An Adenoid Cystic Carcinoma Case Treated With Resector Balloon

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Abstract: A 71-year-old woman, diagnosed with adenoid cystic carcinoma 6 years earlier, was admitted to our center with hemoptysis, dyspnea, and stridor. Diagnosis of adenoid cystic carcinoma was established by a flexible bronchoscopy. During the procedure, endoluminal and submucosal portions of the lesions were resected completely and exclusively by Karakoca resector balloon. This new technique can be used for resection, dilatation, and tamponade purposes, and is easy, reliable, and effective. Further, this method eliminates the need for expensive laser equipment.

Key Words: lung cancer, endoluminal airway tumor, bronchoscopy

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Adenoid cystic carcinoma (ACA) of the trachea, although rare, is the second most common primary tumor of the trachea.[1] Its growth rate is slower than bronchogenic carcinoma, and hence it is frequently diagnosed at an advanced stage. Treatment in limited tumors is surgical resection, often combined with radiotherapy.[2]

Resection of the endobronchial lesion using Karakoca balloon is a novel endobronchial method that can be performed easily and safely.[3] We treated a case of recurrent and symptomatic ACA using such a method. Our experience has been described.

MATERIALS AND METHODS

A 71-year-old woman was admitted to our clinic with hemoptysis, dyspnea, and stridor. She was known to have tracheal ACA for the past 6 years and had received radiation. Therapeutic bronchoscopy [yttrium, aluminum, pevroskite (YAP)-laser vaporization] was performed 2 years after the initial diagnosis because of tumor recurrence.

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Computerized tomography (CT) scan of the chest revealed an intratracheal obstructive lesion, which involved the upper two-thirds of the trachea. No parenchymal lesion was detected (Fig. 1).

Flexible bronchoscopy revealed endoluminal and submucosal hemorrhagic tumor, involving upper two-thirds of the trachea, producing more than 50% obstruction (Fig. 2). A therapeutic bronchoscopy was performed under general anesthesia via Dumon-Harrel Rigid Bronchoscope (Efer, France). For the procedure, Karakoca Resector Balloon (A.L.T. Health Services Co Ltd, Turkey) was used. The resector balloon is composed of a 120-cm-long, single lumen polyethylene tube of 2-mm outer diameter. On its distal end, a latex balloon is mounted. The balloon is covered with a special web-shaped lycra/polyurethane mesh. The balloon is available in 4 different lengths; 10, 15, 20, and 30 mm. The maximum inflated diameter of the balloon is 10, 10, 15, and 20 mm, respectively.[3] We used a 30-mm length and 20-mm diameter balloon in this case (Fig. 3).

The balloon was placed into the tracheal lumen overlying the tumor. The balloon was repeatedly inflated and deflated. The lycra/polyurethane fibers of the balloon resected the tumoral tissue. The lesion was completely resected by the balloon without requiring any other therapeutic intervention. Silicone stent was placed after the procedure at the same session (Fig. 4).

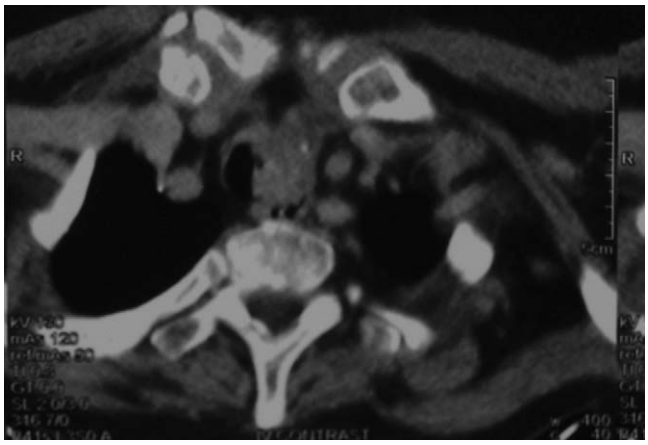

FIGURE 1. CT scan of the chest at the level of the suprasternal notch revealing ~50% obstruction of the trachea.

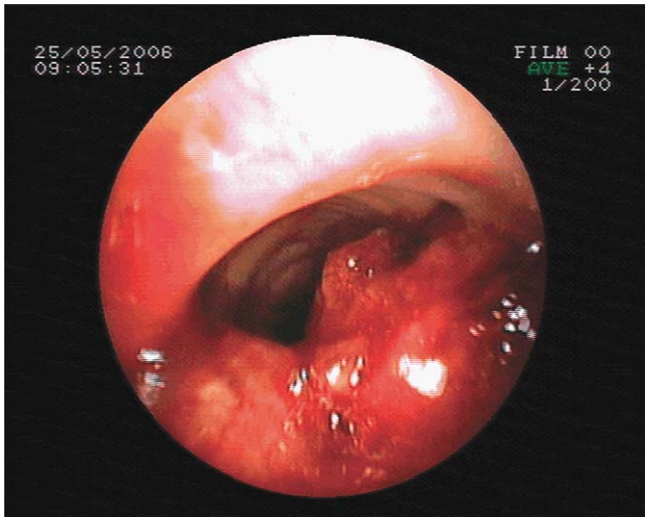

FIGURE 2. Tracheal obstruction caused by mixed exophytic and submucosal process.

