

Multidisciplinary treatment of esophageal cancer with hepatocellular carcinoma: A case report

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Abstract

Cancer remains a major cause of death globally. Esophageal cancer is one of the most aggressive malignancies and has limited treatment options, thus resulting in high morbidity and mortality. We reported the case of a 65-year-old patient who came to the hospital for abdominal distension and loss of appetite. The patient's endoscopy before admission indicated the possibility of esophageal cancer. After admission, an enhanced computed tomography (CT) scan of the chest and abdomen revealed esophageal stenosis and a liver tumor. The patient's final diagnosis was esophageal cancer concurrent with liver cancer, and a series of treatments were administered. However, esophageal cancer with liver cancer is rare. The patient was treated with targeted therapy, immunotherapy, and transcatheter arterial chemoembolization simultaneously. Then, regular follow-up was performed at 1 month, and at 3 months, the patient was discharged after immunotherapy. We hope that through this case, we can improve the clinical understanding of these two types of tumors and thereby contribute to their treatment. Research and collaboration among health-care professionals are essential for improving tumor diagnosis and treatment.

Keywords

Oncology, gastroenterology/hepatology, pathology

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Introduction

Esophageal cancer is a significant global health challenge and is the sixth most common cause of cancer-related death worldwide.¹ Over the past four decades, the incidence of esophageal cancer has increased significantly, with adenocarcinoma becoming the dominant subtype in the West.

Esophageal cancer is one of the most aggressive gastrointestinal malignancies. The overall 5-year survival rate ranges from 15% to 25% worldwide.² Although esophagectomy remains the mainstay of treatment for esophageal cancer, it is very invasive and is associated with high morbidity and mortality.³

Patients with advanced esophageal cancer have a median survival of only 3–6 months, which can seriously affect their quality of life.⁴ Therefore, early detection and treatment are essential for improving patient prognosis and quality of life.

Liver cancer is an aggressive tumor that originates in the liver and often occurs in the setting of chronic liver disease and cirrhosis. Primary liver cancer, or hepatocellular carcinoma (HCC), is the fifth most common cancer in men and the seventh most common cancer in women; it is also the

third leading cause of cancer-related death worldwide, making it a major global health challenge.⁵

However, for patients with early-stage HCC, surgery, local destructive therapies, and liver transplantation have curative potential. When patients have multiple metastases of primary tumors, they lose the opportunity for surgical treatment, and multidisciplinary comprehensive treatment is becoming increasingly important.

In this paper we report a rare case involving a 65-year-old patient who came to the hospital for abdominal distension and loss of appetite. The final diagnosis was esophageal cancer and concurrent liver cancer, and a series of treatments were administered. We anticipate that this example will help clinicians to better comprehend the two concurrent types of

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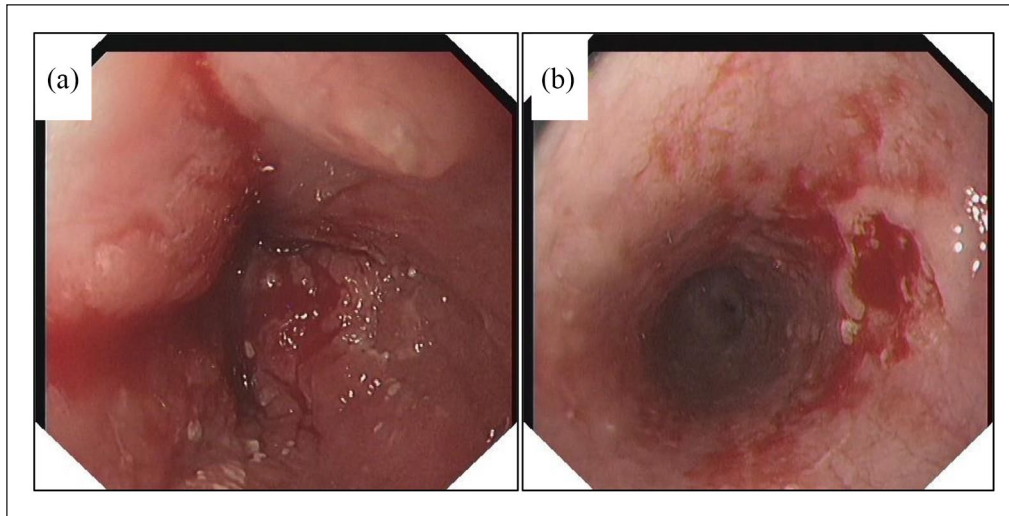


Figure 1. Results of gastroscopy after admission. (a) Esophageal lumen stenosis, resulting in endoscopy cannot pass, mucosal hyperplasia, erosion, from the incisors about 33 cm visible mucosal erosion, the vascular texture is not clear. (b) Esophageal mucosa uneven, local hyperplasia, mucosal erosion, after biopsy, local bleeding.

