

Chapter 6

Case on Recurrent Nerve Lesion (Double) as a Consequence of Esophageal Resection for Cancer

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Keywords Esophageal resection • RLN • Laryngoscopy • Cordotomy • Arytenoidectomy

Diagnosis and Indication for Surgery

A 79-year-old male with complaints of dysphagia was evaluated at our outpatient clinic. His medical history included a right-sided pneumonia and endoscopic treatment of a Zenker's diverticulum. Endoscopy revealed an ulcerative adenocarcinoma of the esophagus at 28–34 cm from the incisors. Based on CT scans and endosonography, the tumor was staged as T3N1M0.

Operation

Six weeks after neoadjuvant chemoradiation (CROSS-scheme: weekly administration of Carboplatin® AUC=2 en Paclitaxel® 50 mg/m² with concurrent 5 days weekly radiotherapy in fractions of 1.8 Gy, total 41,4 Gy [1]) the patient was admitted for open transthoracic esophagectomy with two-field lymphadenectomy followed by a right cervical gastric conduit anastomosis with the esophagus.

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Pathology

Radically resected T3N1 adenocarcinoma of the esophagus.

Postoperative Course: Identification and Treatment of the Complication

Postoperatively, the patient was admitted to the intensive care unit. On the chest radiograph a large pneumothorax was diagnosed on the right side and a second chest tube was inserted (Fig. 6.1). The second postoperative day, the patient was detubated, but during the following days, he became increasingly dyspnoic and oxygenation was poor. Because of aphony and stridor, the ENT doctor evaluated the vocal cords. Laryngoscopy showed bilateral vocal cord paralysis (Fig. 6.2). Because

Fig. 6.1 Postoperative thorax X-ray

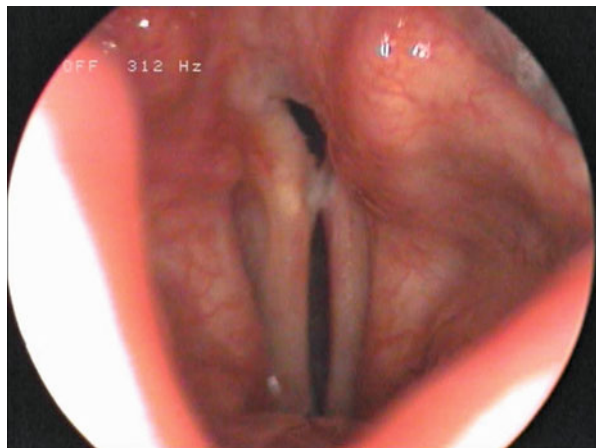
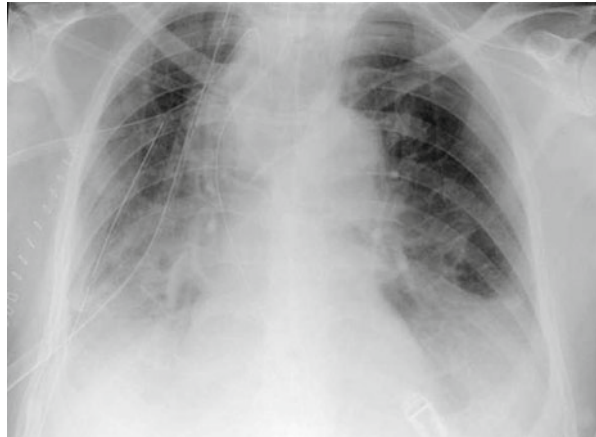
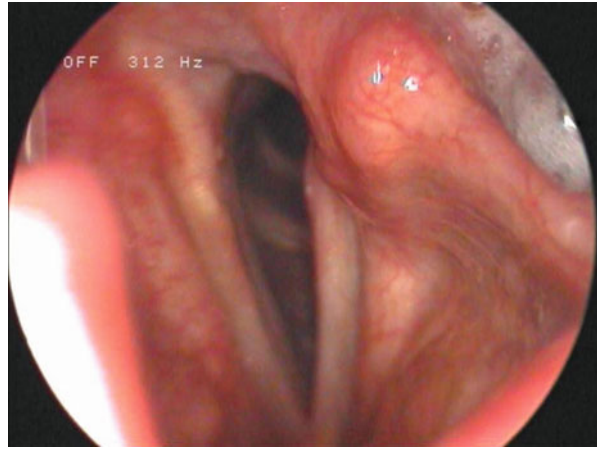


