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Case Report

Sudden aortic dissection: A cautionary tale for the unexplained back pain during bevacizumab treatment☆,☆☆,★,★★

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ABSTRACT

Bevacizumab is widely used in the treatment of colorectal cancer, liver cancer, and other advanced solid tumors because of its multiple targets, no genetic testing and better safety. Globally, the use of bevacizumab in the clinic has been climbing year by year based on several large-scale, multicenter prospective studies. While bevacizumab undeniably has a good clinical safety profile, it has also been associated with adverse effects such as drug-related hypertension and anaphylaxis. In our recent clinical work, we met a female patient with acute aortic coarctation previously treated with multiple cycles of bevacizumab, who was admitted with sudden onset of back pain. Because the patient had just had an enhanced CT of the chest and abdomen a month earlier, no abnormal lesions apparently associated with low back pain were found. So when the patient was seen on this occasion, our clinical diagnosis was first considered to be neuropathic pain, but a further multiphase enhancement CT was done again for further exclusion and the final diagnosis was acute aortic dissection. The patient later died within 1 hour after the chest pain had worsened again while waiting for a surgical blood supply within 72 hours of presentation. The risk of fatal acute aortic

Abbreviations: acute type A aortic dissection, AAAD.

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dissection is not sufficiently emphasized in the revised instructions for bevacizumab, although the adverse effects associated with aortic dissection and aneurysm are mentioned. Our report is of high practical value in raising clinicians' vigilance and safe management of patients using bevacizumab worldwide.

Introduction

Presently, bevacizumab has been widely used in combination with chemotherapy for solid tumors on a global scale [1,2], such as colorectal cancer and non–small-cell lung cancer. In clinicians, much attention is paid to avoid the perioperative use of bevacizumab and keep an eye on the risk of developing drug-related hemorrhage [3]. Although bevacizumab is considered to have relatively high safety advantages in clinical practice, the sudden and highly lethal acute type A aortic dissection (AAAD) events induced by it are not fully recognized in the use of bevacizumab, which can very easily lead to missed surgical opportunities for patients.

Case presentation

A 54-year-old female with colon carcinoma presented to our hospital for suffering from right-sided back pain for 7 hours. She previously had hematochezia and was therefore diagnosed with colon carcinoma by enteroscopy. Curative resection was conducted, and the postoperative specimens

