**A case of spontaneous remission of non-Hodgkin's lymphoma in the lung**

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**KEYWORDS**

Non-hodgkin-s lymphoma,lung cancer, lung needle biopsy,complete remission,CT scan

**Key Clinical Message**

Spontaneous remission (SR) of cancer is a rare biological event. Infection, biopsy procedures, and tumor microenvironment may be potential mechanisms for SR. Presenting a rare case of spontaneous remission of primary pulmonary non-Hodgkin's lymphoma.

**Abstract**

A 72-year-old male with a lung lesion who was diagnosed with non-Hodgkin's lymphoma through percutaneous needle lung biopsy. The patient's lung tumor disappeared during follow-up four months later without any standard antitumor treatments. This is a rare case of spontaneous tumor remission.

## **1 CASE PRESENTATION**

A 72-year-old male had abnormal CEA and CA19-9 levels for 7 years, with annual gastroscopies showing no malignant lesions. Additionally, he had a 3-year history of chronic obstructive pulmonary disease (COPD) and idiopathic pulmonary fibrosis (IPF), managed conservatively due to mild symptoms. In 2023, his wheezing worsened from a COVID-19 infection. On June 20, 2023, a PET-CT scan revealed increased metabolic activity in a mixed ground glass density nodule in the right lower lobe(SUVmax≈ 4.8; size ≈ 2.0 × 2.2 cm), indicating a malignant lung tumor. Due to surgical treatment intolerance, conservative management with traditional Chinese medicine (TCM) was chosen. Oral pirfenidone began July 27th but changed nidanib in October due to unsatisfactory symptom improvement. A CT-guided percutaneous lung lesion biopsy was performed on Nov. 23, revealing non-Hodgkin's lymphoma derived from B cells. Immunohistochemical results showed: CK (AE1/AE3) (-), CK5/6 (-), TTF-1 (+), CD3 (reactive T cells+), CD5 (reactive T cells+), CD20 (L26) (diffuse+), CD79a (diffuse+), CD21 (FDC+), CD23 (FDC+), Ki67 (MIB-1) (40%+), CD138 (+), CD38 (+), lgG (+), lgG4 (-). In situ hybridization revealed EBER (-). Genetic testing detected clonal gene rearrangements of IGH and IGK, but not TCRG, TCRD, or TCRB. On March 21, 2024, he returned to our department for a chest CT due to worsening dyspnea. Surprisingly, the CT showed the tumor had disappeared (see **Fig.1**). Two months later, the patient accidentally fell and fractured the rib cage. Chest CT was rechecked, and no tumor recurrence was found.

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| --- | --- |
| a |  |
| b |  |
| c |  |

**Fig.1.Changes in lesions on chest CT before and after biopsy.** **a**.Before biopsy. Nodular lesion in the lower right lung (se303 im251), with a length of approximately 25x26mm, on October 7, 2023 (256 row CT). **b**.Four months after biopsy. No visible nodule in the lower right lung, on March 21, 2024 (16 row CT). **c**.Follow up for another 2 months. No recurrence was observed, on June 12, 2024(256 row CT).

## **2 WHAT CAUSED THE SR OF THE TUMOR IN THIS CASE?**

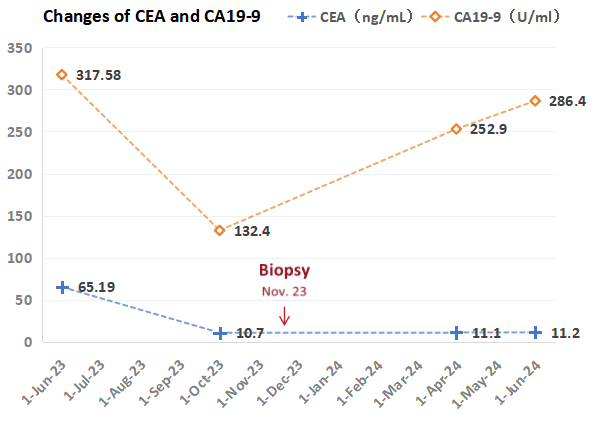
The biopsy is considered the possible cause.

## **3 DISCUSSION**

Spontaneous remission (SR) of cancer is a rare biological event proposed in 1956. Lymphoma is a common SR cancer type.Given SR's low incidence, we encountered a more rare case: primary pulmonary non-Hodgkin's lymphoma comprisesonly 0.4% of all lymphomas.1 SR's intricate mechanisms remain elusive, infection, biopsy procedures, and tumor microenvironment disruptions play vital roles.2 As in our case, biopsy is easily assumed the main cause of regression. There are also some case reports of cancer SR after TCM treatment.3 Although the patients in our case also used Chinese Herbs as alternative treatment, due to limited data, its exact effect cannot be evaluated yet.

The case had a long history of high CEA that significantly declined before biopsy (see **Fig.2**). If we follow monism, it is difficult to define the relationships between CEA and pulmonary lymphoma, as well as CA19-9, since they are generally believed to have a stronger correlation with digestive system tumors. However, there are no signs or evidence of other related diseases.

The duration of remission remains to be observed. Poor lung function (SPO2=92%) caused by COPD and IPF significantly impacts survival unfavorably.



**Fig.2.Changes in tumor markers and timing of biopsy**. CEA dcreased before the biopsy and tended to be stale, while Ca19-9 rebounded.

## **ACKNOWLEGEMENTS**

Sun Li collected the patient’s information and wrote the paper.

Fan Hongyu reviewed the paper.

## **AUTHOR CONTRIBUTION STATEMENT**

Li Sun:Resources;Visualization;Writing original draft;review & editing.

Fan Hongyu:Review & editing.

## **CONFLICT OF INTEREST STATEMENT**

The authors declare no conflict of interest.

**DATA AVAILABILITY STATEMENT**

The data sets used and/or analysed during the current study are available from the corresponding author upon reasonable request.

**ETHICS STATEMENT**

Medical Ethics Committee of Puyang Traditional Chinese Medicine Hospital approved the research.Ethical approval No.202312.The study has obtained informed consent from the patient.

## **FUNDING INFORMATION**

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## **CONSENT**

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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