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LETTER TO THE EDITOR

Acquired factor V inhibitor after antibiotic treatment in a patient with pneumonia: a case report

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Dear Editor,

Acquired factor V (FV) inhibitor (aFVI) might be induced by antibiotics and may only improve with antibiotic termination. We should consider this disorder to prevent massive bleeding; prothrombin time (PT) and activated partial thromboplastin time (APTT) should be checked before invasive examinations in antibiotic-receiving patients.

A 78-year-old man with a history of smoking 45 packs/year and chronic obstructive pulmonary disease presented to a clinic with high-grade fever. Serum analysis revealed an inflammatory reaction; cefcapene pivoxil was administered. Two days later, the inflammation worsened, and right pneumonia was suspected on chest radiograph. He presented to our hospital for further treatment.

We changed the antibiotic to garenoxacin; however, he showed limited improvement and was admitted to our hospital. Computed tomography showed consolidation and ground-glass shadows in his right lung and a nodule shadow in his left lung. We administered several antibiotics and antifungal agents, including ceftriaxone, levofloxacin, meropenem, and micafungin. His pneumonia improved with treatment; we planned a transbronchial lung biopsy to investigate the nodule shadow observed in his left lung.

For biopsy preparation, we checked PT and APTT, both of which were increased. Later, decreased FV levels were detected and a mixing test was performed (Fig. 1). He was diagnosed with aFVI after antibiotic treatment. After termination of the antibiotics, PT and APTT improved; biopsy was performed safely.

Neutralizing auto-antibodies cause rare bleeding disorders due to acquired deficiencies in coagulation factors [1]. Acquired factor V inhibitor is a rare disorder. Several causes of FV inhibitor have been reported, such as exposure to bovine thrombin, cancer, autoimmune disorders, human immunodeficiency virus infection, infections, amyloidosis, and antibiotics [2–4]. FV inhibitor can be detected by increased PT and APTT, decreased FV levels, and by performing mixing tests or the Bethesda method [2].

We demonstrated two important clinical observations. First, aFVI might be induced by antibiotic treatment. Two patients have been reported to be diagnosed with aFVI following ciprofloxacin treatment [4]. In the present case, the specific antibiotic agent that induced aFVI was unclear; however, aFVI should be considered while

plasma of patient (%)	100	90	80	50	20	10	0
before incubation	209	155.6	136.3	99.9	64.4	44.9	33.1
after incubation	213.3	200.6	185	142.3	82.5	53.3	37.6

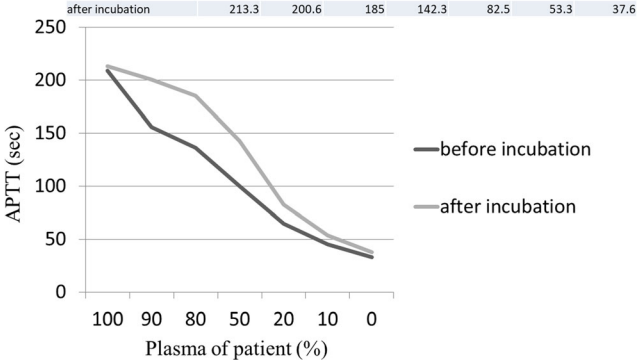

Fig. 1 Mixing test results showing the inhibitor pattern but not the deficiency pattern. APTT, activated partial thromboplastin time

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administering antibiotic treatment to patients, especially before invasive examinations.

Second, in patients with antibiotic-induced aFVI, PT and APTT might only improve by terminating antibiotic administration. In one patient with antibiotic-induced aFVI, normalization was only observed after antibiotic termination [4]. However, aFVI could be demonstrated even after ciprofloxacin termination in another patient [4]. In the present case, several antibiotics were administered for treating pneumonia; PT and APTT only improved following antibiotic termination. Therefore, antibiotic termination and follow-up of PT and APTT might be efficacious in such patients.

In conclusion, we report a case of aFVI after antibiotic treatment. aFVI might be induced by antibiotic treatment and we should consider this disorder, especially before invasive examinations. Patients with aFVI might only improve after antibiotic termination.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Informed consent Informed consent was obtained from all individual participants included in the study.

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