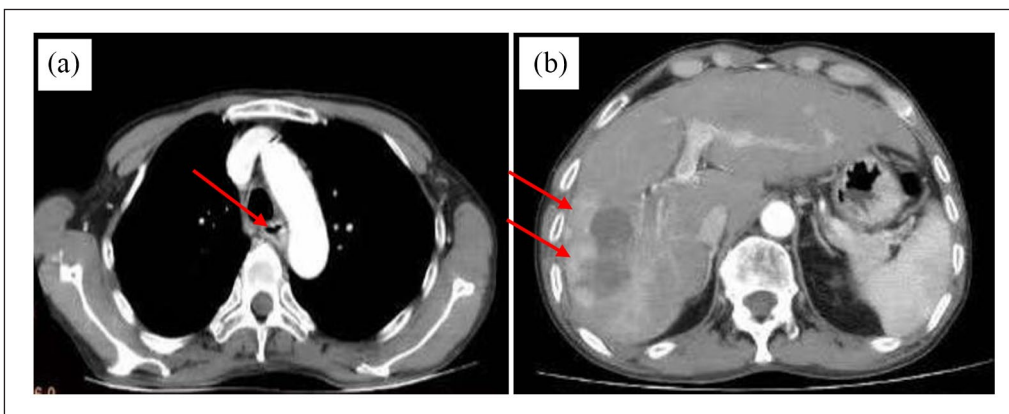


Figure 2. (a) The patient underwent a chest-enhanced CT examination after admission. (b) Results of upper abdominal enhanced CT examination. Based on the chest-enhanced CT examination, the patient has esophageal stenosis caused by the compression of the esophageal tumor.

tumors and how to treat them. This report can also contribute to future research, as cooperation among medical specialists is crucial to enhancing tumor diagnosis and therapy.

Case report

A 65-year-old patient with abdominal distension and loss of appetite was admitted to the hospital. The patient had abdominal distension, anorexia, nausea, or vomiting for 1 month with no apparent cause and had not received any specific treatment; he had no remarkable medical history or chronic illness. There was no significant personal or family history. At the time of admission, the patient complained of retrosternal obstruction and a sensation of choking when feeding, abdominal distension discomfort, and weight loss. There were no other signs of discomfort.

After the patient was admitted to the hospital, the tumor indicator alpha-fetoprotein (AFP) level was 3294.63 $\mu\text{g/L}$ (normal range 0–0.7 $\mu\text{g/L}$). The diagnosis of patients with liver cancer is possible. The patient had abdominal distension before admission, which was accompanied by poor eating and weight loss, and underwent routine endoscopy. Endoscopic manifestations included esophageal stenosis (Figure 1(a)), mucosal color changes, thickening, transparency and vascular structure changes, mucosal erosion, plaque, and other morphological changes (Figure 1(b)). The lesion was 33 cm from the incisor of the esophageal cancer patient. The possibility of esophageal cancer was considered. After admission, the patient underwent chest-enhanced CT, which revealed that the patient had esophageal stenosis (Figure 2(a)). Metastasis to mediastinal lymph node enlargement. The stage of the esophageal cancer was $cT_xN_2M_0$.

