

The diagnostic efficiency of CT and MRI in ileosigmoid knotting

Sabri Selçuk ATAMANALP^{1*}, Abdulmecit KANTARCI², Bülent AYDINLI¹, Gürkan ÖZTÜRK¹, Şükrü ARSLAN¹,
Ercan KORKUT¹, Metehan GÜMÜŞ³, Abdullah BÖYÜK³

¹Department of General Surgery, Faculty of Medicine, Atatürk University, Erzurum, Turkey

²Department of Radiology, Faculty of Medicine, Atatürk University, Erzurum, Turkey

³Department of General Surgery, Faculty of Medicine, Dicle University, Diyarbakır, Turkey

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Ileosigmoid knotting (ISK), which is a double-segment intestinal obstruction form, is a very rare disease and its correct diagnosis is not easy in the preoperative period (1–3).

To determine the diagnostic efficiency of computed tomography (CT) and magnetic resonance imaging (MRI) in ISK, the data of 76 patients, who were treated over a 47-year period between June 1966 and June 2013, were used. All patients were evaluated by abdominal X-rays, and some stable patients were also evaluated by CT or MRI, particularly in the recent years. Surgery was used as emergency treatment, which also confirms the diagnosis.

The X-ray films demonstrated ISK signs, including a dilated sigmoid colon and multiple intestinal air-fluid levels, in only 3 (5.6%) of the 54 patients for whom the films were evaluated. The correct diagnosis rate was 6.6% (5/76) when clinical findings, including abdominal pain, distention, and obstipation, were evaluated together with X-ray findings. In the preoperative period, ISK was misdiagnosed as simple sigmoid volvulus and/or obstructive emergency in 55 patients (72.4%) and nonobstructive emergency in 14 patients (18.4%). Otherwise, 100.0% of the cases were correctly diagnosed based upon CT or MRI findings in a limited patient population (5/5, and 3/3, respectively) by showing signs of ISK, including whirl patterns in the ileum

and sigmoid mesenteries in the knot in addition to the dilated sigmoid colon and intestinal air-fluid levels.

Although CT or MRI examination may not be possible in all patients because of the poor condition of some patients or nonavailability, whenever possible, they may be useful in making an ISK diagnosis by demonstrating a whirl sign created by the twisted ileum and sigmoid colon mesenteries in addition to the dilated sigmoid colon with loss of haustral pattern and dilated ileum loops (1–8). In addition to the whirl sign on CT, Mandal et al. (2), Tamura et al. (4), and Lee et al. (5) reported a medial translocation of the cecum and left colon; Hirano et al. (6) and Hashimoto et al. (7) reported a radial distribution of the bowel and mesenteric vessels; Hirano et al. (6) reported the convergence of stretched and elongated superior and inferior mesenteric vascular structures toward the whirl; and Baheti et al. (8) reported the appearance of a beak in the afferent and efferent limbs of the sigmoid colon. In our opinion, the presence of the whirled ileum and sigmoid mesenteries in the knot in addition to the dilated sigmoid colon and intestinal air-fluid levels on abdominal CT or MRI is highly diagnostic in ISK, and the use of these advanced techniques may be useful when this rare clinical entity is suspected, in addition to the preferable use of MRI in pregnant patients (9,10).

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* Correspondence: ssa@atauni.edu.tr

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