Postoperative Adjuvant Chemotherapy for Colon Cancer Induced Dysarthria and Dysphagia: A Case Report

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Abstract

This paper summarized and analyzed the diagnosis and treatment process of a patient with postoperative dysarthria and dysphagia caused by adjuvant chemotherapy for colon cancer. In order to improve the clinical understanding of oxaliplatin - based treatment regimen induced chemotherapeutic peripheral neuropathy, especially dysarthria and dysphagia induced by oxaliplatin - induced neurotoxicity. Based on my own experience in the diagnosis and treatment of cases, the author also consulted and studied relevant literatures at home and abroad in recent years, and the report is as follows.

Keywords

Adjuvant chemotherapy; Oxaliplatin; Chemotherapy induced peripheral neuropathy; Dysarthria; Dysphagia.

1. Introduction

Chemotherapy is one of the commonly used methods for adjuvant treatment of colon cancer, and many colon cancer patients benefit from chemotherapy regimens containing oxaliplatin. However, oxaliplatin can cause chemotherapy induced peripheral neuropathy (CIPN). Common symptoms include paresthesias in the extremities and/or around the oral cavity, headache, hypoesthesia and peripheral neuropathy[1]. Dysarthria and dysphagia are rare. The author summarized and analyzed the diagnosis and treatment process of a patient with dysarthria and dysphagia caused by adjuvant chemotherapy after colon cancer surgery, combined with the experience in diagnosis and treatment of this case, as well as consulted and studied relevant domestic and foreign literature in recent years. The report is as follows.

2. Case presentation and management

A 50-year-old female ,with a BMI of 23.4kg/m2 and without hypertensionunderwent laparoscopic radical resection of sigmoid colon cancer on April 29, 2019. The pathological finding was differentiated adenocarcinoma of the sigmoid colon and The clinical stage was pT4N1M0, IIIB. The first course of adjuvant chemotherapy was given in the third week after surgery. The chemotherapy regimen is FOLFOX6 (Oxaliplatin 150mg intravenous infusion Day1; leucovorin 600mg intravenous infusion Day1; fluorouracil 500mg intravenous bolus Day1+3500mg for 48h intravenous infusion Day1). Repeat this chemotherapy regimen every two weeks. The sixth course of chemotherapy was performed 5 months after surgery. Hoarseness appeared on the second day of chemotherapy. The voice recovered on the 3rd day after the chemotherapy. Hoarseness occurs on the second day after the start of the 7th to 9th courses of chemotherapy. The voice could recover within 3 to 4 days after chemotherapy. The 10th course of chemotherapy was performed 8 months after surgery. The patient still had hoarseness on the second day of chemotherapy, and the symptoms did not relieve after the chemotherapy. No intracranial lesions were found under MR examination of the head.So it might be caused by the neurotoxic side effects of chemotherapy drugs. The 11th course of chemotherapy was suspended, and symptomatic treatments such as nebulized inhalation were given. The patient's hoarseness still did not relieve. In the 10th month after surgery, the patient gradually developed

slurred speech, which then gradually increased and became difficult to understand. At the 11th month after surgery, the patient could only vomit single words, and the head and neck MR (Figure 1) and laryngoscope (Figure 2) showed no abnormalities. On July 9, 2020, the patient was admitted to the neurology department due to his inability to speak and swallow. The patient was conscious and understanded the meaning of others, but her speech was vague and her memory, orientation, and calculation skills cannot be completed. Her uvula was centered. But her soft palate could not be lifted and her pharyngeal reflex disappeared. The result of the water swallow test was level 2. The patient's lung breathing exercises were normal. Her extremity muscle strength is V grade, extremity sensation and tendon reflexes were symmetrical, and comorbid movement, meningeal irritation and pathology were all negative. Routine examination and biochemical examination of cerebrospinal fluid were normal. HuD, Yo, Ri, CV2, Amphiphysin, Ma1, Ma2, SOX1, Tr, Zic4, GAD45 antibodies in serum and cerebrospinal fluid were all negative. Therefore, the patient was diagnosed with chemotherapy-induced peripheral neuropathy. The patient was given intramuscular injection of rat nerve growth factor, intravenous injection of mecobalamin, oral vitamin B complex and other treatments for nerve nutrition and nerve repair. The patient can vomit words gradually and the symptoms of dysphagia are alleviated. The patient has stopped chemotherapy for more than 11 months. She can utter continuously but still has slurred speech and the symptoms of dysphagia disappeared.