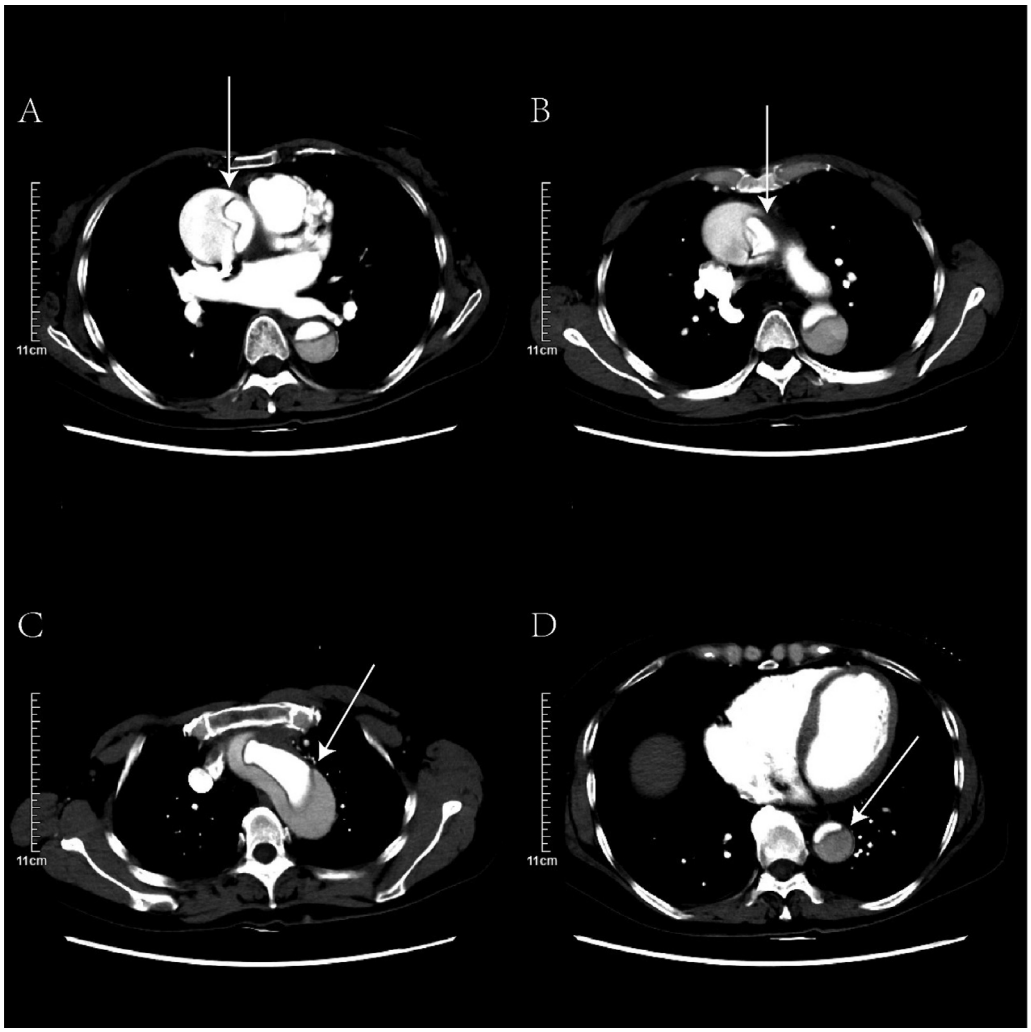

Fig. 1 – Contrast-enhanced CT scan. The arterial phase of multiphase computed tomography showed a double-lumen shadow of the aortic arch with nonuniform filling of the intraluminal contrast (A-D). The rip of the arterial dissection originates from the root of the ascending aorta and continues into the descending aorta (thin white arrow).

