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Tracheal glomus tumor resection with cervicotomy and right thoracotomy: case video

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Introduction: Glomus tumors (GTs) are rare mesenchymal tumors typically developing at the anastomosis of arteries and veins, and generally characterized as benign.(1) They represent less than 2% of all soft tissue tumors, commonly affect nail beds, extremities, the torso, head and neck. Their occurrence in the trachea is unusual, with around 80 cases reported in literature, commonly occurring in middle-aged individuals, with an average age of 48.8 years, and more prevalent in men than women.(1,2)

Patients with TGTs often present with dyspnea (52%), cough (51%) and hemoptysis (45%), associated with airway irritation. The statistics locations of TGTs indicate that the lower-third of the trachea is a common location (35,06%) and the main differential diagnoses are carcinoid tumor and hemangiopericytoma, however the diagnosis depends on the pathological examination and immunohistochemical staining patterns.(3)

For the treatment, the literature indicates sleeve resection with primary reconstruction of the trachea as treatment of choice. Endobronchial therapy also can be used and includes laser resection and high frequency electrocoagulation. Rate of metastasis is 31-38%, and tumors often recur between 3 and 4 years after surgery. To date, the reports of adjuvant chemotherapy have been rare and the effectiveness still unclear.(3)

Objective: In this video, we present a case of tracheal glomus tumor (TGT), as well as the resection technique used in our department.

Case video Summary: A 67-year-old man, with a 30 pack-year history of cigarette smoking was admitted for a one-year history of cough, dyspnea and hemoptysis. Bronchoscopy identified a solid tumor, originating from the right lateral wall of the lower trachea with 80% obstruction and a rich blood supply. Chest computed tomography (CT) confirmed a 2.6 x 2.4 x 2.2 cm vegetative lesion located 6.2 cm below the vocal cords and 2.5cm above the carina. Patient underwent resection and tracheoplasty under general anesthesia and selective left intubation guided with bronchoscopy. Procedure began in the supine position with cervicotomy including previous tracheostomy site, release of adhesions and dissection of the anterior fascia. After the closure of incision, proceeded to left lateral decubitus with right posterior thoracotomy in the third intercostal space, added a 10mm auxiliary incision in the tenth right intercostal space (RIS) for the 10mm/30° thoracoscope and an incision at the seventh RIS. In the dissection, we opened the mediastinal pleura, dissected the anterior, lateral and posterior of trachea and proceeded the regional lymphadenectomy. After that, the pericardium was opened near the pulmonary hilum and furthermore released the inferior pulmonary ligament to improve mobilization.

Once we opened the inferior trachea beyond the tumor, it was possible to intubate in the surgical field and proceed the above resection of the trachea and the 3.5cm tumor. The pathology in the operative room demonstrated tumor-free margins. Initiated the end-to-end anastomosis of the trachea with 4-0 polydioxanone continuous suture in the posterior wall, returned the ventilation through orotracheal intubation and proceeded the interrupted sutures at the lateral and anterior tracheal walls. No air-leak was identified after closure and procedure was finished with right pleural drainage with a 28Fr tubular and chest wall closure with Vicryl and Monocryl. Patient underwent postoperative care in the intensive care unit (ICU) maintaining spontaneous ventilation and was discharged to the ward after 3 days and home after 7 days.

Postoperative pathology revealed lobulated neoplasm involving the tracheal wall and permeating vessels, measuring 2.5 x 2.4 x 2.2cm, 7 mitoses in 10 fields and presenting perineural invasion. Proximal, distal and radial surgical margins were free of neoplasm. Immunohistochemical examination reported positive focal CD56, positive Ki-67 (30%), AML and Caldesmon. These findings were consistent with the diagnosis of Tracheal Glomus Tumor. The patient recovered well and is continually being monitored with medical appointments and neck and chest CTs.

Conclusion: In this article, we present a detailed case of a tracheal glomus tumor, highlighting the clinical presentation, diagnostic process, and the resection technique employed in our department. Our approach underscores the importance of accurate diagnosis and effective surgical intervention with radical resection in managing this rare condition.

Keywords: Glomus tumor; Trachea

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