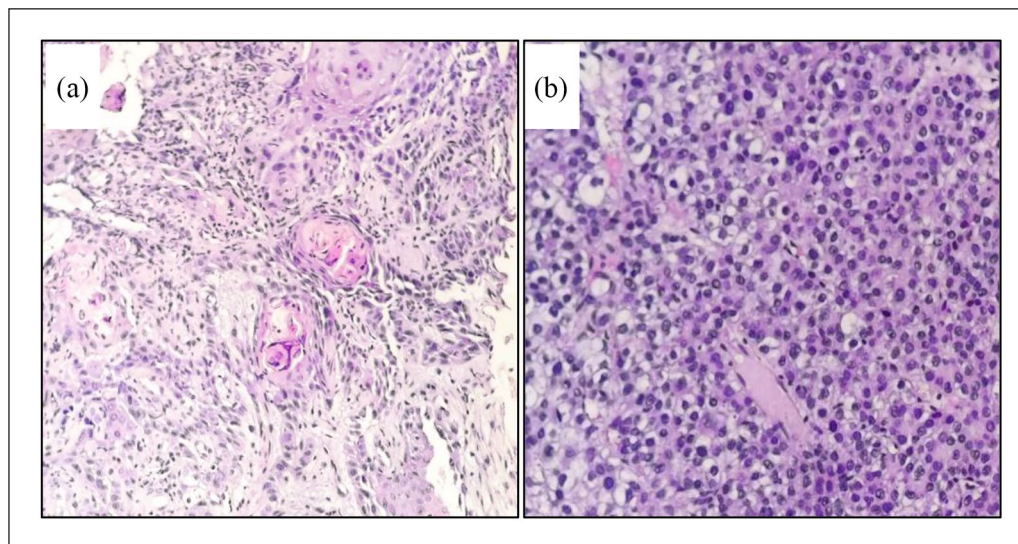


Figure 3. Patients with esophageal and liver biopsy. (a) The results of gastroscopy pathology showed squamous cell carcinoma. (b) The results of the liver biopsy showed hepatocellular carcinoma. (H&E, 400 \times).

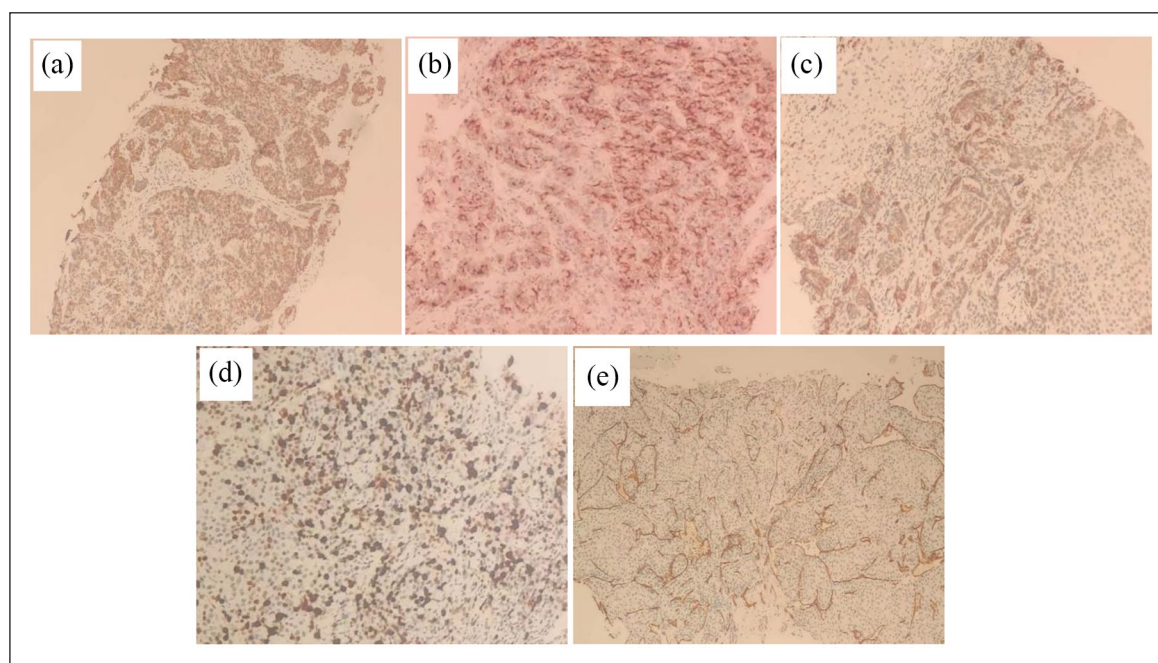


Figure 4. Results of liver biopsy immunohistochemistry. (a) Cytokeratin (CK) 19 was positive. (b) CD10 was positive. (c) CK 7 was partially positive. (d) Ki67 was about 70% positive. (e) CD34 was positive in the hepatic sinusoid.

Upper abdominal-enhanced CT revealed that the patient had liver space occupied, and the AFP level was also very high, suggesting the possibility of liver cancer (Figure 2(b)).

