

CASE REPORT

Campylobacter fetus sepsis in an immunocompetent patient with haematological complication

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SUMMARY

Campylobacter fetus sepsis is rare, especially among young, immunocompetent patients. We present the case of a 43-year-old man with a history of ulcerative colitis who was diagnosed with *C fetus* bacteraemia with endovascular manifestation. The patient was found to have a low vitamin K level and a high international normalised ratio, and developed deep vein thrombosis. The patient was fully recovered with oral antibiotic treatment, anticoagulation and supportive therapy. Clinicians should be aware that this type of infection, although extremely rare, can occur even in younger, healthy adults and immediate diagnosis and treatment are required to avert life-threatening complications.

BACKGROUND

Campylobacter bacteraemia is a very rare condition that has been found to occur mainly in elderly patients with known immune deficiency or serious medical condition, such as human immunodeficiency (HIV) infection or liver disease. *Campylobacter fetus* subsp *fetus* is associated with systemic infection and endovascular manifestations. This case highlights the possibility that systemic campylobacteriosis can occur in an otherwise healthy middle-aged adult who had a history of colectomy due to ulcerative colitis (UC). A haematological complication and hypercoagulability state complicate his condition, but appropriate antibiotic and anticoagulation therapy were able to improve his condition within a few days.

CASE PRESENTATION

A 43-year-old man presented with a weeklong history of fever, vomiting, nausea, sweating, rigors and loss of appetite. He also reported a few days history of increasing pain in the left leg, which was tender, swollen and warm to touch. His medical history revealed that he had undergone a total colectomy and ileoanal pouch formation decades ago, after being diagnosed with UC. Since then, he had remained asymptomatic for over 10 years. Apart from this condition, he was otherwise fit, healthy and independent. He was not taking any regular medications, was not a smoker or alcohol drinker, and no recent travels or contact to animals or pets.

On physical examination, he was found to have the following vital signs: body temperature of 38.8°C, blood pressure of 95/67, and pulse rate of 112 bpm. He showed clinical signs of dehydration. Further examination revealed a tender, swollen, warm left leg.

INVESTIGATIONS

The patient's initial blood tests confirmed the suspicion of serious infection, with raised infection markers, a C reactive protein (CRP) of 281, white blood cell (WBC) count 16.8 mm³, and erythrocyte sedimentation rate (ESR) of 38. His haemoglobin (Hb) and mean corpuscular volume (MCV) were within normal range. His chest x-ray and ECG were normal.

Blood cultures were taken, which demonstrated a very slow growing Gram-negative organism, identified as *C fetus* subsp *fetus*. This was confirmed in a reference laboratory. A septic screen was also conducted, which included ultrasonography of the abdomen and pelvis. These revealed normal results, and further investigation with CT scan of these areas did not show any significant pathology.

A Doppler scan of the swollen, painful leg was performed, revealing extensive occlusive deep vein thrombosis (DVT) in the superficial femoral vein and popliteal vein.

It was noted that on admission, his clotting screen revealed an elevated international normalised ratio (INR) level of 2.4 and D-dimer of 1021. While this patient has not been on anticoagulation therapy, further questioning revealed that this patient experienced prolonged bleeding after a previous venipuncture for a routine blood test few months ago. The patient's history of having had total colectomy and clinical and biomechanical findings strongly suggested the possibility of vitamin K deficiency. To evaluate this further, a trial of 5 mg vitamin K was given, which improved his INR to 1.6 in 24 h. A thrombophilia screen was also carried out but it did not reveal any significant pathology.

TREATMENT

The patient, upon admission, exhibited signs of dehydration, which was later diagnosed to be due to *C fetus* septicaemia. He was rehydrated and treated with oral ciprofloxacin (750 mg twice daily).

The swelling and pain on his left leg were characteristic of a DVT, which was confirmed by a Doppler scan. Anticoagulation therapy for 6 months was then started.

OUTCOME AND FOLLOW-UP

His clinical condition and blood markers improved over the next days.

DISCUSSION

C fetus is a Gram-negative motile bacterium that causes a typical zoonosis affecting cattle and sheep. It also causes opportunistic infections in humans,

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although infection of immunocompetent humans is extremely rare.¹ Risk factors commonly associated with *Campylobacter* septicaemia include extremes in age, immunosuppression, serious medical conditions, HIV infection, alcoholism and previous gastrointestinal surgery.² There are different species of *Campylobacter* but only this subspecies can cause septicaemia, and can lead to involvement of meninges, pericardium, peritoneum and joints.³ *Campylobacter* bacteremia may involve the vascular lining which can result in the formation of deep vein thrombosis as well as mycotic aortic aneurysm and endocarditis.⁴

This patient was found to be positive for *C fetus* septicaemia and developed DVT, a condition that may have been brought about by risk factors such as immobility and dehydration due to vomiting and fever. Additionally, a possible imbalance may have occurred with an acquired deficiency of the natural anticoagulant as well as antithrombin, protein C and protein S.

It is not uncommon for patients with inflammatory bowel disease such as UC to experience thromboembolic complications related to a deficiency in these coagulation factors.⁵ Infection and inflammation are also known to predispose patients to DVT, a life-threatening condition associated with a 6% death rate.⁶

It was thought that the reasons for the patient's high INR values were multifactorial, including a vitamin K deficiency due to colectomy and the septicaemia, which led to a decreased production of coagulation factors in the liver.

Contributors MTN and SMH contributed equally to this work, including planning, conducting and reporting.

Competing interests None.

Patient consent Obtained.

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Learning points

- ▶ Although *Campylobacter* sepsis is often associated with immune-incompetence, old age and other serious medical conditions, other risk factors such as previous gastrointestinal surgery may predispose otherwise healthy, middle-aged adults to the disease.
- ▶ *Campylobacter* is also associated with vascular endothelial involvement and can cause phlebitis, which can promote deep vein thrombosis.
- ▶ Accurate diagnosis of this type of bacteraemia is necessary for immediate treatment since its complications may be life threatening.

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