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# Challenging Airway Management for Tracheal Compression Due to a Rhabdomyosarcoma

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**Abstract :** Introduction: Large mediastinal masses often present with diagnostic and clinical challenges due to compression of the respiratory and hemodynamic system. We present a case of a mediastinal mass with symptomatic mechanical compression of the trachea, resulting in challenging airway management. Methods: We present a case of 66-year-old male, complaining of progressive dysphagia. Initial esophagogastroscopy revealed a stenosis secondary to external compression, biopsies were inconclusive. Additional CT scan showed a large mediastinal mass of unknown origin, situated between the vertebrae and esophagus. Symptoms progressed and patient developed dyspnea and stridor. A new CT showed quick growth of the mass with compression of the trachea, subglottic to just above the carina. A tracheal covered stent was successfully placed. Endobronchial ultrasound revealed a large irregular mass without tracheal invasion, biopsies were taken. 4 days after stent placement, the patients' condition deteriorated with worsening of stridor, dyspnea and desaturation. Migration of the tracheal stent into the right main bronchus was seen on chest X ray, with obstruction of the left main bronchus and secondary atelectasis. Different methods have been described in the literature for tracheobronchial stent removal (surgical, endoscopic, fluoroscopyguided), our first choice in this case was flexible bronchoscopy. However, this revealed tracheal compression above the migrated stent and passage of the scope occurred impossible. Patient was admitted to the ICU, high-flow nasal oxygen therapy was started and the situation stabilized, giving time for extensive assessment and preparation of the airway management approach. Close cooperation between the intensivist, pulmonologist, anesthesiologist and otorhinolaryngologist was essential. Results: In case of sudden deterioration, a protocol for emergency situations was made. Given the increased risk of additional tracheal compression after administration of neuromuscular blocking agents, an approach with awake fiberoptic intubation maintaining spontaneous ventilation was proposed. However, intubation without retrieval of the tracheal stent was found undesirable due to expected massive shunting over the left atelectatic lung. As rescue option, assistance of extracorporeal circulation was considered and perfusionist was kept on standby. The patient stayed stable and was transferred to the operating theatre. High frequency jet ventilation under general anesthesia resulted in desaturations up to 50%, making rigid bronchoscopy impossible. Subsequently an endotracheal tube size 8 could be placed successfully and the stent could be retrieved via bronchoscopy over (and with) the tube, after which the patient was reintubated. Finally, a tracheostomy (Shiley™ Tracheostomy Tube With Cuff, size 8) was placed, fiberoptic control showed a patent airway. Patient was readmitted to the ICU and could be quickly weaned of the ventilator. Pathology was positive for rhabdomyosarcoma, without indication for systemic therapy. Extensive surgery (laryngectomy, esophagectomy) was suggested, but patient refused and palliative care was started. Conclusion: Due to meticulous planning in an interdisciplinary team, we showed a successful airway management approach in this complicated case of critical airway compression secondary to a rare rhabdomyosarcoma, complicated by tracheal stent migration. Besides presenting our thoughts and considerations, we support exploring other possible approaches of this specific clinical problem.

**Keywords :** airway management, rhabdomyosarcoma, stent displacement, tracheal stenosis
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