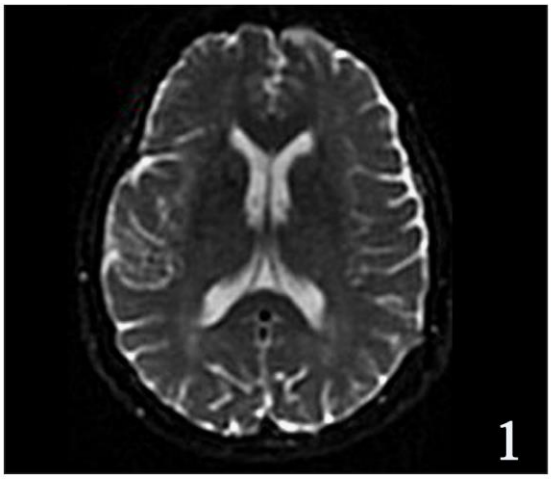

Figure 1 MR of head and neck did not. suggest intracranial lesions

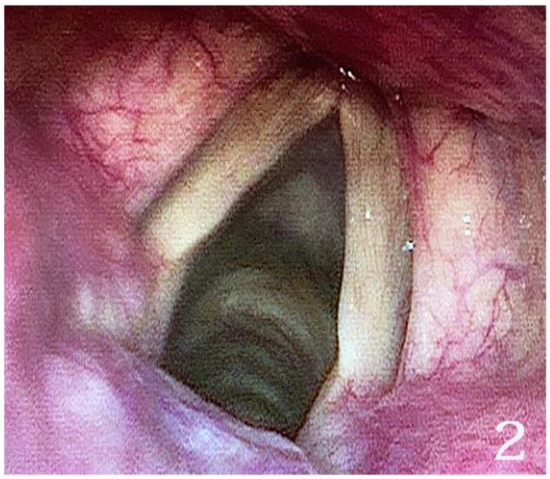

Figure 2 No abnormalities in laryngoscopy.

3. Discussion

Dysphonia refers to the abnormalities of the nerves and muscles of the vocal organs or the structure that make the pronunciation, vocalization, resonance, and rhythm abnormal, manifested as dysphonia, inaccurate pronunciation, and illegible words. Dysphonia is commonly seen in neurological and motor diseases such as stroke, brain tumor, cerebellar injury, Parkinson's disease and so on. It can also be seen in paraneoplastic neurologic syndromes (PNS) [1] and chemotherapy induced peripheral neuropathy (CIPN) [2]. CIPN is a peripheral neuropathy caused by chemotherapeutic drugs, which is dose-dependent, multiple and symmetrical. The incidence of CIPN is high, which can vary with chemotherapy regimens, chemotherapy cycles, treatment intervals, cumulative drug doses and risk factors [3, 4]. Oxaliplatin is a new generation of platinum anti-tumor drugs after cisplatin and carboplatin, which can also cause CIPN. CPIN usually starts after the cumulative dose of oxaliplatin reaches 540mg/m^2, and as the cumulative dose increases, and the intensity of peripheral neurotoxicity is also enhanced [4, 5]. The previous literature has been reported that oxaliplatin can cause dysarthria [2,6] and symptoms of dysphagia [2,7].

This patient received adjuvant chemotherapy with FOLFOX6 containing oxaliplatin after radical resection of sigmoid colon cancer. When the cumulative dose reached 600mg/m^2, the patient developed dysarthria. As the dose of oxaliplatin accumulates, the symptoms of dysarthria become

more severe. When the cumulative dose reaches 1000 mg/m^2, patients develop dysphagia. The patient has no history of hypertension, and the neurological examination and head and neck MR did not indicate intracranial lesions, so intracranial hemorrhage and cerebral obstruction can be ruled out. The laryngoscope was not abnormal, so vocal cord-related lesions can be ruled out. PNS PNS refers to a malignant tumor that causes damage to the nervous system at a remote site and causes a series of symptoms without distant metastasis. It is an autoimmune disease and the body has positive anti-neuronal antibodies [1]. In this case, the serum and cerebrospinal fluid of the neuroparaneoplastic syndrome were negative, which can rule out the neuroparaneoplastic syndrome. After stopping chemotherapy, neurotrophic and repair treatment, the patient's dysphagia symptoms disappeared and the symptoms of dysarthria eased. Therefore, the patient had CIPN caused by oxaliplatin, with clinical manifestations of dysarthria and swallowing disorders.

With the increasing number of oxaliplatin-based treatment options, clinicians should improve their understanding of oxaliplatin causing CIPN, especially the dysarthria caused by its neurotoxicity. When the cumulative dose of oxaliplatin exceeds 540mg/m^2, the patient should be closely monitored for CIPN, especially when the patient has dysarthria or dysphagia. After excluding common diseases such as PNS, intracranial lesions, and vocal cord injury, CIPN should be taken into consideration in time. The 2020 updated guidelines of the American Society of Clinical Oncology on the prevention and treatment of CIPN pointed out that there are currently no effective preventive drugs for patients receiving potentially neurotoxic drugs[8]. Therefore, in treatment, the dose of oxaliplatin should be adjusted in time according to the patient's condition, the chemotherapy cycle should be appropriately extended or the chemotherapy regimen should be appropriately extended, and neurotrophic and repair treatment should be given quickly to reduce the incidence of CIPN and improve the patient's efficacy and quality of life.

4. Conclusion

With the increasing use of oxaliplatin-based chemotherapy regimens, more and more potential side effects are reported. Dysphonia and dysphagia caused by oxaliplatin-induced neurotoxicity are very rare. It is necessary to recognize this rare side effect because it can affect the patient's efficacy and treatment plan.

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