After admission, according to the results of the endoscopy, the patient's pathology improved, suggesting esophageal squamous cell carcinoma (Figure 3(a)). The patient's upper abdominal enhanced CT was considered to show liver space-occupying lesions. Combined with the patient's liver cancer index, the patient was considered to have liver cancer.

After communication with the patient's family, the liver puncture examination improved, and the pathology indicated HCC (Figure 3(b)). The stage of liver cancer was the C stage (Barcelona staging).⁶

The patient was admitted to the hospital, and a liver puncture was completed. Immunohistochemistry showed that the patient was positive for CK19, CD10, CK7, and CD34. Based on the diagnosis of a malignant liver tumor, Ki67 was positive in approximately 70% of the patients, considering

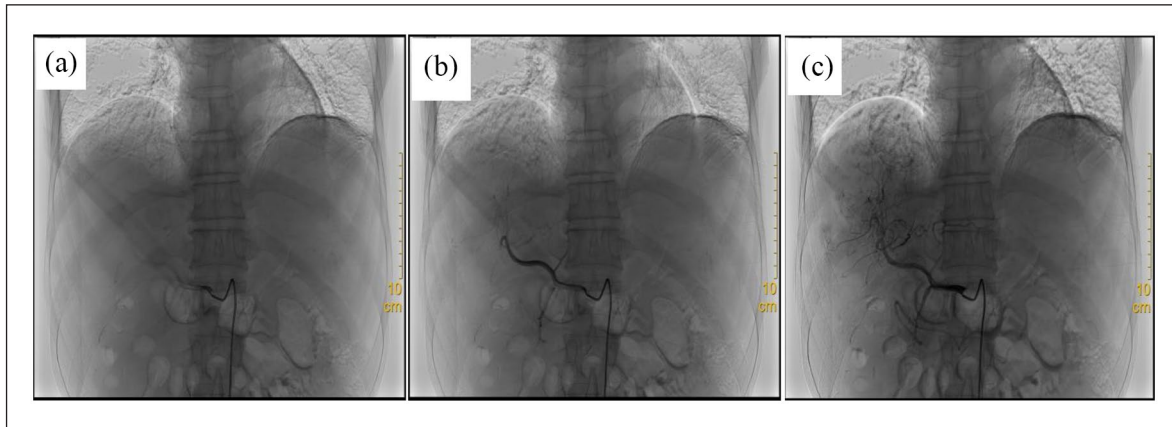


Figure 5. Transcatheter arterial chemoembolization was performed after the diagnosis of liver cancer was confirmed (a)–(c).

the rapid growth of tumor cells (Figure 4). The patient was subsequently diagnosed with esophageal squamous cell carcinoma with HCC. Based on these examinations, the diagnosis of malignant liver tumors is clearer.

Sintilimab is a humanized monoclonal antibody against programmed cell death protein 1 (PD-1) that has been approved by the National Medical Products Administration for the monotherapy of relapsed or refractory classical Hodgkin lymphoma, the first-line treatment of nonsquamous and squamous non-small cell lung cancer in combination with chemotherapy, and the first-line treatment of HCC in combination with bevacizumab.^{4,5,7} Because patients with esophageal cancer have concurrent HCC and different pathological types, the patient had a neoplastic lymph node metastasis according to the results of the pathological examination (cT_xN₂M₀), and she was treated with sintilimab (200 mg) via intravenous drip three times a week.

Transcatheter arterial chemoembolization (TACE) is essential for cases of inoperable advanced HCC that are not amenable to percutaneous local therapies, particularly hypervascular HCC, which exhibits dense staining on contrast imaging of the hepatic arteries. This procedure is currently the standard treatment method. TACE is widely used worldwide as an effective treatment for unresectable HCC.^{8–10} TACE is the most common palliative therapy for HCC.¹¹ Moreover, TACE combined with lenvatinib was used for the treatment of HCC (Figure 5). Lenvatinib reduces tumor PD-L1 levels and Treg differentiation to improve anti-PD-1 efficacy by blocking FGFR4.¹² This approach is more conducive to improving the therapeutic effect of sintilimab. In addition, drugs that protect liver function and improve immunity are used. Particle therapy can also be used if the cancer is inoperable.

Because the patient could not be treated by surgery, regular follow-up was performed at 1 month, and 3 months were discharged after chemotherapy. Standardized chemotherapy treatment was administered according to the routine outpatient follow-up review. The standard chemotherapy was for esophageal cancer, liver cancer, or both.

