



Atypical Presentation of Midgut Volvulus with Malrotation – A Diagnostic Challenge



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INTRODUCTION

Malrotation is a congenital anomaly commonly diagnosed in neonates and infants. It results from the failure of the gastrointestinal tract (GI) to undergo 270-degree counterclockwise rotation during intrauterine development. Approximately 65% to 90% of cases will present before 1 year of age. In neonates and infants, the classical symptoms would be of bilious vomiting with abdominal distension and feeding intolerance. However, in children aged more than 3 years old, the symptoms may be less specific and may present a diagnostic dilemma for clinician.

CASE REPORT

A 3-year-old Malay girl was brought to emergency department (ED) with complaint of 4 episode of non-projectile vomiting in 1 day. The vomitus was non-bilious, moderate amount with food contents associated with non-specific, colicky abdominal pain for 1 day duration.

In ED, patient appeared septic with tachycardic and mild tachypnoeic. Her abdomen was soft, but not distended. However, patient deteriorated rapidly and was intubated. Arterial blood gas revealed persistent severe metabolic and lactic acidosis despite fluid resuscitation. Subsequent physical examination revealed a soft, distended abdomen with sluggish bowel sound. Bedside ultrasound showed dilated bowel with minimal interloop fluid. CECT Abdomen revealed duodenojejunal (DJ) flexure and the rest of the small bowels seen in the right side of the abdomen and pelvis, suggestive of malrotation. Whirl-like appearance (whirlpool sign) noted suggestive of volvulus (Figure 1).

She underwent exploratory laparotomy. Intraoperatively, bowel was gangrenous from DJ flexure until descending colon with only sigmoid colon distally appeared viable with adhesion band noted (Figure 2).

DISCUSSION

Classic malrotation results from failure of extracelomic rotation. In this condition, the DJ flexure is located in the right upper quadrant with the caecum in the middle to upper abdomen. The DJ flexure and caecum are fixed by adhesive bands to the duodenum, gallbladder and right lateral abdominal wall known as Ladd's bands. Ladd's bands may compress the duodenum causing duodenal obstruction. In classic malrotation, the abnormal position of caecum results in narrowed mesenteric base which predispose to midgut volvulus.

Bilious vomiting is the classical presentation in malrotation in neonates and infants. Older child may present with colicky, intermittent abdominal pain with or without evidence of malnutrition or malabsorption.

Our patient's presentation of non-bilious vomiting with acute onset of abdominal pain may suggest all other differential diagnosis with malrotation is possibly lower down in the list.

Malrotation can be diagnosed using CT scan and may provide 80% diagnostic accuracy. Our case has shed light on the difficulty in diagnosis malrotation in children and must require high index of clinical suspicion. With the history of abdominal pain supported by clinical findings suggestive of intraabdominal pathology, haemodynamically stable patient may benefit from radiological imaging to ascertain the diagnosis and tailor treatment accordingly. However, in haemodynamically unstable patient with persistent metabolic acidosis not responding to fluid resuscitation, bowel ischaemia should be suspected. Computer tomography (CT) scan may delay definitive management of the patient. As time is of essence, exploratory laparotomy should be embarked for diagnostic and therapeutic intention.

