We present a case of a 56-year-old male with esophageal cancer who underwent successful temporary tracheal stenting followed by a surgical procedure. The trachea was obstructed owing to endotracheal metastasis and the patient had severe dyspnea. A silicone Y-stent was initially inserted into the tracheal stenosis to secure the airway, and then tumor-specific chemoradiotherapy was applied. The tumor was reduced, the stent was removed and a pathological study indicated that the tracheal metastasis had disappeared. The patient then underwent esophagectomy and tumor-specific chemo-radiotherapy was continued after the surgery. The patient has remained alive and free of esophageal cancer for 18 months after the airway stent emplacement. These findings suggested that the silicone stent was suitable as a temporary measure and that temporary stenting combined with tumor-specific therapy was effective as part of the aggressive therapeutic strategy with which to treat the malignant airway stenosis due to esophageal cancer.

**Key words:** airway obstruction – esophageal neoplasms – stents – dyspnea

**INTRODUCTION**

Airway stenting is an important supplementary therapy that improves respiration and the quality of life in cases with malignant airway stenosis (1,2). Temporary stenting is a novel strategy, in which the primary palliative stent insertion is followed by tumor-specific therapy and subsequent stent removal. However, it is rare to follow this with a surgical procedure.

**CASE REPORT**

A 56-year-old male with dysphagia and severe dyspnea due to esophageal cancer with endotracheal metastasis was referred to our surgical department. A barium esophagogram and computed tomogram (CT) revealed severe stenosis in the middle and lower esophagus. CT and bronchoscopic findings showed that the metastatic tracheal tumor on the proximal side of the carina occupied ~80% of the tracheal lumen. The tracheal tumor was diagnosed not to be a direct extension of the esophageal tumor, because it was separate and away from the esophageal cancer. The pathological type of both tumors was squamous cell carcinoma. According to the TNM classification (3), this cancer was classified into T3N1M1 stage IV and induction chemotherapy and radiotherapy were indicated. Informed consent was obtained from the patient, then he received a Dumon Y-stent implantation, after laser ablation using a neodymium:yttrium–aluminium garnet (Nd:YAG) laser, to open the airway for treating the severe dyspnea (Fig. 1). After this procedure, the respiratory symptoms were immediately improved. However, complete resection could not be performed because macroscopic residual tumor remained in the trachea.

He subsequently underwent tumor-specific chemotherapy with cisplatin and fluorouracil and radiotherapy. The chemotherapy regime consisted of 40 mg of cisplatin on days 1 and 8, 10 mg of cisplatin on days 2–5 and 9–12 and 500 mg of fluorouracil on days 1–5 and 8–12 intravenously. During this treatment, a 3.0 Gy dose fraction of radiation per day, 5 days per week, was given during days 1–16 with a total dose of 36 Gy. The radiation field included the primary tumor with a 2.0 cm margin of normal esophageal tissue, infraclavicular trachea and bilateral main bronchus.

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Temporary stenting for tracheal stenosis

As a result, the esophageal tumor was reduced to 56% in dimensions (Fig. 2) and the tracheal lesion had disappeared on CT scans. The Dumon stent was removed on the 73rd day after the emplacement, then the bronchoscopic findings revealed that the tracheal metastatic lesion had also disappeared. At this point, the patient appeared to be a good candidate for esophageal cancer resection. He then underwent radical esophagectomy with three-field lymph node dissection after his overall condition had recovered from the chemo-radiotherapy. There were no residual tumor cells in the resected specimen and the patient had no complications after the surgical procedure.

After the surgical procedure, additional chemotherapy and radiation with a total dose of 24 Gy were applied. The patient has remained alive without recurrence of esophageal cancer for 18 months to date after the airway stent emplacement (Fig. 3).

DISCUSSION

Although an airway stent is only palliative when treating a malignant airway stricture, it remains an important modality. Moreover, it has also been applied permanently. If tumor-specific therapy such as chemotherapy or radiotherapy after the stent placement is effective and the stricture is reduced, then a subsequent stent may become unnecessary. Witt et al. (4) originally described temporary stenting as a valuable therapeutic strategy in 1997. They reported that if subsequent tumor-specific therapy was effective after stent insertion in malignant tracheobronchial stenosis, the stent can then be removed. They also reported that if the tumor-specific therapy was ineffective, then definite stenting is the palliative method of choice for treating the severe dyspnea. Schmidt et al. (5) reported that temporary stenting was useful in four of five patients with malignant lymphoma. They also reported that the Strecker stent was preferred over the Dumon stent for use in the main bronchus.
In the present case, a Strecker stent or a self-expanding wall-stent could have been used as the temporary stent. However, these types of stents are rarely used in Japan because they are relatively expensive and are not yet covered by the national health insurance system. Some reports have already addressed the utility of a silicone stent in malignant airway stenosis (6,7). This type of stent is covered by the national health insurance system in Japan, is safe, durable and can be removed easily, with few complications. Also, there is no report that an esophago-tracheobronchial fistula is caused by airway stenting using a silicone stent. We therefore use silicone stents in our facility.

In the present case, the patient complained of severe dyspnea, so the airway first had to be secured. Although we secured the tracheal lumen using Nd:YAG laser ablation, restenosis could have occurred later from tumor regrowth because some of the tracheal tumor still remained. Therefore, a removable Dumon Y-stent was inserted to maintain the lumen of the airway. The stent was later removed after successful tumor-specific therapy without complications. However, airway stenting using a Dumon stent has the risk of some stent-related complications such as granulation tissue formation, migration, hypersecretion, severe cough and unpleasantness for the patient. This patient developed a cough after the tumor-specific therapy and removing the stent relieved this symptom. We thought that the cough was caused by stent migration in the trachea after the tumor-specific therapy had reduced the size of the tumor.

These findings suggested that a silicone stent was suitable as a temporary measure and that temporary stenting combined with tumor-specific therapy was effective as part of the aggressive therapeutic strategy with which to treat malignant airway stenosis due to esophageal cancer.

References