Total patency of the entire length of the trachea was easily established in less than 40 minutes. Complications, such as bleeding, perforation, or decreased oxygen saturation, were not observed during the procedure. The patient was easily extubated and a significant improvement in respiratory symptoms was observed. Complete airway patency after the procedure was also confirmed by CT scan of the chest (Fig. 5).

DISCUSSION

Although a variety of therapeutic endobronchial methods can be performed in central airways, some difficulties can be observed when tumors have submucosal component. Because of the risk of perforation, submucosal tumors cannot be resected completely. With resector balloon, it is possible to achieve adequate endoluminal-submucosal resection, dilatation, and control of bleeding.

FIGURE 3. Karakoca resector balloon.

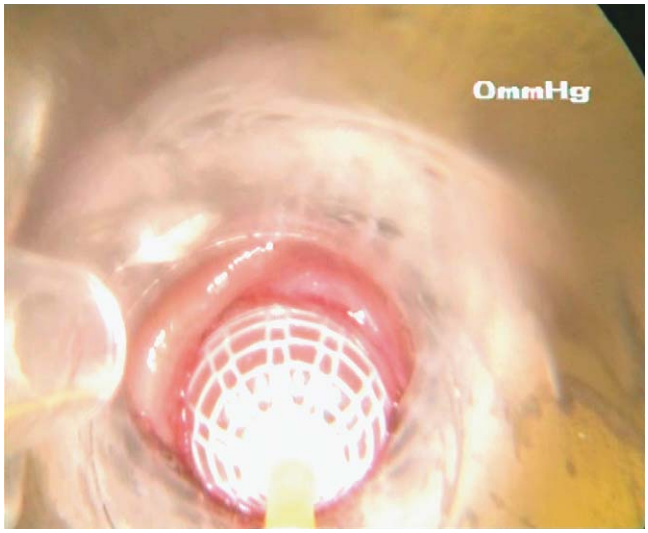

FIGURE 4. Resector balloon is seen inflated in the lumen.

As resector balloon is technically a balloon catheter covered with a polyurethane mesh, it can also be used for indications other than described above.

Repeated inflation and deflation of the balloon allows the mesh to scrape endobronchial lesion in a circumferential fashion—while controlling bleeding.

In this case, endoluminal and submucosal tumoral lesion was completely resected easily and quickly. After resection of the tumor, we inserted a silicone stent for external compression. The entire operation time was 39 minutes. Because of the tamponading effect of the resector balloon, no bleeding occurred. Furthermore, resector balloon is gentle and only affected the endoluminal and portion of submucosal lesion. We also did not observe any complications, such as heavy bleeding, cartilage destruction, or perforation.

Laser photoresection is the most commonly used method for the palliation of endobronchial tumor.[4,5]

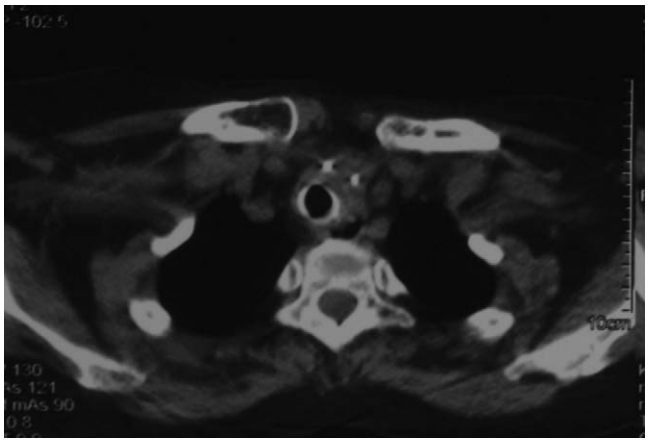

FIGURE 5. CT image obtained after balloon resection and silicone stent placement.

The clinical benefit of a laser tumor resection is high in trachea and main bronchi. In the literature, we could not find any publication in which the balloons were used for resection purposes. The balloons are usually used for bleeding control and dilatation.[5–9] Using the Karakoca balloon for simultaneous resection, dilatation, and tamponade in the management of endoluminal lesions could be an easy, reliable, and effective method. Further experience is necessary.

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