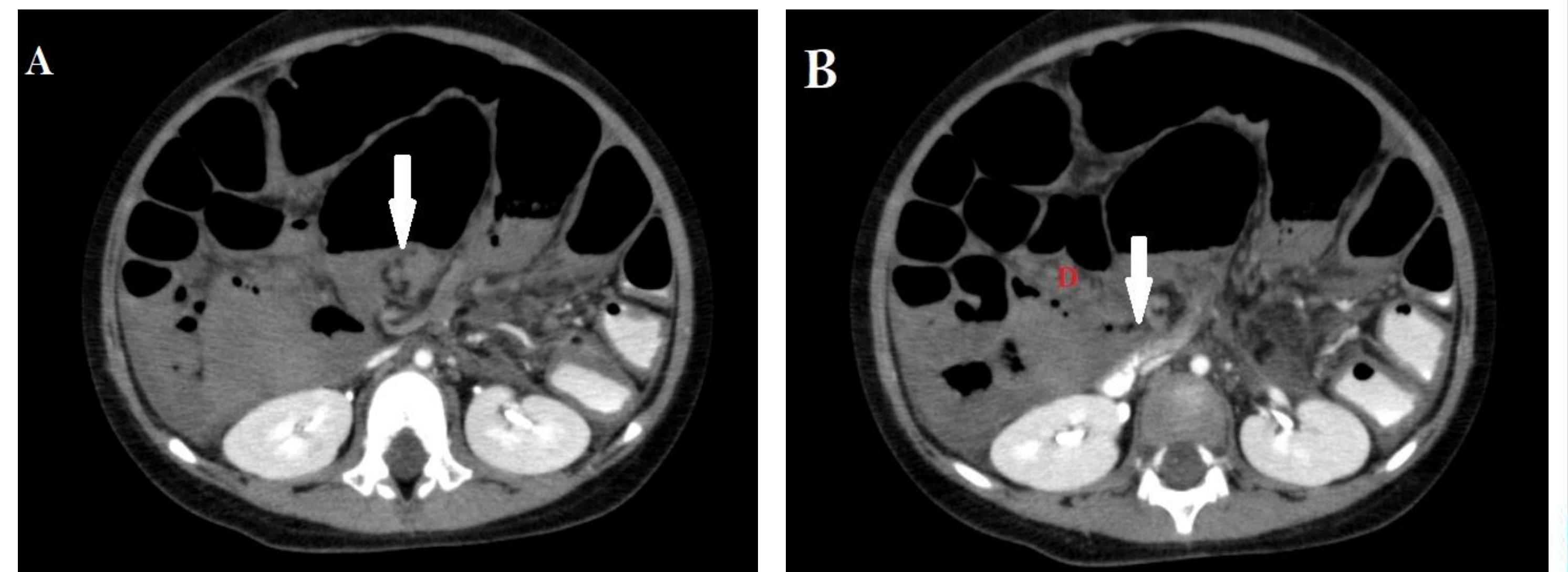


Figure 1: A) White arrow showed whirl-like appearance (whirlpool sign) suggestive of midgut volvulus. B) White arrow showed the DJ flexure, located at the right of the spine confirmed the diagnosis of malrotation

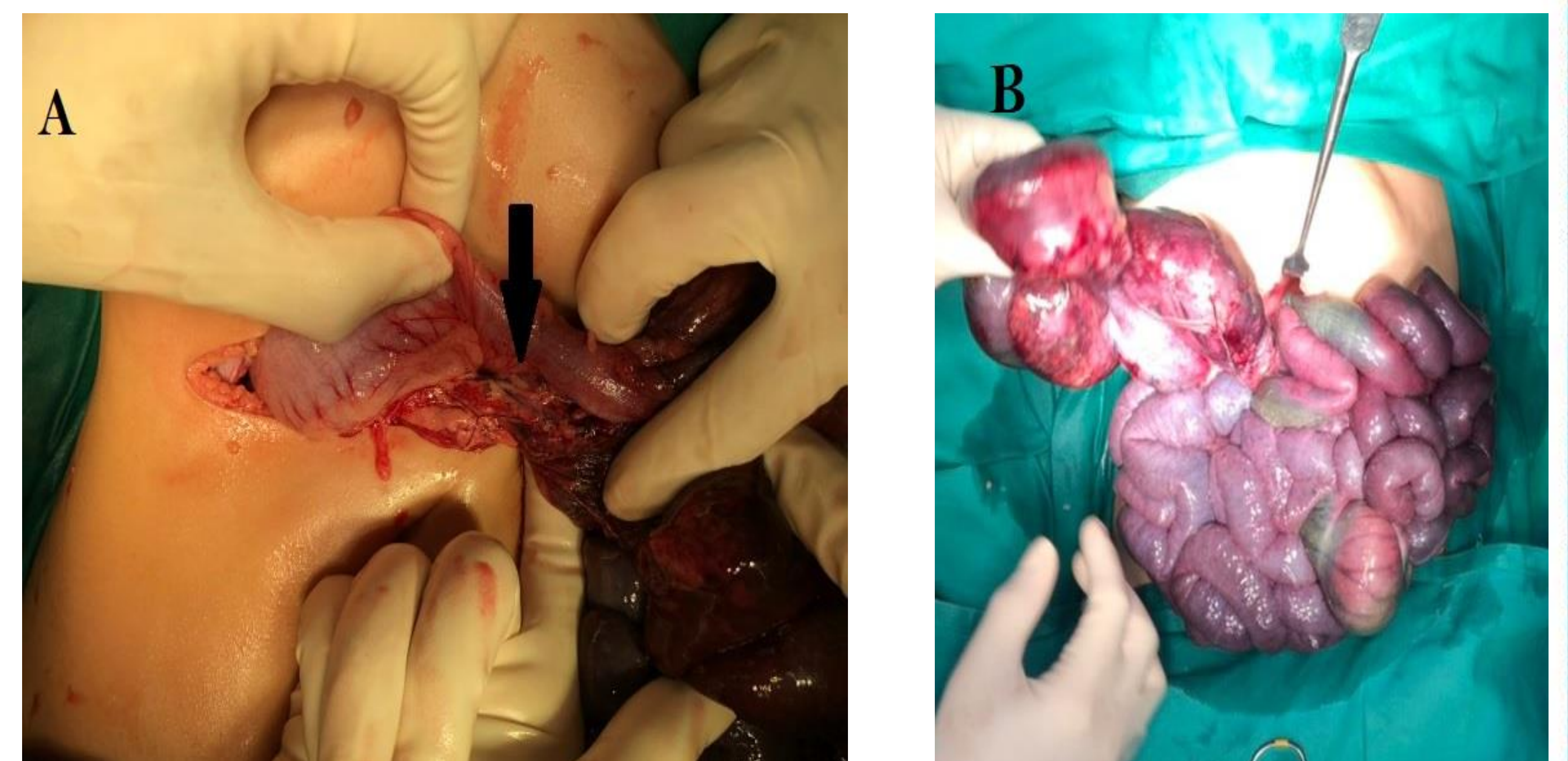


Figure 4: Adhesion band shown by the black arrow (A) with the ischaemic bowel (B)

CONCLUSION

In conclusion, malrotation especially in older children may present a diagnostic challenge for clinician. The non-specific symptoms may cause delay in diagnosis. Awareness of this condition is important to ensure prompt diagnosis and definite management of the patient.

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