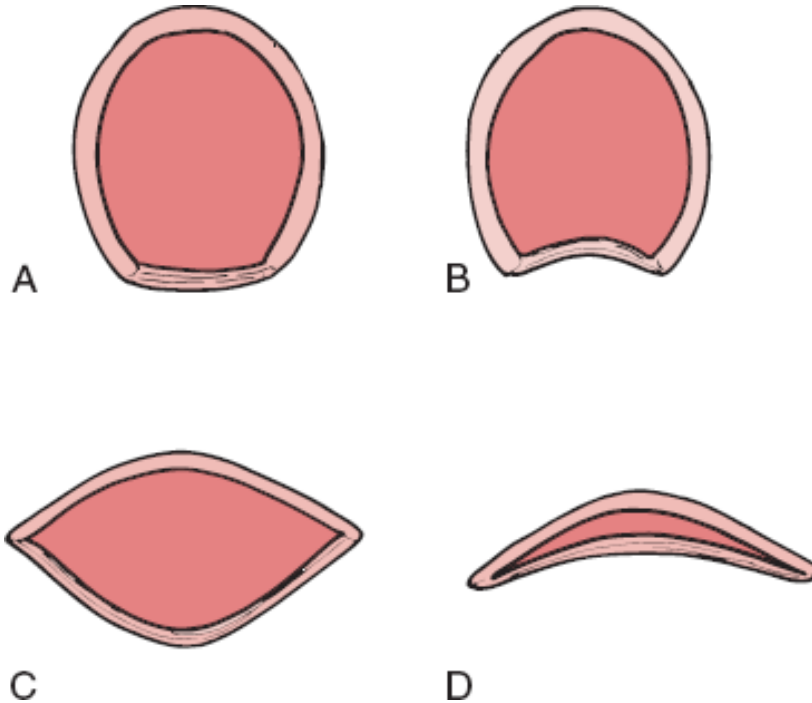


# Tracheal Configuration

Inhalation

Exhalation

Normal



Tracheobronchomalacia

Loss of cartilage “C” shape

Bowing forward of membranous a/w



## Case 1: Bronchoscopy -insp and exp pics

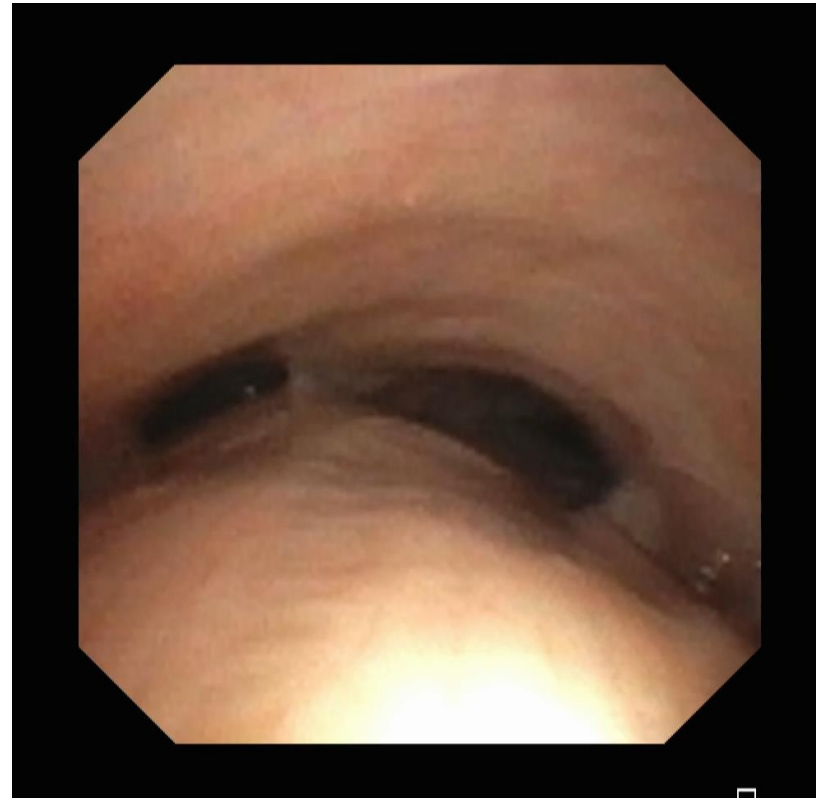


# Case 1: Bronchoscopy – upper subglottic trachea



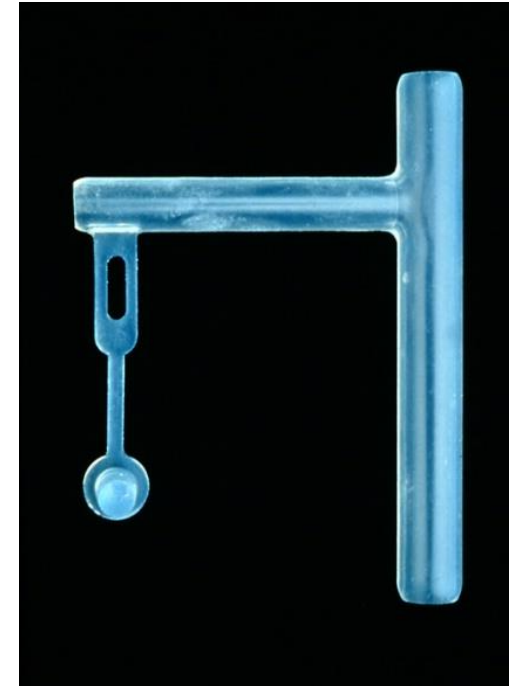
