

## Relapsing deep neck infection may indicate a coexisting esophagus cancer

Tekrarlayan derin boyun enfeksiyonu yandař bir özofagus karsinomunu iřaret edebilir

Emin Karaman, M.D.,<sup>1</sup> Cihan Duman, M.D.,<sup>1</sup> Hasan Mercan, M.D.,<sup>1</sup> Reřat Özaras, M.D.,<sup>2</sup> Harun Cansız, M.D.<sup>1</sup>

Department of <sup>1</sup>Otolaryngology, <sup>2</sup>Infectious Diseases, Medicine Faculty of Cerrahpařa University, İstanbul, Turkey

Neck abscess and deep neck infections are common diseases. Primary head and neck cancers may present initially with neck abscesses or deep neck infections. This presentation leads to delay of the diagnosis of underlying cancer. Head and neck cancers which present with deep neck infection initially have rarely been described. We report a case with relapsing deep neck infection who was diagnosed as proximal esophagus squamous cell carcinoma thereafter.

**Key Words:** Deep neck infection; esophagus; neck abscess; squamous cell carcinoma.

Boyun apseleri ve derin boyun enfeksiyonları sık görülen hastalıklardır. Primer bař boyun kanserleri, ilk olarak derin boyun enfeksiyonu veya boyun apsesi řeklinde kendini gösterebilir. Bu durum altta yatan kanserin tanısında gecikmeye yol aabilir. İlk olarak derin boyun enfeksiyonları ile kendini gösteren bař-boyun kanserleri nadir olarak tanımlanmıřtır. Bu yazıda daha sonradan proksimal özofagus skuamöz karsinomu tanısı konan ve relaplarla seyreden derin boyun apseli bir olgu sunuldu.

**Anahtar Sözcükler:** Boyun apseleri; özofagus; derin boyun enfeksiyonu; karsinom.

Deep neck infections and neck abscesses are commonly seen at otorhinolaryngology field and they are known as the infections that occur in the deep layers of the neck. The most common factors for deep neck infections are intravenous drug abuse, dental infection and pharyngotonsillitis.<sup>[1-3]</sup>

Although head and neck cancers usually present with neck masses, the initial presentation of a head and neck malignancy may be a neck abscess or a deep neck infection. The reported incidence of the cystic degeneration of cervical lymph nodes caused by Waldeyer's ring or the thyroid gland is 33 to 55%.<sup>[4,5]</sup> However, these cystic lymph nodes very rarely become infected.

In literature, there are few cases of nasopharyngeal, laryngeal, hypopharyngeal and thyroid malignancies and malignancies of the oral cavity that initially presented with a deep neck infection.<sup>[6-8]</sup>

Because an infection coexistent with malignancy is not common, the clinical picture may be complicated and this may lead to a delayed diagnosis. Additionally, neck abscesses and deep neck infections may show recurrences due to underlying head and neck cancer.

In this article, we reported a case with proximal esophageal squamous cell carcinoma that initially presented with a deep neck infection.

### CASE REPORT

A 50-year-old female patient presented with a four-day history of a sore throat, painful generalised right neck swelling, and dysphagia. She also had a high fever and a leukocyte count of  $10.900/\mu\text{L}$ , with neutrophil predominance. The patient had been referred to a general surgery department elsewhere one week earlier for her dysphagia and right neck swelling. An endoscopic examination conducted by the general surgeon showed a soft tissue formation at the pharyngo-esophageal junction, narrowing the esophageal lumen. Incisional biopsies were taken and the pathology report revealed epithelial hyperplasia with inflammatory changes. Computed tomography (CT) revealed a  $3.5 \times 2.5$  cm cystic lesion with a necrotic centre in the right neck and right vascular space. The patient was thought to have a deep neck infection because of the fever and increasing neck oedema, and was diagnosed with a neck abscess and deep neck infection. Consequently, she was referred to ear nose throat department for treatment. The abscess was aspirated and specimens were obtained for microbiological investigations by otolaryngologists under local anaesthesia. Culture of the aspirate yielded *Klebsiella* sp., which we treated with an intravenous third-generation cephalosporin after consult-

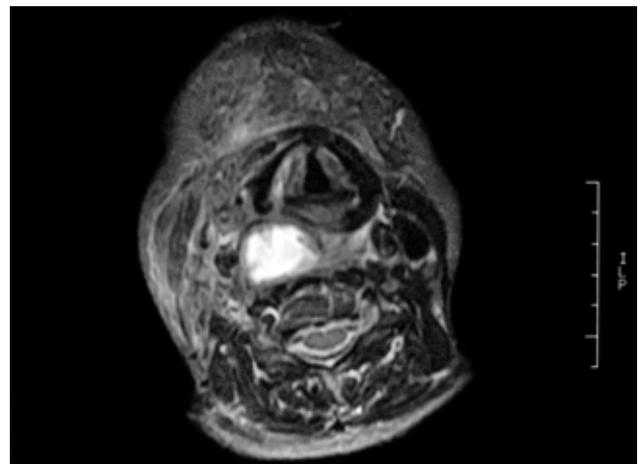
ing the infectious diseases department. Two weeks later, we discharged the patient as cured.

