Hemolytic-Uremic Syndrome Associated with Pseudomembranous Colitis Caused by *Clostridium difficile*

A.	Andras	Mogyorosi ^a
M.D.	Matthew D.	Carley ^b

^aDepartment of Medicine, Renal-Electrolyte and Hypertension Division, University of Pennsylvania School of Medicine, Philadelphia, Pa., ^bDepartment of Medicine, University of Connecticut School of Medicine, Farmington, Conn., USA

Andras Mogyorosi, MD, Department of Medicine, Renal-Electrolyte and Hypertension Division, University of Pennsylvania School of Medicine, 415 Curie Boulevard, Philadelphia, PA 19104 (USA)

Dear Sir,

Hemolytic-uremic syndrome (HUS) has been associated with a variety of bacterial infections. In addition to *Escherichia coli* O157:H7, the most common strain linked to HUS, cases implicating *Shigella dysenteriae*, *Campylobacter jejuni*, *Salmonella typhi*, *Streptococcus pneumoniae*, *Yersinia pseudo-tuberculosis*, and *Bacteroides* and *Pseudo-monas* species as possible pathogenetic organisms have been reported [1].

The association of pseudomembranous colitis (PMC) with HUS in the pediatric population was first observed in the late 70s [2]. Since the description of *Clostridium difficile* as the predominant etiologic organism of PMC [3], a pediatric case report suggested a direct link between *C. difficile* induced PMC and HUS [4]. We now report an adult case of HUS associated with PMC caused by *C. difficile*.

A 51-year-old white female was hospitalized after 3 days of abdominal pain and profuse diarrhea as well as new-onset confusion. Her past medical history included bipolar disorder, hypothyroidism, and a recent upper respiratory infection treated with a second-generation cephalosporin. She was taking aspirin, chlorpromazine, lithium carbonate, thyroid hormone, and trifluoperazine prior to hospitalization. Her initial physical examination demonstrated signs of an acute abdomen, and the patient was partially disoriented. Bowel perforation was ruled out by exploratory laparotomy. Laboratory tests revealed acute renal failure (serum creatinine 3.6 mg/dl), thrombocytopenia (platelet count 6,000/ μ l), and hemolytic anemia with numerous schistocytes and burr cells on the blood smear. Urinalysis showed microscopic hematuria with subnephrotic-range protein-uria. Fecal culture revealed *C. difficile*; rectal biopsy showed acute PMC. Stool culture was negative for *E. coli* O157:H7, *Yersinia*, *Salmonella*, *Shigella*, or *Campylobacter*. A diagnosis of HUS associated with *C. difficile* colitis was made. With prolonged treatment using orally as well as rectally administered vancomycin, frequent fresh frozen plasma infusions, and supportive care in the intensive care unit, the patient recovered, and after a short stay in a rehabilitational facility, her physical and mental condition returned to baseline.

We believe that this is the first case report showing an association between *C. difficile* induced PMC and HUS in an adult patient. The pathogenetic mechanism whereby *C. difficile* infection may lead to HUS is unclear. A recent study [5] in rat mesenteric venules, however, demonstrated

that *C. difficile* toxin A induces endothelial cell dysfunction, a hallmark feature of HUS [1]. This potential link between *C. difficile* infection and HUS deserves further investigation.

References

Lakkis FG, Campbell OC, Badr KF: Microvas-cular diseases of the kidney; in Brenner BM (ed): The Kidney. Philadelphia, Saunders, 1996, pp 1712-1730.

Tochen ML, Campbell JR: Colitis in children with the hemolytic-uraemic syndrome. *J PediatrSurg* 1977;12:213-219. Larson HE, Price AB, Honour P, Borriello SP: *Clostridium difficile* and the aetiology of pseudomembranous colitis. *Lancet* 1978;ii:1063-1066.

Rooney N, Variend S, Taitz LS: Haemolytic-uraemic syndrome and pseudomembranous colitis. *PediatrNephrol* 1988;2:415-418. Kurose I, Pothoulakis C, LaMont JT, Anderson DC, Paulson JC, Miyasaka M, Wolf R, Granger DN: *Clostridium difficile* toxin A-induced microvascular dysfunction: Role of histamine. *J Clin Invest* 1994;94:1919-1926.

KAIUIER

E-Mail karger@karger.ch Fax + 4161 306 12 34 <http://www.karger.ch>

© 1997 S. KargerAG, Basel 0028-2766/97/0764-0491 \$ 12.00/0

This article is also accessible online at: <http://BioMedNet.com/karger>