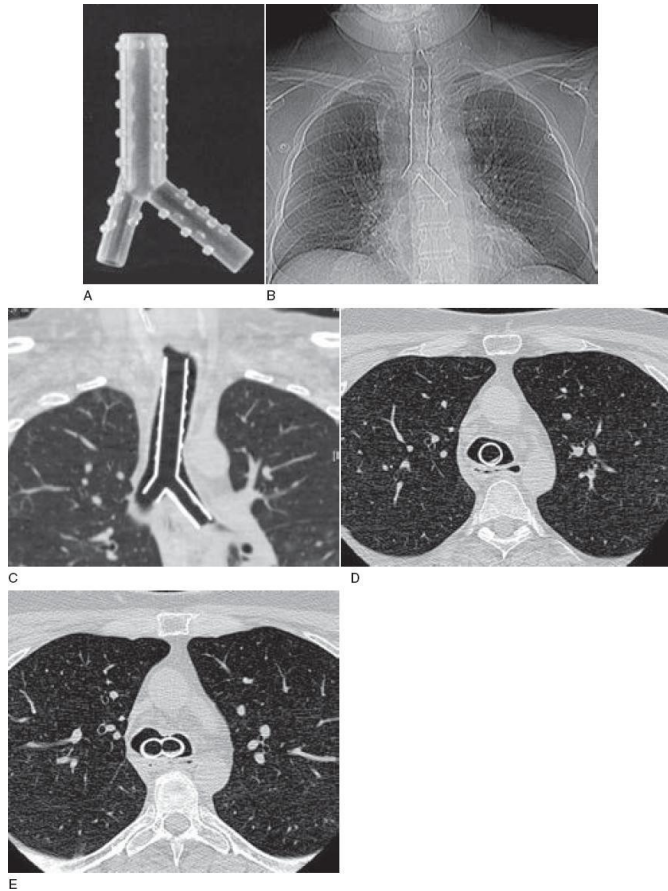


# Case 1: Dynamic Bronchoscopy: Video





# Stents: Silicone Y and T



## Tracheobronchomalacia: Treatment Options

- Internal stabilization (stents)
- Self expanding covered wire stents – ONLY temporarily
- Test the effect of splinting or definitive therapy
- External stabilization (surgical tracheobronchoplasty)

