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## International Journal of Surgery Case Reports

journal homepage: [www.casereports.com](http://www.casereports.com)

## Giant pedunculated lipoma of the esophagus: A case report



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## ARTICLE INFO

## Article history:

Received 3 October 2016

Accepted 20 November 2016

Available online 21 November 2016

## Keywords:

Esophageal lipoma

Stalk

Treatment

## ABSTRACT

**INTRODUCTION:** Although Esophageal lipoma is extremely rare and pathologically benign, surgical excision of the lipoma is recommended when symptomatic or uncertain biological behavior. In general, some of the esophageal lipoma has a stalk. The pedunculated non-invasive tumor can be removed by stalk ligation, which is either endoscopic or surgical approach. Therefore, the preoperative evaluation is essential. We herein present a case of a huge esophageal lipoma.

**CASE REPORT:** A 82-year-old man, with a wet cough and dyspnea for 6 months, who had the huge mass that almost completely occupied the esophageal lumen, was referred to our institution for the treatment. We diagnosed the mass as non-invasive tumor that has a stalk at the close to the esophageal orifice, by the CT image using air injection into esophageal lumen. We performed excision of the pedunculated huge mobile mass by esophagotomy via right thoracic approach with use of endloop. Pathological examination showed a lipoma.

**CONCLUSION:** In conclusion, an adequate preoperative evaluation to identify the correct origin of the stalk is mandatory for a successful treatment. In order to do the adequate preoperative evaluation and successful surgery, our diagnostic method of CT image can be effective.

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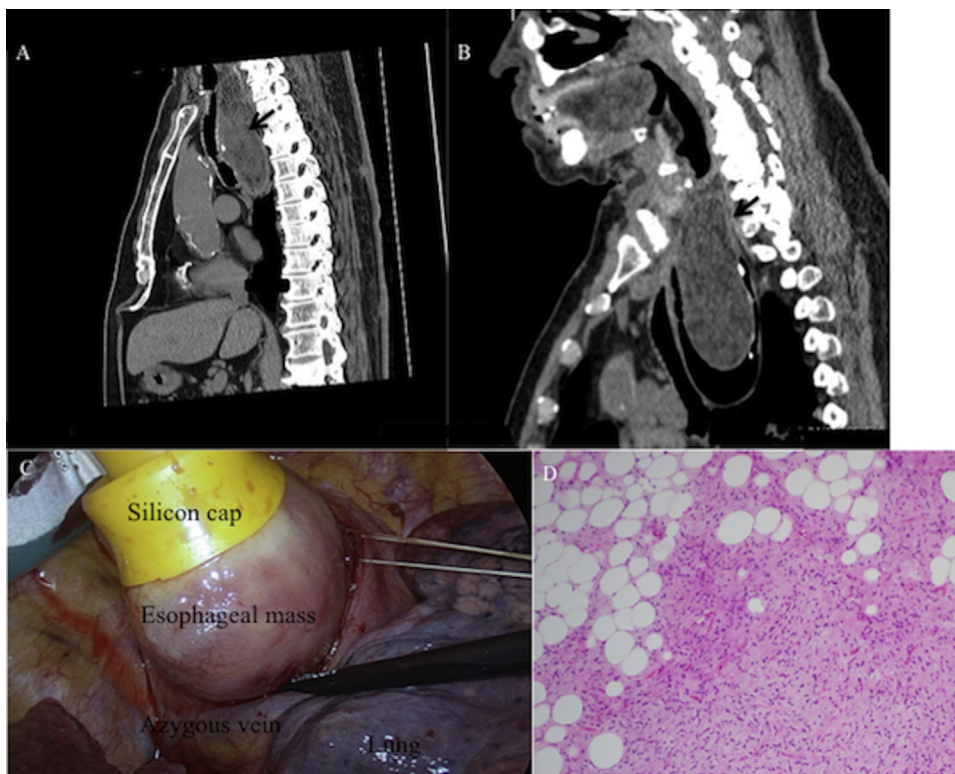
## 1. Introduction

Esophageal lipoma represent approximately 0.03% of all esophageal/hypopharyngeal neoplasms [1]. They are more frequent in male (male:female ratio = 3:1) [2], Esophageal lipoma often has a predilection to arise from the upper third of the esophagus according to previous reports [3]. Most reported esophageal lipomas originated from undifferentiated mesenchymal cells in the submucosal layer and were therefore regarded as esophageal stromal tumors [4]. Although the lipoma is pathologically benign and asymptomatic, if it is large enough, it may cause progressive airway obstruction or dysphagia. Therefore, surgical excision of esophageal lipoma is indicated when either symptomatic or biological behavior is unclear, although malignant degeneration of the lipoma is rare [5]. We herein report an extremely rare case of giant pedunculated lipoma of the esophagus presenting dyspnea.