One month later, the patient was readmitted to the our clinic of ORL & HNS because of relapsed painful generalized oedema in the same region. We suspected from an underlying head and neck cancer as the cause of the deep neck infection and performed laryngeal and nasopharyngeal endoscopic examinations, but did not find any lesions. A repeat CT showed annular wall thickening at the hypopharynx and cervical esophagus, and abscess formation between the right carotid space and prevertebral area. The neck exploration and aspiration of abscess were performed under general anaesthesia. Specimens were taken to microbiological and cytological investigations. Moreover, an incisional biopsy of the abscess wall is done. The results of microbiological and cytological investigations were negative. The histopathological examination revealed a ruptured cyst wall with giant foreign body cells. The same antibiotherapy was repeated and the patient was again discharged as cured after two weeks.

Two months later, further swelling occurred in the same region. But at this presentation, her dysphagia was worse. Accordingly, esophageal biphasic digital radiography was performed and revealed advanced concentric esophageal narrowing between the hypopharynx and C5-C7 cervical vertebrae (Fig. 1). Magnetic resonance imaging (MRI) showed a soft tissue mass surrounding the cervical esophagus and hypopharynx (Fig. 2). At exploratory neck surgery, dissection was advanced through the cervical esophagus and prevertebral



**Fig. 1.** Esophagus biphasic digital radiography reveals an advanced concentric esophageal narrowness between the hypopharynx and C5-C7 cervical vertebrae.



**Fig. 2.** Axial, T<sub>2</sub>-weighted magnetic resonance imaging scan shows a soft tissue mass surrounding cervical esophagus and hypopharynx.

fascia. A vegetative soft tissue mass surrounding the esophagus and infiltrating the prevertebral fascia was seen. An incisional biopsy of the mass surrounding the cervical esophagus is done. The pathology revealed squamous cell carcinoma infiltrating the muscle layer. Ultimately, the patient diagnosed with proximal oesophageal squamous cell carcinoma and because her mass infiltrated the prevertebral fascia and muscular layer she was determined as inoperable. Therefore, she was referred to the Radiation Oncology Department for radiotherapy. The patient was followed for two months during her radiotherapy. When the radiotherapy ended the patient had died due to her primer carcinoma.

### DISCUSSION

Despite a detailed examination and review of clinical history; the origin of the deep neck infection remains unknown at 22-50% of patients.<sup>[1,6]</sup> However, malignant lymph node metastases presenting as abscesses are uncommon and have rarely been reported.<sup>[7]</sup>

The number of patients with head and neck cancers who initially presented with a deep neck infection has rarely been informed. Since an infection coexistent with malignancy is very rare, the clinical picture can be concealed by the deep neck infection and this may delay the diagnosis.<sup>[6-7]</sup> Therefore, a detailed review of the patient history and examination should be made in order to elucidate the underlying cause of infection. Also, a surgical drainage, needle aspiration and incisional biopsy may be necessary for detecting the originally hidden malignancies.

Our case was referred to the Radiation Oncology Department for radiotherapy because the patient was determined to be inoperable. This case was

repeatedly diagnosed as a deep neck infection, and the final diagnosis of proximal oesophageal carcinoma came only after four months. Since the deep neck infection concealed the primary malignancy of the esophagus, by the time the diagnosis of the esophagus squamous cell carcinoma was made, the tumor had already infiltrated the prevertebral fascia. Therefore, clinicians should consider an underlying malignancy in a case of repeating deep neck infection. A detailed review of the history, routine endoscopic examination of the larynx and nasopharynx, and CT or MRI scans should be obtained. If necessary, cytological investigation via a needle aspiration and surgical drainage and pathological examination of the tissue should be performed to exclude the possibility of a malignancy.

### REFERENCES

1. Wang LF, Kuo WR, Tsai SM, Huang KJ. Characterizations of life-threatening deep cervical space infections: a review of one hundred ninety-six cases. *Am J Otolaryngol* 2003;24:111-7.
2. Parhiscar A, Har-El G. Deep neck abscess: a retrospective review of 210 cases. *Ann Otol Rhinol Laryngol* 2001;110:1051-4.
3. Marra S, Hotaling AJ. Deep neck infections. *Am J Otolaryngol* 1996;17:287-98.
4. Verge J, Guixá J, Alejo M, Basas C, Quer X, De Castro J, et al. Cervical cystic lymph node metastasis as first manifestation of occult papillary thyroid carcinoma: report of seven cases. *Head Neck* 1999;21:370-4.
5. Gourin CG, Johnson JT. Incidence of unsuspected metastases in lateral cervical cysts. *Laryngoscope* 2000;110:1637-41.
6. Wang CP, Ko JY, Lou PJ. Deep neck infection as the main initial presentation of primary head and neck cancer. *J Laryngol Otol* 2006;120:305-9.
7. Pak MW, Chan KL, van Hasselt CA. Retropharyngeal abscess. A rare presentation of nasopharyngeal carcinoma. *J Laryngol Otol* 1999;113:70-2.
8. Ridder GJ, Eglinger CF, Technau-Ihling K, Laszig R. Deep neck abscess masquerading hypopharyngeal carcinoma. *Otolaryngol Head Neck Surg* 2000;123:659-60.