

Delayed Carotid Endarterectomy (CEA) Bleed and Difficult Airway

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Introduction:

Carotid endarterectomy is a common vascular procedure performed to reduce stroke risk, but postoperative neck hematoma remains a dangerous complication capable of rapidly compromising the airway. Patients with previously uncomplicated airways can experience sudden obstruction due to expanding hematoma, making early recognition and prompt intervention critical.

Case Description:

A 74-year-old male underwent right carotid endarterectomy and was awaiting discharge from PACU to the floor. During his PACU stay, the patient exhibited increased work of breathing with an expanding hematoma at the surgical site. Airway exam at this time showed Mallampati I, full neck mobility, and tracheal deviation to the left. The patient was previously intubated using direct laryngoscopy without difficulty.

Patient was brought emergently to the OR. On induction, spontaneous ventilation was maintained. Direct and video laryngoscopy revealed severe pharyngeal edema and esophageal intubation occurred with desaturation to 60%. The ETT was removed, and an LMA was placed, restoring SpO₂ to 100%. While vascular surgery reopened the wound, multiple fiberoptic attempts through the LMA failed. Discussion with vascular and trauma surgery resulted in a surgical tracheostomy, ultimately securing the airway. On POD 5, rebleeding required surgical re-exploration. The patient was stabilized and transferred to a tertiary care facility.

Discussion:

Postoperative neck hematoma occurs in approximately 1–2% of patients after carotid endarterectomy and accounts for up to 60% of airway-related complications in this setting [1]. This case illustrates the life-threatening potential of hematoma-induced airway obstruction. Despite a previously unremarkable airway exam and successful intubation, rapid tissue swelling and tracheal deviation led to failed direct and video-assisted attempts. Fiberoptic intubation via LMA also failed, which is consistent with a 20–30% failure rate in anatomically distorted airways [2]. Preserving spontaneous ventilation during induction, in line with ASA difficult airway guidelines, proved critical. LMA placement enabled temporary oxygenation, but definitive airway control required emergent surgical tracheostomy. Rebleeding occurred on POD 5, necessitating re-operation, a complication seen in up to 10% of hematoma evacuations [3]. This case highlights the need for vigilant monitoring, individualized airway strategies, and early surgical collaboration in high-risk vascular patients.

Conclusion:

This case highlights the unpredictable and potentially life-threatening nature of postoperative neck hematomas following carotid endarterectomy. Even patients with previously normal airway examinations can experience rapid deterioration, making early recognition and decisive management essential. Maintaining spontaneous ventilation, preparing multiple backup airway strategies, and coordinating promptly with surgical teams were key to securing the airway in this high-risk scenario. This experience reinforces the importance of vigilance in the immediate postoperative period and highlights how adaptable, team-based airway management can prevent catastrophic outcomes.

References:

1. Cohen, S. M. (2016). Postoperative hematoma: A complication of carotid surgery. *Otolaryngologic Clinics of North America*, 49(3), 845–852.
2. Apfelbaum, J. L., Hagberg, C. A., Caplan, R. A., Blitt, C. D., Connis, R. T., Nickinovich, D. G., & Benumof, J. L. (2013). Practice guidelines for management of the difficult airway. *Anesthesiology*, 118(2), 251–270.
3. Argo, F., De Silva, R. P., Osman, I., & Walker, D. (2009). Management of airway obstruction due to postoperative hematoma following carotid endarterectomy. *Journal of Vascular Surgery*, 49(2), 500–503.