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Declaration of Helsinki (as revised in 2013). Written informed consent was obtained from the patient for the publication of this case report and the accompanying image. A copy of the written consent is available for review by the editorial office of this journal.

Discussion

Worldwide, esophageal cancer cases and deaths are increasingly prevalent, largely because global population growth is outstripping moderate declines in age-specific incidence and mortality. There are two main histological subtypes of esophageal cancer: squamous cancer and adenocarcinoma. In esophageal cancer, prevention is particularly attractive because early detection by screening or symptomatic diagnosis has proven elusive: most cancers are diagnosed at a stage where curative treatment is impossible. Prevention and screening, if a successful modality can be identified—can be implemented at a population level—or may be targeted at those with the most benefit. Endoscopy is an effective method for improving the early diagnosis of esophageal cancer. According to the patient's endoscopic examination results (Figure 1) and esophageal lesions, we considered that the patient had the possibility of esophageal cancer.

The treatment of esophageal cancer has become more effective due to advances in surgical techniques, multidisciplinary approaches, and the appropriate use of neoadjuvant therapy at centers of excellence in esophageal surgery.¹³ Esophageal cancer with liver cancer is rare. Therefore, the combination of immunotherapy with other treatment modalities, such as TACE, surgery, particle therapy, and timing of combined treatment modalities, is being actively explored to maximize the therapeutic benefits of immunotherapy.¹⁴ This combination has gained increasing attention as a novel treatment strategy for advanced esophageal cancer patients with liver cancer.

Additionally, enhanced CT of the upper abdomen (Figure 2(b)), which was obtained after the patient's admission, revealed the presence of malignant liver tumors. A liver puncture perforation occurred. A pathologic examination of the patient revealed HCC (Figure 3).

Liver malignant tumors can be divided into primary and secondary categories.¹⁵ Primary liver malignant tumors originate from the epithelium or mesenchymal tissue of the liver. Secondary or metastatic liver cancer refers to the invasion of malignant tumors from multiple organs throughout the body to the liver. The patient's immunohistochemical examination revealed positivity for CK19, CD10, CK7, Ki67, and CD34 (Figure 4).

It is unusual for a patient to have two primary gastrointestinal tumors, which can complicate treatment options. Surgical resection is typically the primary treatment for early-stage esophageal cancer; however, this was not an option for this patient due to the presence of liver cancer. Radiotherapy and chemotherapy can also be used to treat both early and advanced stages of esophageal cancer. However, the prognosis for patients with both esophageal and liver cancer is usually poor, and treatment can be complicated due to the complexity of the disease. In summary, the diagnosis of two different primary gastrointestinal tumors in the same patient is rare and can present treatment challenges.

Surgical resection is suitable for patients with early liver cancer. The patient had both esophageal cancer and liver tumors and had distant metastasis. Currently, he has not undergone surgery or radiotherapy. Simultaneous liver transplantation, radiofrequency ablation, radiotherapy, targeted therapy, immunotherapy, and TACE are suitable for patients with liver cancer.¹⁶ Treatment of liver cancer is a multidisciplinary and multimodal treatment approach with options that are generally chosen on an individual patient basis according to the complex interplay of tumor stage and the extent of underlying liver disease, as well as patient performance status. TACE has been the first-line treatment for intermediate-stage HCC patients (Figure 5). Multidisciplinary therapies have been developed to prolong cancer patient survival.¹⁷

Treatment of cancer is now multidisciplinary, and multimodal treatment options are generally chosen on an individualized basis according to the complex interplay of tumor stage, the extent of underlying liver disease, and the patient's overall general health. Esophageal cancer with different pathological types of HCC is rare in clinical practice. It is hoped that this case can provide more reference and guidance to clinicians and improve clinical experience.

Conclusion

Esophageal squamous cell carcinoma with HCC is rare. At the same time, this makes surgical treatment difficult. Currently, multidisciplinary treatment of tumors plays an important role.

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Author contributions

M.M.J. and L.L. Conception and design; H.X. Administrative support; All authors Provision of study materials or patients; H.J.L. Collection and assembly of data; All authors Data analysis and interpretation; M.M.J. Manuscript writing; All authors final approval of manuscript.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Ethical statement

This case report was written informed consent was obtained from the patient.

Informed consent

Written informed consent was obtained from the patient(s) for their anonymized information to be published in this article.

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