**Abstract:** Early-onset sepsis caused by Gram-negative spiral organisms is rarely reported, with *Campylobacter fetus* being a better known causative agent than other *Campylobacter* species. We report the case of a 2-day-old girl who presented with hematochezia and bacteremia caused by *Campylobacter jejuni*. She was born full-term. Her family ate undercooked chicken, and *Campylobacter* enteritis was diagnosed before her birth.

**Key Words:** *Campylobacter jejuni*, Gram-negative spiral bacteremia, early-onset sepsis, neonatal hematochezia, food handling practice for pregnant women

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**CASE REPORT**

A 2-day-old girl was admitted to our hospital with bloody diarrhea containing mucous (Fig. 1). The neonate had been delivered normally at the gestational age of 37 weeks and 6 days to a 27-year-old woman (gravida 2, para 1). The pregnancy was uneventful. Her family ate undercooked chicken, and *Campylobacter* enteritis was diagnosed before her birth.

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FIGURE 1. The patient’s mucoid and bloody diarrhea on the day of admission.
We learned the following important lessons. First, *C. jejuni* can cause a Gram-negative spiral bacteremia as a neonatal early-onset sepsis defined as the onset of symptoms before 7 days of age. Second, taking a family and dietary history is key to diagnosis. Third, recommendations concerning kitchen food handling practices should be provided routinely to pregnant women. Early-onset sepsis in term infants is decreasing and Gram-negative spiral organisms are rare pathogens.1,2 *Campylobacter fetus* is better known as a cause of neonatal bacteremia than *C. jejuni*, and in *C. fetus* infections the outcome for the fetus is frequently death.3,4 Several studies show that *Campylobacter* bacteremia is more common in previously healthy young children or older immunocompromised patients.7-10,11 The outcome after *C. jejuni* bacteremia is usually favorable. The estimated mortality rate in children is very low; however, relapsing *Campylobacter* bacteremia has been reported in cases of humoral immunodeficiency, such as X-linked agammaglobulinemia.7,12,13 Some previous studies report *C. jejuni* that is resistant to third-generation cephalosporins, fluoroquinolones and macrolides. However, they may be sensitive to aminoglycosides and carbapenems.2,6 Thus, early initiation of carbapenem antibiotics is recommended. In this patient, symptoms were mild with hematochezia and her prognosis was good after treatment with azithromycin.

Family and dietary history taking was important for diagnosis. *C. jejuni* is one of the most common pathogens that cause enterocolitis in developed countries. By contrast, bacteremia is relatively rare. Abdominal pain with or without diarrhea is reported in at least half of the patients.6,9 All patients should be asked about potential epidemiologic risk factors for particular diarrheal diseases and their transmission, including consumption of unsafe foods and contact with ill people. For *Campylobacter* enteritis, undercooked chicken is considered the most likely contaminated food vehicle. While the risk of infection with *Toxoplasma gondii* and *Listeria monocytogenes* in pregnant women is mentioned in some guidelines, *Campylobacter* infection in pregnant women receives less attention.4 In addition to usual good food handling practices, including washing hands thoroughly with soap and clean running water, all meat, especially chicken, should be cooked to an adequate temperature of 75°C or higher.

In conclusion, *C. jejuni* can cause early-onset sepsis, and taking a family and dietary history is key to diagnosis. We must be aware that *C. jejuni* enteritis in the mother can affect her neonate via vertical transmission. Effective food handling recommendations should be provided to prevent mother-to-child transmission of *C. jejuni*.

**REFERENCES**

1. Puopolo KM, Benitz WE, Zaoutis TE; Committee on Fetus and Newborn; Committee on Infectious Diseases. Management of neonates born at ≤34 0/7 weeks’ gestation with suspected or proven early-onset bacterial sepsis. *Pediatrics*. 2018;142:e20182896.

2. van den Hoogen A, Gerards LJ, Verboon-Maciolek MA, et al. Long-term trends in the epidemiology of neonatal sepsis and antibiotic susceptibility of causative agents. *Neonatology*. 2010;97:22–28.

3. Pacanowski J, Lalande V, Lacombe K, et al; CAMPYL Study Group. *Campylobacter* bacteremia: clinical features and factor associated with fatal outcome. *Clin Infect Dis*. 2008;47:790–796.

4. Simor AE, Karmali MA, Jadavji T, et al. Abortion and perinatal sepsis associated with campylobacter infection. *Rev Infect Dis*. 1986;8:397–402.

5. Guerrant RL, Van Gelder T, Steiner TS, et al; Infectious Diseases Society of America. Practice guidelines for the management of infectious diarrhea. *Clin Infect Dis*. 2001;32:331–351.

6. Feodoroff B, Lauhio A, Ellström P, et al. A nationwide study of *Campylobacter jejuni* and *Campylobacter coli* bacteremia in Finland over a 10-year period, 1998-2007, with special reference to clinical characteristics and antimicrobial susceptibility. *Clin Infect Dis*. 2011;53:e99–e106.

7. Skirrow MB, Jones DM, Sutcliffe E, et al. Campylobacter bacteremia in England and Wales, 1981-91. *Epidemiol Infect*. 1993;110:567–573.

8. Wong SN, Tam AY, Yuen KY. *Campylobacter* infection in the neonate: case report and review of the literature. *Pediatr Infect Dis J*. 1990;9:665–669.

9. Hirschel J, Herzog D, Kaczala GW. Rectal bleeding in neonates due to *Campylobacter* bacteremia: report of 2 cases with a review of the literature. *Clin Pediatr (Phila)*. 2018;57:344–347.

10. Allos BM. *Campylobacter jejuni* infections: update on emerging issues and trends. *Clin Infect Dis*. 2001;32:1201–1206.

11. Ben-Shimol S, Carmi A, Greenberg D. Demographic and clinical characteristics of *Campylobacter* bacteremia in children with and without predisposing factors. *Pediatr Infect Dis J*. 2013;32:e414–e418.

12. Fernández-Cruz A, Muñoz P, Mohedano R, et al. *Campylobacter* bacteremia: clinical characteristics, incidence, and outcome over 23 years. *Medicine (Baltimore)*. 2010;89:319–330.