Differential Diagnosis of *Klebsiella Oxytoca* Colitis from Other Bacterial Colitis Types: The Use of Ultrasonography and Its Clinical Features

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Abstract

Purpose: The purpose of this study was to evaluate clinical findings of *Klebsiella oxytoca* colitis and identify its diagnostic possibility by ultrasonography (US).

Subjects and Methods: From September 2009 to August 2015, 124 patients [average age: 26.2±17.0 years (71 males and 53 females)] with symptoms of acute colitis underwent US, and their stool samples were cultured for *Staphylococcus aureus*, *Campylobacter* spp., *Salmonella* spp., diarrheagenic *Escherichia coli*, enterohemorrhagic *E. coli* (EHEC), and *K. oxytoca*. The maximum colonic wall thickness and diameter, extent of inflammatory lesions, and findings on US images were compared between the six bacterial colitis groups. All patients underwent US within 4 days from symptom onset.

Results and Discussion: (1) Diffuse wall thickening (mainly in the third layer, which is the most echogenic layer, corresponding to the submucosa) in the right-sided colon was detected in US in all patients. (2) The colonic wall was significantly thicker in patients with *K. oxytoca* and EHEC colitis than in those with other bacterial colitis types [*K. oxytoca* colitis (n=7): 11.6±1.3 mm and EHEC colitis (n=13): 13.4±2.9 mm; $p<0.05$]. Thus, the results indicated that right-sided colitis with severe wall thickness (reference values: >1 cm) was caused by either *K. oxytoca* or EHEC. (3) The ascending colon and transverse colon were usually affected in all the groups, and no relationship was apparent between the bacterial colitis type and extent of inflammatory lesions. (4). The clinical features of *K. oxytoca* colitis were a relatively high age (43.4±13.4 years), high frequency of bloody stool or melena (86%), antibiotic use history (4/7), and shortened onset-to-door time (<1 day), it was considered that these also features can be a help to diagnose *K. oxytoca* colitis.

Conclusion: The present study's results suggest that the maximum thickness of the colonic wall obtained in US and the positive antibiotic/food history allow the differentiation of *K. oxytoca* colitis from other bacterial colitis types.

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