

CASE REPORT

A Case of Abnormal Elevation of Serum CA 72-4 Caused by Colchicine

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SUMMARY

Background: CA 72-4 is a tumor associated antigen which shows significantly increased serum levels in gastric cancer. It is the most commonly used serum tumor marker for diagnosing symptomatic gastric cancer and monitoring gastric cancer treatment.

Methods: We report the case of a gout patient with abnormal elevation of serum CA 72-4 caused by taking colchicine.

Results: The patient's painless gastroscopy and other examinations showed no obvious abnormalities, and no detection interference was detected. After discontinuing treatment with colchicine, CA 72-4 level of the patient returned to normal. Therefore, the abnormal increase of CA 72-4 is believed to be caused by colchicine.

Conclusions: When gout patients receive colchicine treatment, it may lead to an abnormal increase in CA 72-4 results. Laboratory staff should consider the existence of such interference and promptly remind clinical doctors to avoid unnecessary examination and treatment of patients.

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KEYWORDS

CA 72-4, gout, colchicine

INTRODUCTION

Carbohydrate antigen 72-4 (CA 72-4) is a tumor related glycoprotein, which can be slightly increased in type 2 diabetes, liver disease, and other benign diseases and significantly increased in patients with gastric cancer, ovarian cancer, colon cancer, and other malignant diseases [1-3]. We found a case of abnormal elevation of serum CA 72-4 caused by taking colchicine. The specific situation is as follows.

CASE PRESENTATION

The patient is a 67-year-old male. In April 2024, a physical examination was conducted at the Keqiao Street Community Service Center. It was found that CA 72-4 was abnormally elevated, reaching 224.41 U/mL (Reference value: 0 - 7 U/mL). On April 25, 2024, the patient came to our hospital for painless gastroscopy screening and colorectal polyps were discovered, which

Table 1. Test results of common serum tumor markers of the patient.

| Test items | Results | Reference value |
|-------------------------------------|------------|-----------------|
| Carbohydrate antigen 19-9 (CA 19-9) | 4.81 U/mL | ≤ 30.00 U/mL |
| Carbohydrate antigen 125 (CA 125) | 7.03 U/mL | ≤ 35.00 U/mL |
| Carbohydrate antigen 242 (CA 242) | 1.95 IU/mL | ≤ 20 IU/mL |
| Carbohydrate antigen 50 (CA 50) | 3.18 IU/mL | ≤ 25 IU/mL |
| Alpha fetoprotein (AFP) | 2.3 ng/mL | ≤ 7 ng/mL |
| Carcino-embryonic antigen (CEA) | 1.85 ng/mL | ≤ 4.5 ng/mL |

Table 2. CA 72-4 detection results after gradient dilution of serum samples (U/mL).

| Dilution factor | Undiluted | 1:2 | 1:4 | 1:8 | 1:16 | 1:32 |
|-----------------|-----------|-----|------|-----|------|------|
| CA 72-4 | 134 | 72 | 37.9 | 18 | 8.13 | 4.12 |

Table 3. The serum CA 72-4 levels before and after colchicine treatment (U/mL).

| | May 10, 2024 | May 21, 2024 | May 31, 2024 |
|-------------------|--|--|---|
| CA 72-4 | 134 | 4.17 | 159 |
| Medication status | After 15 days of treatment with colchicine | Discontinue colchicine treatment for 10 days | Restore treatment with colchicine for 10 days |

were removed during surgery. On May 10, 2024, the patient visited our gastroenterology department due to an increase in tumor markers. Our CA 72-4 test result is 134 U/mL. Other examinations of the patient showed that all serum markers except CA 72-4 were within the normal range (Table 1). At the same time, the patient underwent abdominal ultrasound and other examinations, but no obvious abnormalities or tumor related evidence were found.

Considering that the patient's colon polyp had been removed and no obvious abnormalities were found in other examinations, the level of CA 72-4 is still 20 times higher than the normal level. The clinical doctor questioned the results and contacted the laboratory. After receiving this situation, the laboratory staff retested the sample and the results were consistent with the previous ones. During the testing period, it was found that the instruments and reagents were being maintained normally, and internal quality control (IQC) was also under control. After discussion, we investigated the possible causes of detection interference in the sample. First, we used a gradient dilution method to process the sample. After dilution, the results of CA 72-4 showed a linear pattern (Table 2). The specimens were sent to different testing platforms for testing, and the results were con-

sistent with those of our hospital. At the same time, the patient's serum was subjected to PEG pretreatment and then tested, with a result of 151 U/mL, which is consistent with the untreated result. The above methods have basically ruled out the possibility of interference in this detection. Therefore, we believe that the results are reliable. After communicating with clinical doctors, it was found that the patient is taking colchicine (0.5 mg bid) to treat gout. Considering the possibility of drug interference, we suggest stopping the medication for a period of time before testing. After stopping the medication for ten days (May 21), the patient was tested for CA 72-4. The level of CA 72-4 had returned to the normal range, which is 4.17 U/mL. Therefore, we believe that the previous abnormal elevation of CA 72-4 is due to a false elevation caused by the drug colchicine. We conducted CA 72-4 testing again on the tenth day (May 31) after the patient took colchicine again. The level of CA 72-4 increased abnormally again, reaching 159 U/mL, further confirming our hypothesis (Table 3).

DISCUSSION

CA 72-4 is a tumor associated glycoprotein antigen, mainly present in human adenocarcinoma tissue and highly expressed in gastric cancer and ovarian cancer, with high sensitivity and specificity [3,4]. CA 72-4 has higher specificity for gastric cancer than CEA and CA 199 and is the most commonly used tumor marker for gastric cancer diagnosis and treatment monitoring [5]. Despite various examinations ruling out the possibility of tumors, the patient's CA 72-4 level still increased by up to 20 times compared to the normal value. The clinician suspected that there was a problem with the laboratory tests. The laboratory personnel conducted an inspection of the testing system and did not find any issues. At the same time, the patient's blood was extracted for retesting, and the difference was not significant. The possible detection interference in the sample was investigated, and no interference was found. After further communication with the patient, we found that they had been using colchicine to treat gout for many years. It has been reported in the literature that the increase of CA 72-4 may be related to colchicine [6]. So the laboratory suggested that the patient stop using colchicine before testing. The level of CA 72-4 returned to normal after discontinuation of medication.

Colchicine is one of the most commonly used drugs for treating gout. The mechanism by which colchicine leads to an increase in CA72-4 levels is currently unclear. The possible mechanisms include: oral administration of colchicine stimulates the gastrointestinal tract, and inflammatory stimulation leads to an increase in CA 72-4; Colchicine or its metabolites interfere with the conditions for detecting CA 72-4, causing its elevation. In clinical practice, it has been found that gout patients have significantly elevated levels of CA 72-4 in the short term. In addition to being alert to tumors, it is necessary to inquire in detail about recent medication use. For patients who have taken or are currently taking colchicine, CA 72-4 can be dynamically monitored and tumor markers can be rechecked after discontinuation to rule out the interference of colchicine on CA 72-4 test results. It is not necessary to actively perform invasive procedures such as gastroscopy, reducing the patient's pain and economic burden.

In summary, this case emphasizes that laboratory staff should fully understand the possibility of colchicine interfering with CA 72-4 testing, and suggests that clinical doctors wait for patients to stop taking medication before testing to avoid misdiagnosis and unnecessary treatment.

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Declaration of Interest:

All authors declare that they have no competing interests.

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