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Management of large airways diseases

Pr Charles-Hugo MARQUETTE
Conflict of interest

- NONE
References

Presentation plan

- Large airway diseases
  - Stenoses
  - Other

- The tools
  - Coagulating
  - Debulking/Cutting
  - Stents

- Treatment strategy
  - Malignancies
  - Benign diseases
    - Stenoses
    - Ruptures
Large airway diseases

- Stenoses
- Fistulas
- Ruptures
Stenoses

- Exophytic/intraluminal (malignant)

Exophytic/intraluminal (malignant)
Stenoses

- Extrinsic (malignant)

A proposed classification system of central airway stenosis
L. Freitag, A. Einsp, M. Unger, K. Koritz, and C.H. Marquette
Eur Respir J. 2007; 30: 7–12
Stenoses

- Mixt (malignant)
Stenoses

- Short or long (benign)
Stenoses

- Distorsion/kinking (benign)
Stenoses

- Dynamic (benign)
## Stenoses

- Severity

<p>| | | | | |</p>
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<td>1</td>
<td>25%</td>
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A proposed classification system of central airway stenosis

Eur Respir J 2007; 30: 7–12
Stenoses

- Localization
Fistulas
Ruptures
The tools

- Devascularize
- Debulk/Cutt
- Stent
Devascularize

High frequency alternative current avoids undesirable effects such as electrolytic effect and neural-muscular stimulation.
Debulk

twist & push

twist & push
Cutt

electroknife

cold scissors
Dilate
Stent

- **Splinting effect**
- **Barrier effect**
Stent

silicone

metallic self expandable
Stent

bifurcated silicone

bifurcated metal
Treatment strategies

- Malignancies
- Benign diseases
  - Stenoses
  - Fistulas
  - Ruptures
Therapeutic strategy for malignant stenoses

- Treat (palliation) only symptomatic stenoses
  - Dyspnea
  - Post-obstructive infection

- Treat only proximal stenoses

- Do as much as possible in one single session
  - Coagulate & debulk
  - Stent
    - If extrinsic component
    - Y stent for bifurcation stenoses
Therapeutic strategy for oeso-trachal fistulas

- Treat
  1. Oesophagus (expandable stent)
  2. Trachea (expandable stent)
Therapeutic strategy for benign stenoses

- Be conservative with iatrogenic ruptures
Therapeutic strategy for tracheo-bronchial ruptures

- Immediate surgery for traumatic ruptures
Therapeutic strategy for tracheo-bronchial ruptures

- Be conservative with iatrogenic ruptures
  - Even in desperate cases
Therapeutic strategy for tracheo-bronchial ruptures

- Be conservative with iatrogenic ruptures

Separate bilateral mainstem endobronchial intubation

Conti et al. Chest 2006
Therapeutic strategy for tracheo-bronchial ruptures

- Be conservative with iatrogenic ruptures

A et B: cervico-mediastinal emphysema
C: tracheal rupture (lower & middle third)
D: 4 months later: linear scarr

Conti et al. Chest 2006
Therapeutic strategy for benign stenoses

- Surgery is the mainstay of treatment BUT ......

- Acute presentation (50% of the cases)
- Early presentation

<table>
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<th>delay (days)</th>
<th>&lt; 5</th>
<th>5 to 30</th>
<th>30 to 90</th>
<th>&gt; 90</th>
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<tr>
<td>nb of patients</td>
<td>5</td>
<td>23</td>
<td>19</td>
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<td>cumulated percentages</td>
<td>9 %</td>
<td>51 %</td>
<td>86 %</td>
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⇒ place for medical management

Brichet et al. Eur Respir J 1999
Therapeutic strategy for benign stenoses

- Characterize the stenosis

« mucosal » disease

web-like stenosis

< 10 mm

« intra-mural » disease

complex stenosis

Brichet et al. Eur Respir J 1999
Therapeutic strategy for benign stenoses

- Treat according to the type of stenosis

**web-like stenosis**

- radial resection

**complex stenosis**

- dilate
  - will hardly be curative
- splint the stenosis
  - with a **removable stent**
Therapeutic algorithm for benign stenoses

- **Rigid bronchoscopy**
  - **Web-like stenosis (50%)**
    - Cut and dilate (laser or electrosection)
      - (repeat twice if recurrence)
    - Stabilisation
    - Stent
    - 3rd recurrence
    - Surgery
    - Non-operable
    - Follow-up (25%)
Therapeutic algorithm for benign stenoses

- rigid bronchoscopy
- complex stenosis (50%)
  - dilate once or twice
  - non-operable
  - stent
- surgery
Therapeutic algorithm for benign stenoses

- **web-like stenosis (50%)**
  - Cut and dilate (laser or electrosection) (repeat twice if recurrence)
  - stabilisation
  - after one year
  - follow-up (25%)

- **complex stenosis (50%)**
  - dilate once or twice
  - non-operable

- 3rd recurrence
  - non-operable
  - stabilisation

- surgery
  - recurrence
  - follow-up

- stent
  - non-operable

- stablisation
  - follow-up

- non-operable
  - removal
Complete sub-glottic tracheal stenosis in tracheostomized patients
The tricky stenosis

reopening + dilatation

transient stenting + safety canula

Montgomery T-Tube

definitive stenting
Take home message

1. Asphyxiation because of central airway stenosis is unacceptable

2. Rigid bronchoscopy + stents $\Rightarrow$ immediate alleviation of symptoms

3. Large airway management is a team work

4. Training is necessary