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## Recommendations for Management of Central Airway Obstruction



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Central airway obstruction (CAO) is a life-threatening condition characterised by significant airway blockage, leading to severe breathing difficulties and poor prognosis, particularly with proximal obstructions. It is defined by a 50% or greater occlusion of major airways like the trachea or main bronchi. The most common cause of malignant CAO is lung cancer, though other cancers and non-malignant disorders can also lead to this condition. CAO can be anatomically classified as intrinsic, extrinsic, or mixed.

Management of CAO is challenging due to the limited high-quality evidence, patient heterogeneity, and variability in medical practice. Despite a decrease in overall CAO incidence due to advancements in lung cancer treatments and screening, the complexity of CAO cases requires a systematic management approach. There is growing awareness and development in interventional pulmonary training and programmes focused on CAO management. Current evidence and expert consensus have been reviewed to provide clinical guidance and identify research gaps for improving patient outcomes.

A multidisciplinary expert panel formulated key questions in the PICO (Patient, Intervention, Comparator, and Outcomes) format. The panel reviewed 9,688 abstracts and assessed 150 full-text articles, ultimately including 31 studies in their analysis. They developed one good practice statement and ten graded recommendations.

### Summary of Recommendations:

1. Comprehensive Assessment for Suspected CAO: Recommend a thorough history, physical examination focusing on the respiratory system, chest CT, and relevant lab tests for non-malignant CAO and preoperative evaluation (Good Practice Statement).
2. Therapeutic Bronchoscopy for Symptomatic CAO: Suggest using therapeutic bronchoscopy alongside systemic medical therapy and/or local radiation for both malignant and non-malignant CAO (Conditional Recommendation, Very Low Certainty).
3. Rigid vs. Flexible Bronchoscopy: Suggest using rigid bronchoscopy over flexible bronchoscopy for therapeutic interventions in symptomatic CAO (Conditional Recommendation, Very Low Certainty).
4. Anaesthesia for Therapeutic Bronchoscopy: Suggest general anaesthesia or deep sedation over moderate sedation during therapeutic bronchoscopy for symptomatic CAO (Conditional Recommendation, Very Low Certainty).
5. Ventilation Methods in Rigid Therapeutic Bronchoscopy: Suggest using either jet ventilation or controlled/spontaneous assisted ventilation (Conditional Recommendation, Very Low Certainty).
6. Tumour or Tissue Excision/Ablation: Suggest using these methods to achieve airway patency in symptomatic CAO with endobronchial disease (Conditional Recommendation, Very Low Certainty).
7. Airway Dilation for Non-Malignant CAO: Suggest using airway dilation alone or combined with other therapeutic modalities (Conditional Recommendation, Very Low Certainty).

Recommendation, Very Low Certainty).

8. Stent Placement in CAO: Suggest stent placement if other treatments fail and it is feasible for the underlying disorder (Conditional Recommendation, Very Low Certainty).

9. Surveillance Bronchoscopy for Stent Placement: Suggest routine or symptom-driven surveillance bronchoscopy for patients with stents (Conditional Recommendation, Very Low Certainty).

10. Local Bronchoscopic Therapy: Suggest using or holding local bronchoscopic therapy, defined as non-ablative therapy, to reduce the recurrence or progression of endobronchial disorders (Conditional Recommendation, Very Low Certainty).

11. Surgical Resection vs. Therapeutic Bronchoscopy for Non-Malignant CAO: Suggest either option (Conditional Recommendation, Very Low Certainty).

12. Surgical Resection vs. Therapeutic Bronchoscopy for Malignant CAO: Suggest either option for relieving initial obstruction, with limited evidence for surgical benefit in non-carcinoid malignant CAO due to advanced disease. Surgery may be considered for localised primary lung and airway cancers, including carcinoid (Conditional Recommendation, Very Low Certainty).

Therapeutic bronchoscopy can alleviate symptoms, enhance quality of life, and potentially improve survival for patients with both malignant and non-malignant central airway obstruction (CAO). Appropriate multi-modality treatment options include rigid bronchoscopy with general anaesthesia, tumour or tissue debridement, ablation, dilation, and stent placement. The choice of therapy and its outcomes depend on the specific cause of CAO. A multidisciplinary approach and shared decision-making with the patient are strongly recommended.

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Published on : Tue, 30 Jul 2024