Fig. 6.2 Laryngoscopy showing vocal bilateral cord paralysis

Fig. 6.3 Laryngoscopy after 6 months showing recovery of function of the right vocal cord



of the respiratory insufficiency and stridor, it was decided to perform a tracheostomy. On the 17th postoperative day, a bronchopneumonia was diagnosed for which intravenous antibiotics were started for 7 days. On the 19th postoperative day, it was decided to start oral feeding with the assistance of a logopedist. Aspiration was then noted clinically and the oral feeding was averted, whereas jejunostomy feeding was continued. Aspiration pneumonia developed again several days later and intravenous antibiotics were restarted. Reevaluation of the vocal cord paralysis showed no signs of improvement. After discharge (1½ month after the initial surgery) the patient had not initiated oral intake and continued breathing through the tracheostomy. Intensive training with a speech language logopedist and progressive oral feeding started in an outpatient program. Six months after discharge, the patient was eating normally, and before a vocal cord plasty was planned, a new laryngoscopy showed recovery of the left vocal cord with normal spontaneous breathing (Fig. 6.3). After 2 months tracheotomy was retired without respiratory problems. He is still receiving speech therapy lessons to improve the quality of his voice.

Discussion

The recurrent laryngeal nerve (RLN) plays an essential role in the innervation of the intrinsic muscles of the larynx especially those responsible for movement of the vocal cords. Both uni- and bilateral lesions have been described with an incidence ranging between 15 and 80 % depending on the cervical dissection and extensiveness of the esophageal and lymph node dissection [1–3]. Most cases of unilateral RLN paralysis are seen after cervical oesophagogastronomy. This patient developed bilateral RLN lesions after transthoracic oesophagectomy with right cervical anastomosis (Illustration 6.1). A cervical anastomosis is associated with a high incidence of RLN damage either temporarily or definitive [1–5]. The fact that a cervical anastomosis was performed on the right side may explain why the right RLN became damaged

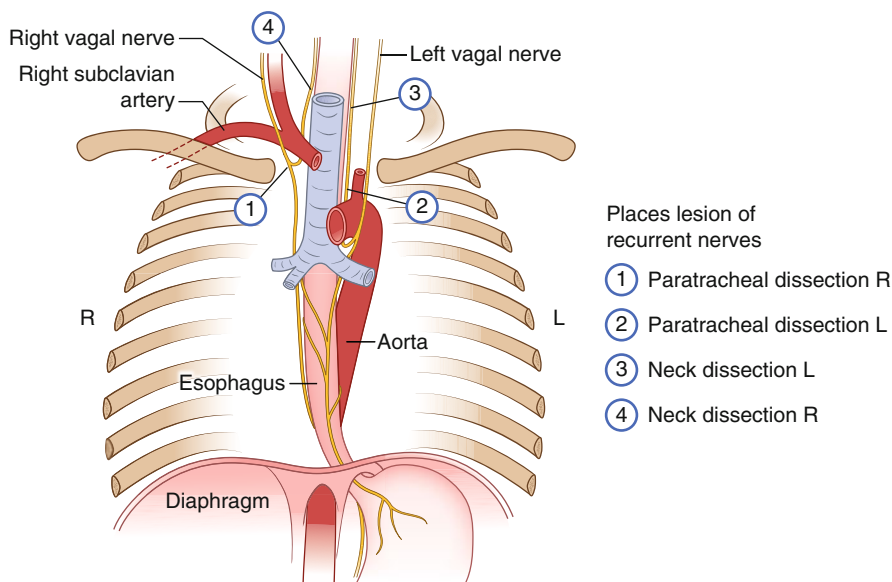


Illustration 6.1 Anatomy of the recurrent laryngeal nerve (RLN)

and possibly also the left RLN, since no paratracheal or aortopulmonary window lymphadenectomy was performed. Damage to the ipsilateral as well as the contralateral RLN is reported in 2 % of cases following transhiatal oesophageal resection [2]. Prevention of RLN lesion will include identification and eventually monitoring during cervical and high mediastinal lymph node dissection. Any atraumatic dissection and tractions will be avoided [4]. Symptoms associated with an unilateral lesion are hoarseness and infrequently stridor, while a bilateral lesion leads to aphony, swallowing dysfunctions and stridor with breathing difficulties causing significant secondary respiratory morbidity, prolonged hospital stay, and decreased quality of life [1–3]. The risk of developing postoperative pneumonia, due to decreased respiratory function, deficiency of the coughing mechanism, and aspiration, is significantly greater in patients suffering from postoperative RLN injury. Treatment in the acute phase depends on the severity of the symptoms. In most cases active physiotherapy and logopedy can offer satisfactory results, although in bilateral injury with paralysis in a median position, tracheostomy will be the only adequate treatment as described in this case. In a later stage several vocal cord procedures can be carried out for bilateral injury, in order to lateralize one or both vocal cords to improve the patency of the airways. Moreover, spontaneous recovery on one side is possible if only contusion of the nerve during operation. Both cordotomy and arytenoidectomy have been reported to have satisfactory results, although new techniques such as laryngeal pacing and botulinum toxin injection may be considered as therapeutical options in the near future [5].

References

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