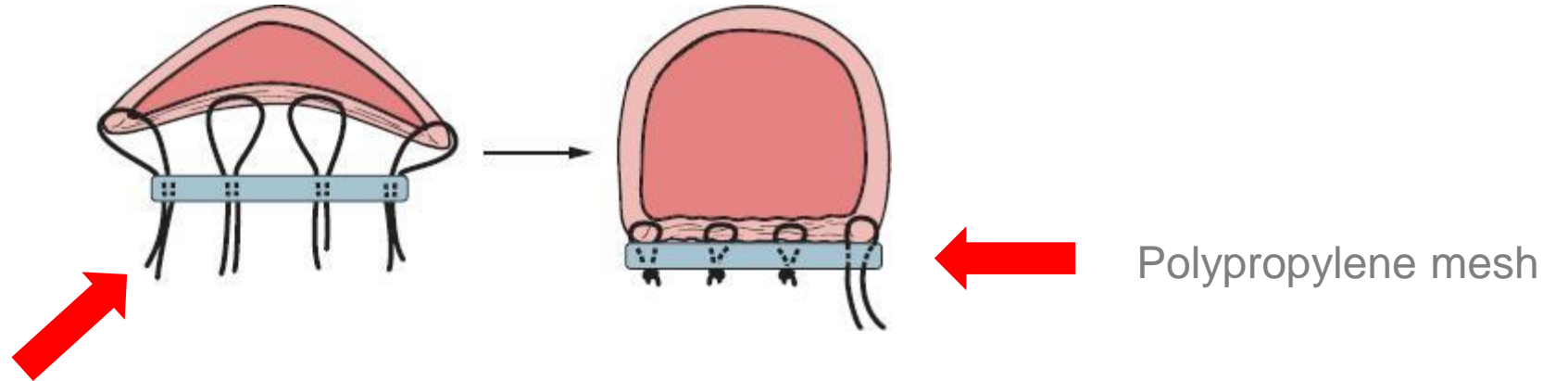


## Case 2: Is this an operative candidate?





## The Herzog Procedure: Re-create the tracheobronchial cartilaginous “C’s” and stiffen the membranous airway



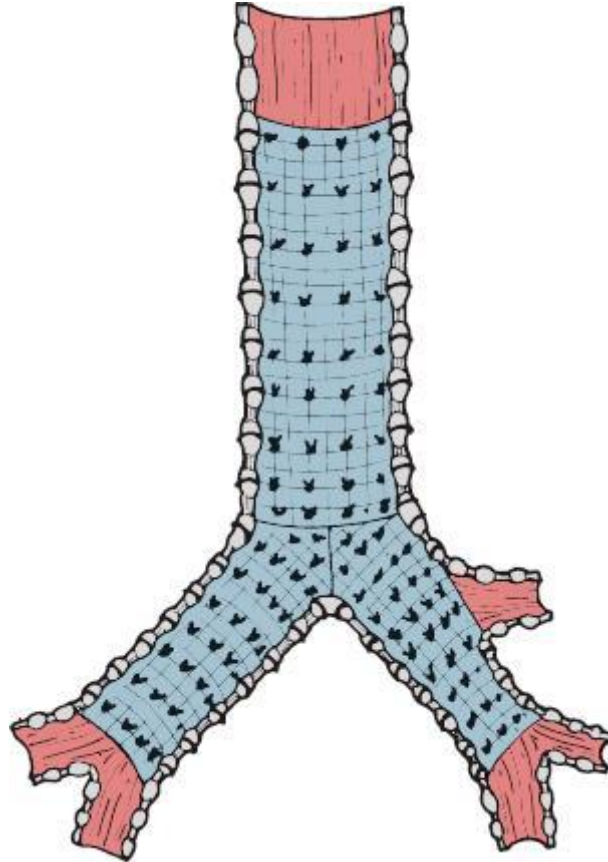
4-0 Interrupted Prolene Sutures





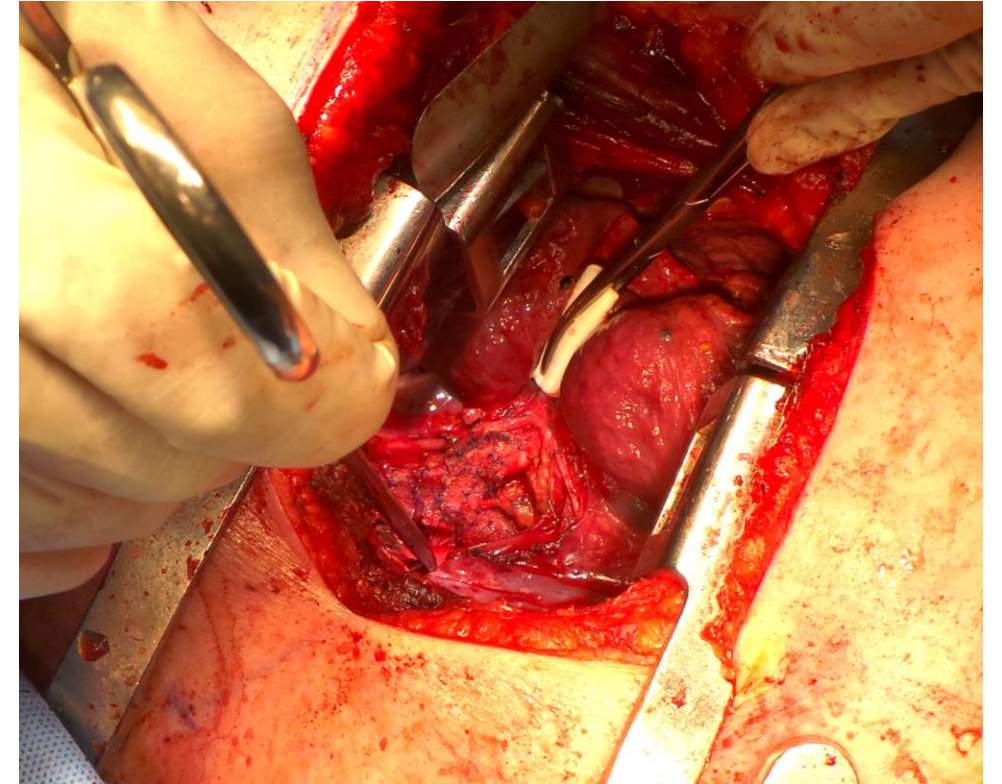
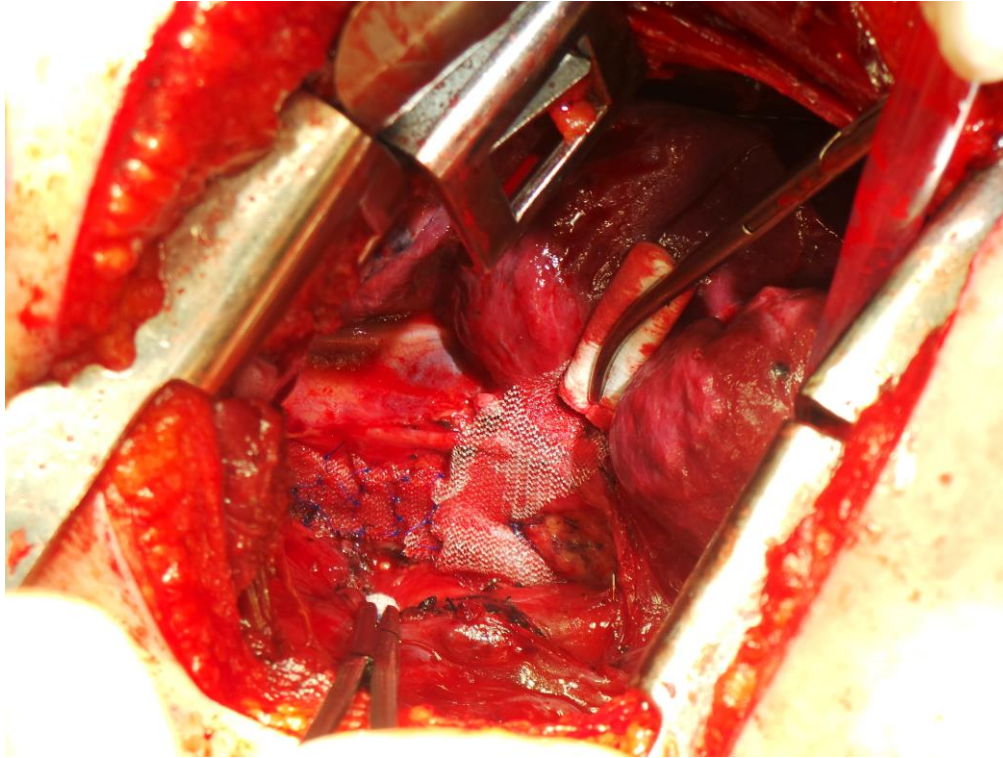
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Mesh extends from thoracic inlet to the distal lobar bronchi bilaterally





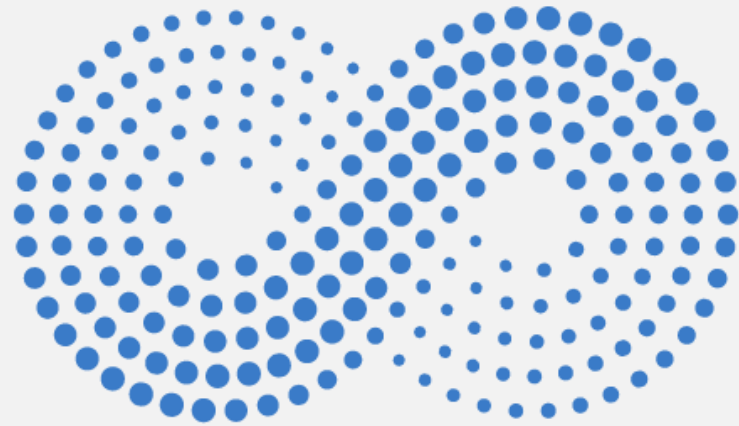
# Tracheobronchoplasty



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# Tracheobronchomalacia Management

- Careful evaluation
- Clinical history, PFT, CT
- \*\*\*Bronchoscopy – awake
- Some have typical anatomy → flattened “C’s” and floppy membranous → excellent surgical candidates
- Use stents liberally to evaluate response in less clear cases
- Silicone stents – wire stents should not be used in benign disease
- Beware of intrinsic tracheal disease – GPA, RP etc.



# Doctors of Thoracic Surgery

