Malrotation, a congenital condition that causes intestinal obstruction in infants, unusually presented in a 92 year old man

Malrotation is a rare condition that occurs when there is a problem during development of the gastrointestinal tract. The development of the intestines is a complex process that occurs during the 5th to 12th week of gestation. Parts of the small intestine and large intestine protrude out of the abdominal cavity where there is more space to develop. The intestines develop, rotate, and then settle back into the abdominal cavity where they are fixed in their proper position. Malrotation occurs when the intestines fail to rotate properly. This condition usually presents within the first year of life. The incidence in the first year of life is 1 in 500 births. 80% of these cases will presents with a clinical emergency within the first month of life.

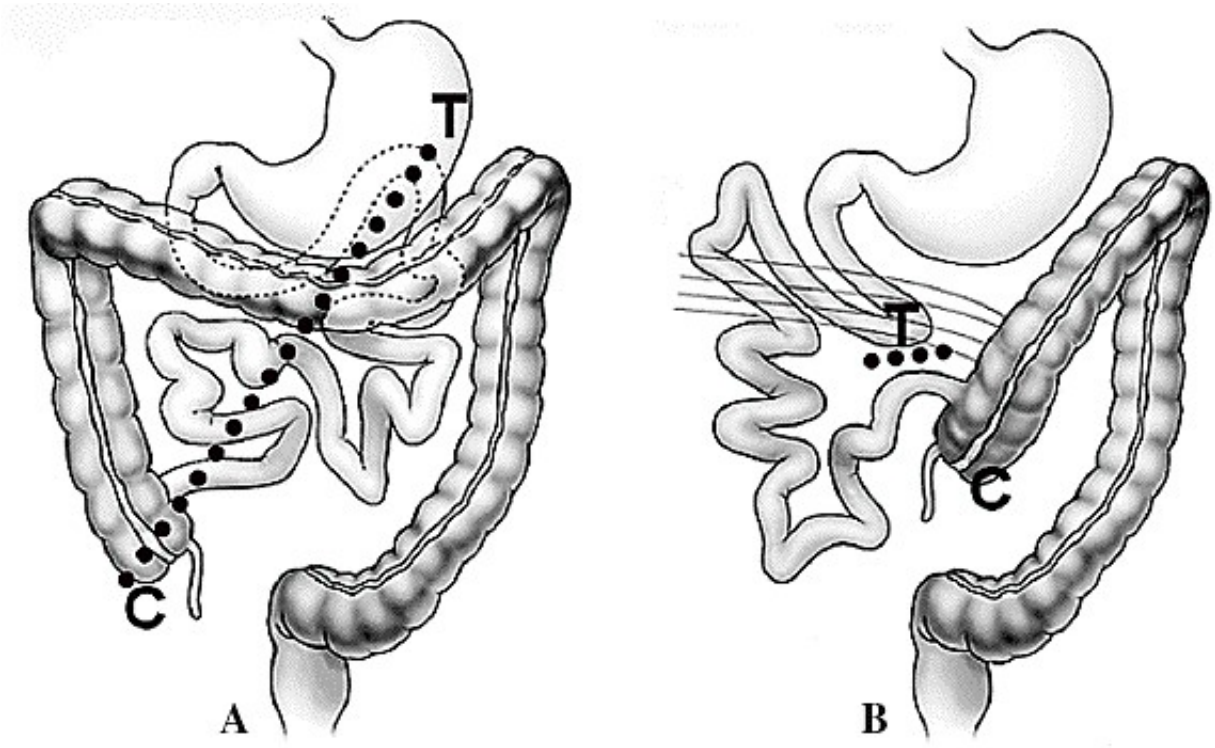

Fig. 1. (A) Normal intestinal rotation, the Cecum and the Appendix (C) are located in the right lower abdomen. (B) Malrotation, the Cecum, and Appendix (C) are abnormally located in the mid abdomen.
Adapted from: Berrocal T, Gayá F, de Pablo L. "Aspectos embriológicos, clínicos y radiológicos de la malrotación intestinal". Published with permission of the Publisher and the author Radiología 2005;47(5):237-51.

The common way for malrotation to present is with volvulus, which is twisting of the bowel on itself. This leads to obstruction and causes the blood supply to the bowel to be compromised, which is a surgical emergency. Diagnosis of malrotation is more nebulous in the adult population because it is a condition that is usually diagnosed within the first year of life. There are numerous conditions that are commonly found in the adult population that present with abdominal pain and malrotation tends to not be high on the differential list.

