

Letters to the Editor

Pseudomembranous colitis and bacteremia in an immunocompetent patient associated with a rare specie of *Clostridium* (*C. ramosum*)

Key words: Colitis. Clostridium ramosum.

Dear Editor,

We present a case of pseudomembranous colitis and bacteremia associated with *Clostridium ramosum*. Up to now there have been only 8 cases of infection caused by this bacterium, but none of them in the gastrointestinal tract.

Clinical case

A 79-year-old woman had received amoxicillin-clavulanic acid for 10 days and, subsequent to that, ciprofloxacin for a week.

Two days after finishing her antibiotic treatment, she began to have watery bowel movements (without pathologic products, both during the day and at night), fever up to 39 °C, abdominal pain, and progressive weakness. She went several times to Urgent Care Unit, where stool cultures and tests for *Clostridium difficile* toxin were negative. She was discharged after her condition improved following treatment with astringents (though without resolution of the clinical picture). She returned a week later because she continued to have watery bowel movements, abdominal pain, fever, and weakness. Laboratory analysis was unremarkable except for mild normocytic-normochromic anemia. Colonoscopy revealed diffuse ulcers of varying sizes and depth up to the ascending colon, characterized by a whitish fundus and reddish halo. Biopsies confirmed the ulcers. Because of fever,

hemocultures were done, and they proved to be positive for *Clostridium ramosum*. In light of the suspicious endoscopy, treatment with metronidazole was initiated and maintained for 15 days, with good subsequent evolution.

Discussion

Pseudomembranous colitis is an acute inflammation of the intestinal mucosa characterized by the presence of pseudomembranes, or plaques, in the small intestine and/or colon.

Antibiotic use is the most recognized risk factors for its development. Clindamycin, ampicillin, amoxicillin, and the cephalosporins are the drugs most commonly associated with it, although virtually all the antibiotic groups can be implicated. Other factors are advanced age, severity of the associated pathology, and immunosuppression. The most common causal agent is *Clostridium difficile*. We have not found any other reported case in the literature of pseudomembranous colitis secondary to *Clostridium ramosum*.

Bacteria of the genus *Clostridium* are part of the human anaerobic commensal microflora (1). They have the potential to cause both endogenous and exogenous infections, and cases have been described in both immunosuppressed and immunocompetent patients with involvement of the locomotor apparatus and the CNS (2,3).

They are sporulating anaerobic Gram-positive bacteria, although many strains are gram-negative or variable. Three of the *Clostridium* species (*ramosum*, *innocuum*, and *clostridioforme*), or the so-called RIC group, can pose problems for routine laboratory diagnosis. They can be erroneously mistaken for other genera because of such factors as variability of the Gram stain, difficulty detecting their characteristic spores, and atypical morphology of the *Clostridium* colonies (4). It is therefore believed that the number of *C. ramosum*-positive cultures is underestimated and perhaps its incidence as a causal agent of pseudomembranous colitis as well.

C. ramosum is one of the *Clostridium* species that is often isolated in stool samples from children, but it has rarely been associated with severe infections or bacteremia (5,6); in fact, there

are few reported cases of *C. ramosum*, and none of them in the gastrointestinal tract. The risk factors that have been cited for the development of bacteremia due to *Clostridium* have been advanced age (believed to be due to an increase in *Clostridium* spp. in the intestinal flora) and the existence of significant comorbidity (basically, patients with neoplasia, dialysis, or STIs), *C. ramosum* being isolated in fewer than 10% of the cases (6).

C. ramosum is commonly resistant to penicillin (in up to 20% of cases) because of beta-lactamase production (4,6). In our case, it was sensitive to penicillin and metronidazole.

In conclusion, *Clostridium ramosum* is an intestinal bacterium that is only isolated occasionally. Its incidence is probably underestimated. The present case is one of only a few reported cases of pseudomembranous colitis and bacteremia.

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References

1. Allen SD, Emery CL, Siders JA. Manual of clinical microbiology, 7th ed. American Society for Microbiology, Washington, D.C. 1999;653-67.
2. Van der Vorm ER. Gas gangrene in an immunocompromised girl due to a *Clostridium ramosum* infection. Clin Infect Dis 1999;28:923-4.
3. Lavigne JP, Bouziges N, Sotto A, Leroux JL, Michaux-Charachon S. Spondylodiscitis Due to *Clostridium ramosum* Infection in an Immunocompetent Elderly Patient. J Clin Microbiol 2003;41:2223-6.
4. Alexander CJ, Citron DM, Brazier JS, Goldstein EJ. Identification and antimicrobial resistance patterns of clinical isolates of *Clostridium clostridioforme*, *Clostridium innocuum*, and *Clostridium ramosum* compared with those of clinical isolates of *Clostridium perfringens*. J Clin Microbiol 1995;12:3209-15.
5. Brook I. Clostridial infection in children. J Med Microbiol 1995;42:78-82.
6. Leal J, Gregson DB, Ross T, Church DL, Laupland KB. Epidemiology of *Clostridium* species bacteremia in Calgary, Canada, 2000-2006. Journal of Infection 2008;57:198-203.