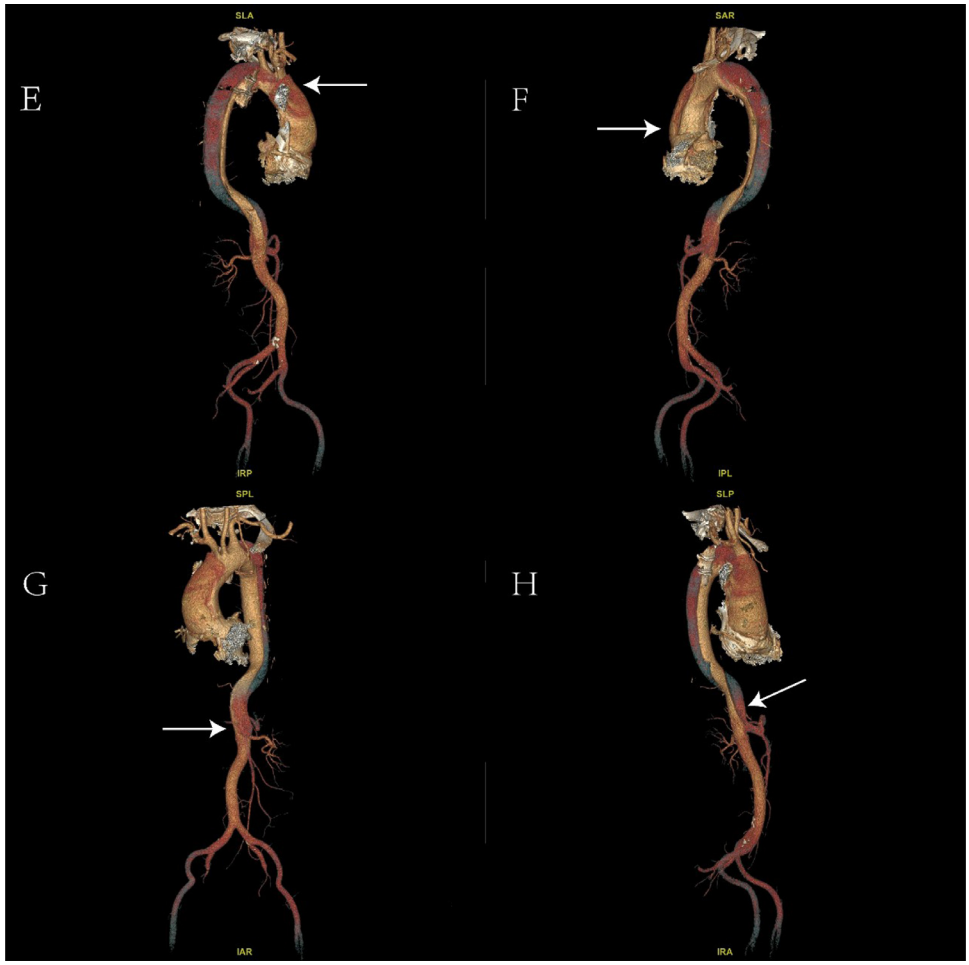

Fig. 2 – 3D reconstructed images. Three-dimensional reconstruction CT images from multiple angles showed that aortic dissection started from the ascending aortic root to form a false lumen and ended at the level of the celiac trunk (thin white arrow) (E-H).

revealed a KRAS mutation and an MSS-type tumor. Before her admission to our hospital, bevacizumab in combination with chemotherapy had been administrated intermittently for a total of 8 cycles.

Two hours before the admission, tramadol hydrochloride sustained-release tablet (100 mg) was self-administrated orally. On admission, the patient's back pain was significantly relieved, and the numeric rating scale score was 2 points. The patient complained of pain in the left scapular and back areas, but could not specify the specific location. One month before the admission, there was no evidence of bony metastases to the dorsal cervical and thoracic regions or intrapulmonary invasion on the plain CT scan. Given the sudden pain and the self-administration of oral pain medication that masked the pain symptom, emergency multiphase-enhanced CT scans of the chest and abdomen were performed, suggesting AAAD (Figs. 1 and 2).

The etiology of the AAAD was undetermined due to the absence of a previous history of related diseases such as hypertension and cardiovascular diseases (CVD). Review of the patient's treatment history and in light of recent studies suggesting a possible association of antiangiogenic drugs with the development of aortic dissection and aneurysm. Therefore, this patient may have had an AAAD as a result of bevacizumab therapy, which we consider highly suspicious.

The patient experienced back pain again while waiting for emergency surgery, and lost consciousness a few minutes later. At that time, the patient's blood pressure and pulse could not be measured, and the electrocardiogram showed no electrophysiological activity. We gave the patient symptomatic treatment such as venous access, blood volume supplement and blood pressure increase, but after nearly 1 hour of rescue, the patient was finally declared clinically dead. The time from the first onset of back pain to clinical death was less than 72 hours. The patient's relatives rejected the suggestion of an autopsy.

Discussion

In this context, in patients with prior CVD and recent bevacizumab use, routine use of multiphase-enhanced CT is

recommended; while in patients without previous CVD but suffering from sudden back pain, emergency multiphase-enhanced CT is recommended to avoid the miss of AAAD on noncontrast-enhanced CT scans in early diagnosis, and analgesics should be used with caution before determining the specific etiology in avoidance of missing the timing for optimal medical treatment.

Patient consent

The patient's spouse and family were informed of the publication of this manuscript and written consent was obtained.

REFERENCES

[1] Oza AM, Dubois F, Hegg R, Hernández CA, Finocchiaro G, Ghiringhelli F, et al. A long-term extension study of bevacizumab in patients with solid tumors. Oncologist 2021;26(12):e2254–e2e64.
[2] Garcia J, Hurwitz HI, Sandler AB, Miles D, Coleman RL, Deurloo R, et al. Bevacizumab (Avastin®) in cancer treatment: a review of 15 years of clinical experience and future outlook. Cancer Treat Rev 2020;86:102017.
[3] Gu T, Jiang A, Zhou C, Lin A, Cheng Q, Liu Z, et al. Adverse reactions associated with immune checkpoint inhibitors and bevacizumab: a pharmacovigilance analysis. Int J Cancer 2023;152(3):480–95.