Incidence of Lung Adenocarcinoma following Recurrent Deep Vein Thrombosis: A Case Presentation

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Abstract: Deep vein thrombosis (DVT) is a common disease that can lead to death. Many studies have looked at the chance of occurrence and the factors affecting thrombosis as one of the complications of cancer. This chance increases in patients with more severe cancer. The progression of cancer and the risk of death in patients with DVT is more severe and with a worse prognosis. But according to our knowledge, there is no accurate report of the incidence and diagnosis of cancer long after thrombosis .In our case, lung adenocarcinoma arose months after the onset of frequent thrombosis in a healthy person. So recommended to consider the risk of developing cancer in patients with recurrent thrombosis.

Keywords: Lung, Adenocarcinoma, Thrombosis.

INTRODUCTION

Venous thromboembolism is the third most common vascular complication. Deep vein thrombosis (DVT) is a common disease that can cause death due to Pulmonary thromboembolism. In the United States, this disease causes an estimated 300,000 deaths annually. Common causes of this complication are some surgical procedures, obesity, prolonged bed rest, and some medications [1, 2] but about 20% of these deaths occur in cancer patients [3]. Deep vein thrombosis is a known complication of cancer, and occurs in 4 to 17% of cancer patients [4]. The severity and mortality of the illness is higher in cancer patients with DVT compared to those without thrombosis [5]. The highest incidence of thrombosis in cancer patients is seen in lung cancer [6]. However, as far as we know, there is no report about the incidence of cancer after DVT. We present here a healthy case who had been diagnosed with lung adenocarcinoma few months after recurrent episodes of DVT.

CASE PRESENTATION

The case is a 33-year-old man who came to our hospital (Imam Khomeini hospital in Sari) because of his unprovoked DVT which was due to his relative bedrest. In this center, laboratory results show that the DVT test was negative, however because of the acute onset dyspnea, the CT angiography was ordered for the patient, which showed the thromboembolism of the left lung. The patient was given Warfarin and Enoxaparin. After one month of treatment with Warfarin, the patient returned to the hospital with a DVT. This time Xalerban was prescribed and the patient was discharged. After one month, he came back with dyspnea during exercise, decreased sounds in right lung and a mild crackles. This time was the last time he was hospitalized, He stated that his initial symptoms were productive coughing and sore throat which began with the onset of a respiratory infection from his mother. The patient was admitted with the diagnosis of pneumonia. A CT-scan was done. There was consolidation, air bronchogram in RML and RLL, also a nodularity appearance in the CT. Until this time, the patient had partial treatment with antibiotic. This time he was given broad spread antibiotics. The case reported an improvement in dyspnea, while the decrease in lung sounds was still tangible. Three weeks later, a CT scan was requested again. Results showed no improvement and the patient was still suffering from an unresolved pneumonia accompanied with a nodularity appearance in the lungs. These made the physicians suspicious about malignancy which lead the patient to have bronchoscopy. Ultimately, lung adenocarcinoma was diagnosed in the patient.

DISCUSSION

The incidence of DVT in cancer patients has been evaluated in several studies. It is seen in 20% of patients with cancer and this can reach 70% in some

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populations [7]. This chance increases in patients with more severe cancer and those who are undergoing chemotherapy [8]. According to studies, the chance of DVT in lung, pancreatic, ovarian, brain, gastric, renal, and uterine is higher than others [9]. Lung cancer accounts for 21% of DVT cases in cancer patients [10]. In addition, in the 7.3 to 13.6% of patients with lung cancer, DVT is observed [8]. 60% of this number is related to lung adenocarcinomas. The probable cause is the production of mucin by this tissue [11].

DVT can have a negative effect on the cancer treatment process such as bleeding, Reducing the therapeutic effect of chemotherapy, drug interactions, recurrent thrombotic events, worsening the quality of life, and increased treatment costs [12]. Therefore, the progression of cancer in patients with DVT is more severe and with a worse prognosis. The risk of death after deep vein thrombosis in cancer patients is 4 to 6 times higher than that of a healthy person. Also, in cancer patients with thrombotic events, the chance of survival is 2 to 3 times lower than that of other cancer patients [13, 14]. According to studies, complications of the vein thrombosis are not the only reasons of this increase in death. It seems that in these patients, the tumor itself is more vigorous than those without DVT [15]. This increased chance of death can also be due to the effect of anticoagulant drugs that the patient consumes [16].

In summary, coagulation is the result of endothelial damage of vessels, hypercoagulability, and blood flow stases [17]. These mechanisms can happen in cancer patients. Many cancer-related factors can contribute to DVT. Though, cancer itself can be considered a risk factor. According to studies, mucin secretion and tissue factor can play a major role. Mucin with effect on P-selectin and L-selectin can form microthrombi and thus thrombosis. Also, according to observations, one of the main features of thrombosis associated with cancers is an increase in tissue factor [18]. In general, these factors can be considered as the main risk factord for thrombosis formation in cancer patients: advanced age, tumor biology, use of chemotherapy, thromboprophylaxis, race, prior history of a thrombotic event, Cancer type and stage, Surgery, antiangiogenic drugs [11].

As mentioned, many studies have looked at the chance of occurrence and the factors affecting thrombosis as one of the complications of cancer. But according to our knowledge, there is no accurate report of the incidence and diagnosis of cancer long after thrombosis. In our case, lung adenocarcinoma arose months after the onset of frequent thrombosis in a healthy person. One of the possible reasons for this is the presence of small neoplasms at the time of the onset of thrombosis and before the incident and diagnosis of adenocarcinoma. These neoplasms can trigger thrombogenic factors, may cause hypercoagulability state and thus result in the formation of thrombosis.

CONCLUSION

In summary, we reported a case of lung adenocarcinoma, which occurred months after the patient's recurrent deep vein thrombosis. More studies should be done on this and clinicians should consider the risk of developing cancer in patients with recurrent thrombosis.

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