We present a case of a delayed diagnosis of a very common surgical condition, appendicitis. A 92-year-old gentleman presented with a 3 day history of generalized abdominal pain, nausea, vomiting, and weakness. When he initially presented, he was diagnosed with a small bowel obstruction. A CT was performed and it was assumed that the patient had a prior hemicolectomy or removal of part of his colon. Small bowel obstruction is a complication that occurs following abdominal surgery due to adhesion formation. However, the altered anatomy visualized on CT was due to malrotation. The patient did not have a history of abdominal surgery. Once taken back to the operating room, it was discovered that the gentlemen had a perforated appendix. The classic presentation for appendicitis is abdominal pain around the umbilicus that migrates to the right lower quadrant in addition to nausea and vomiting. However, due to the altered anatomy in malrotation, the appendix is located in the upper abdomen. The patient's history was not a characteristic presentation for appendicitis and could be one of the factors that led to a delayed diagnosis.

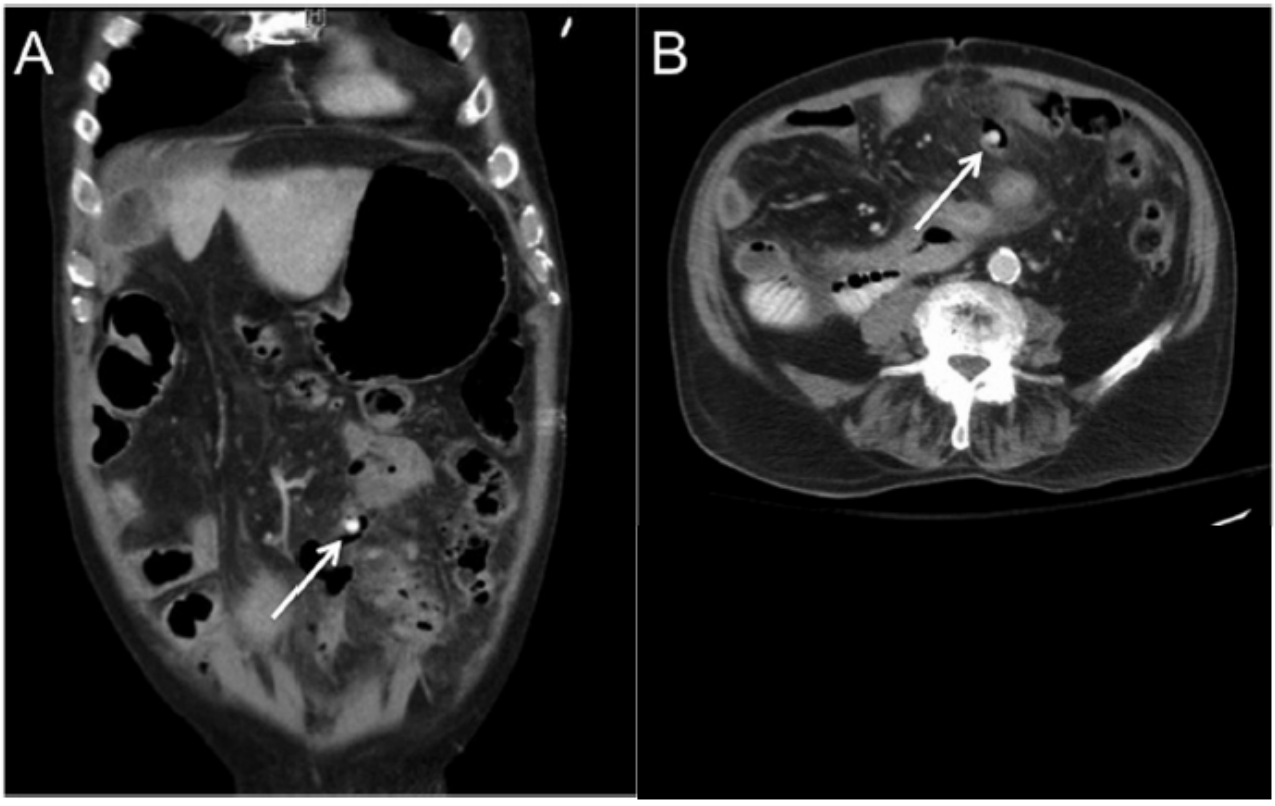

Fig. 2. Abdominal Computed Tomography (CT). Abdominal CT shows thickened loops of bowel in the mid-abdomen with a prominent fecalith (white arrow). The right colon is absent from its normal anatomic position.

CT imaging and awareness of radiographic findings of malrotation along with high index of suspicion are important in the diagnosis but can be misleading when there is already ongoing pathology. It is important that physicians are broad when forming their differential so that rare conditions such as malrotation are not missed, failure to diagnose such cases can potentially be lethal. In this case, the obstruction was not due to malrotation but rather was caused by the scarring and inflammation from the appendicitis and the malrotation was an additional finding.

Ahmed A.A. Al-Ghrairi, Maya L. Moses, Joseph S. Fernandez-Moure
Department of Surgery, Houston Methodist Hospital, Houston, TX, USA

Publication

An unusual presentation of congenital intestinal malrotation in a nonagenarian.
Fernandez-Moure JS, Moses ML, Garcia A, Reader MM
Int J Surg Case Rep. 2016