

Change in the Diagnosis of Appendicitis by Using a Computed Tomography Scan and the Necessity for a New Scoring System to Determine the Severity of the Appendicitis

Byung Wook Min

Division of Colorectal Surgery, Department of Surgery, Korea University College of Medicine, Seoul, Korea

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Acute appendicitis is the most common indication for surgery in patients admitted to hospital due to an acute abdomen. Although most are uncomplicated, about 20% of all acute appendicitis cases are complicated, leading to local or diffuse peritonitis. An urgent appendectomy is the recommended treatment for both complicated and uncomplicated appendicitis. The appendectomy, which has been the first choice for the treatment of acute appendicitis for over 120 years, is a classic surgical procedure [1]. Nowadays, a laparoscopic appendectomy is widely practiced for its benefits, such as significantly shorter operative time, lower incidence of wound infection, and reduced length of hospital stay [2].

Although an appendectomy is generally well tolerated, it is still considered a major surgical intervention and can be associated with postoperative morbidity in about 2%–23% of patients [3]. According to a study that followed patients for over a decade, 3% of the patients undergoing appendectomy were readmitted for intestinal obstruction related to postoperative adhesion [4, 5]. Therefore, physicians are taking higher interest in noninvasive interventions, such as antibiotic therapy, as a primary treatment. Although the appendectomy remains the standard approach for treating appendicitis [6], several studies have already suggested that appendicitis can be treated with antibiotics [5].

Correspondence to: Byung Wook Min, M.D.
Division of Colorectal Surgery, Department of Surgery, Korea University Guro Hospital, Korea University College of Medicine, 148 Gurodong-ro, Guro-gu, Seoul 08308, Korea
Tel: +82-2-2626-3079, Fax: +82-2-2626-1148
E-mail: gsmmin@korea.ac.kr

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Two well-studied appendicitis scoring systems based on clinical symptoms were used to diagnose appendicitis: the Alfredo Alvarado system for adults and the Madan Samuel system for children. The Alvarado score was developed in Philadelphia in the mid-1980s and has a sensitivity of 81% and a specificity of 74% [7]. The Pediatric Appendicitis Score was developed to diagnose appendicitis in children and has a high sensitivity of 100% and specificity of 92% [8]. Although these scoring systems were widely used to diagnose appendicitis in the past, they are no longer practically implicated. Recently, various diagnostic tools, such as computed tomography (CT) and ultrasound, have been developed to diagnose appendicitis. With the improvement of such radiologic tools, determining the severity of and diagnosing appendicitis have become more accurate.

The development of radiologic tools has provided many advantages for diagnosing appendicitis and determining its severity. The increased use of CT has reduced the rate of negative (unnecessary) appendectomies [9]. A meta-analysis consisting of data from 31 studies revealed that both the sensitivity and the specificity of CT for appendicitis were as high as 94% [10]. The development of a precise scoring system based on CT to distinguish between complicated and uncomplicated appendicitis has led to an improvement in diagnostic accuracy [11]. This system provides the physician with the evidence needed to decide on a treatment strategy for appendicitis patients.

A meta-analysis [12] of randomized controlled trials comparing antibiotics with appendectomies has shown that although antibiotic treatment alone can be successful in 77%–95% of the cases, patients should be made aware of the fact that the failure rate during the first year, with a need for readmission or surgery, is around 25%–30%. However, recently conducted research proposed the use of antibiotics as the single treatment for uncomplicated appendicitis. However, one should note that more accurate selection criteria, based on combinations of clinical risk scores and imaging, are required for patients or subgroups of patients in whom

primary antibiotic treatment is more likely to succeed in the long-term, and CT could be of assistance in the process of selecting patients suitable for antibiotics therapy. Although the appendectomy is the best treatment for the appendicitis, studies on the use of antibiotics therapy to treat patients with uncomplicated appendicitis are still meaningful; thus, efforts for such research should be supported.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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