## 2. Case report

A 64-year-old male, with a wet cough and dyspnea for 6 months, presented to the outpatient clinic. CT image showed a tumor, 10.6 × 5.7 cm in length, elongated from the upper to middle third esophagus, with deviation of trachea and partially surrounding ring of air (Fig. 1A). Upper gastroendoscopy revealed an intact mucous mass which completely occupy the thoracic esophageal lumen. The patient was referred to our institution for management of the mass. We suspected the possibility of the mass which was not invasive and pedunculated due to the partial ring of air surrounding the mass, based on CT image. Therefore, CT image using air injection into esophageal lumen was performed for confirmation of the pedunculated mass and the CT scan showed almost complete ring of air surrounding the mass except close to the esophageal orifice (Fig. 1B). This meant the possibility of that origin of the stalk is located in close to the esophageal orifice. Therefore, we planned to perform endoscopic surgery under general anesthesia. However, endoscopic ligation could not be performed due to a high risk of bleeding during transection of a thick stalk. Accordingly, we performed open surgery due to thoracic approach via the right chest because extracting huge mass, which was uncertainty

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**Fig. 1.** (A) The reconstructed CT image reveals a tumor of the esophagus, elongated from the upper to middle third esophagus, with diviation of trachea and partially surrounding ring of air. (B) The reconstructed CT image using air injection into esophageal lumen showed almost complete ring of air surrounding the mass except close to the esophageal orifice. (C) A handmade device which consisted of sterilized rubber cap connected to suction tube, attracted mass and pulled more than half of the mobile mass outside the esophagus, based on intraoperative finding. (D) Pathological examination revealed mature adipose tissue, not including increased mitotic activity or lipoblasts.

about the length in the thoracic esophageal lumen, could be difficult by cervical approach. Based on intraoperative finding, the part of mass was confirmed by esophagotomy via right thoracotomy at the 4th intercostal space. A handmade device which consisted of sterilized rubber cap connected to suction tube, attracted mass and pulled more than half of the mobile mass outside the esophagus (Fig. 1C). And then, ligation of the stark of the mass with excision was performed by the use of endoloop. There were no intraoperative problems, and the patient had an uneventful recovery. The final results of the pathologic examination showed an esophageal lipoma (Fig. 1D).

### 3. Discussion

Although the diagnosis of the esophageal lipoma can be confirmed by CT, magnetic resonance imaging (MRI) and endoscopic ultrasonography, the diagnosis, especially by gastroscopy, sometimes may be difficult or impossible because the mass can completely or partially occupy the esophageal lumen, move against the esophageal wall. In general, esophageal lipoma commonly has a predilection [6]. The choice of intervention, which is either endoscopic or surgical approaches, does not depend on only tumor size or location of the mass, but also the presence of the stalk. Therefore, the preoperative evaluation is essential, as accurately as possible, although identification of the stalk by barium esophagogram or endoscopy tend to be false negative according to a previous review [5].

The surgical approach may be safer than the endoscopic approach in patients with a high risk of bleeding due to the content of vessels within the pedicle. On the other hand, endoscopic approach, which can reduce the length of hospital stay and com-

plications associated with open surgery [7], may be possible by endoscopic ligation, when the mass has stalk even if the mass is huge size.

In the present case, CT image using air injection into esophageal lumen was useful for the detection of the pedunculation and mobilization. Based on the findings, we selected thoracic approach via the right chest as operative method, because extracting huge mass could be difficult by cervical approach which has limited access to the thoracic esophagus lumen. Esophagotomy of range of minor axis length of the lipoma was enough to attract mass and pull more than half of the lipoma outside the esophagus by our handmade device because the lipoma was very soft and mobile. And then we could track the mass located in thoracic esophageal lumen to the stroke at the close to the esophageal orifice by the handmade device and endoloop.

The ligation and excision by use of endoloop is currently common for pedunculated mass. However, in general, when it is difficult for thoracic field that is a deep and narrow surgical field to control pedunculated huge mass for excision. We could actualize to improve visibility of an operative field and remove the mobile huge mass smoothly by the handmade device.

In conclusion, an adequate preoperative evaluation to identify the correct origin of the stalk is mandatory for a successful treatment, even if the mass is too huge and the assessment is extremely difficult. In order to do adequate preoperative evaluation and successful surgery, the diagnostic method of CT image using air injection into esophageal lumen and our handmade device which consisted of sterilized rubber cap connected to suction tube can be effective. In addition, even if origin of the stalk is located in close to the esophageal orifice, thoracic approach via the right chest can be successful for operative method.

**Conflicts of interest**

Naohiro Taira and the other co-authors have no conflicts of interest in this manuscript.

**Funding**

Naohiro Taira and the other co-authors have no relevant financial interests to declare in this manuscript.

**Ethical approval**

All approval has been given.

**Consent**

The consent has been given.

**Author contribution**

Naohiro Taira: writing the paper, Hidenori Kawasaki: study concept, Akiko Koja: data collection,

Tomonori Furugen: data collection, Yasuji Oshiro: data analysis, Eriko Atsumi: dataanalysis,

Takaharu Ichi: data collection, Kazuaki Kushi: data collection, Tomofumi Yohena: study design,

Tsutomu Kawabata: study design, Masanao Saio: data analysis, Naoki Yoshimi: data analysis,

Naohiro Taira and the other co-authors have no relevant financial interests to declare in this manuscript.

**Guarantor**

Naohiro Taira, Hidenori Kawasaki.

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