



**NCCU CLINICAL GUIDELINES**  
**SECTION: 13**

**SURGICAL CONDITIONS**

Section: 13 Surgical Conditions  
Malrotation/Volvulus of the Intestines in Neonates  
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Neonatology Clinical Guidelines  
King Edward Memorial/Princess Margaret Hospitals  
Perth Western Australia

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**MALROTATION/VOLVULUS OF THE INTESTINES IN NEONATES:**

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1. Malrotation is a congenital condition of the gut with serious, potentially fatal sequelae.
2. Malrotated gut is prone to volvulus in which part of the intestine loops around the mesentery and the intestines, resulting in bowel obstruction and gangrene secondary to occlusion of the branches of the mesenteric artery.
3. The intestinal obstruction due to malrotation can also result because of the congenital fibrous bands.
4. 60–80% of all cases of malrotation present in the first month of life, mostly in the first week.
5. Bilious vomiting is an important sign of malrotation and must be promptly investigated. This is essential, even if the abdomen is soft and nontender.
6. Even in the absence of bilious vomiting, malrotation/volvulus should be strongly suspected in any neonate presenting with distended abdomen.
7. Presence of distended tender/non tender abdomen in any neonate should prompt an investigation to rule out malrotation/volvulus irrespective of the presence or absence of vomiting.
8. Even though bilious aspirates can be a sign of dysmotility in extremely premature infants, persistently prolonged bilious aspirates lasting more than a few weeks should strongly raise the suspicion of malrotation necessitating investigation.
9. Presence of chylous fluid in the inguinal hernia sac during inguinal hernia repair should alert the surgeon and the neonatologists to the possibility of associated malrotation.
10. Presence of normal lactate levels, Blood pressure, urine output, blood gases do not rule out the diagnosis of intestinal gangrene secondary to malrotation/volvulus.
11. The best imaging test for diagnosing malrotation is an upper GI contrast study which shows an abnormal duodenum and duodenojejunal (DJ) flexure position. This investigation should not be deferred for any reason. It is an emergency investigation. The normal position of the DJ flexure is to the left of the spine and at the same level or higher than the duodenal bulb.
12. Plain X-ray of the abdomen is not enough to diagnose or rule out malrotation.
13. Dilatation of multiple loops of small bowel on plain X ray can signify volvulus with extensive gut ischaemia due to underlying malrotation.
14. Ultrasound and contrast enema provide useful additional information but in themselves are not sufficiently accurate to exclude malrotation.
15. Doppler ultrasound of the abdomen can sometimes detect the lack of intestinal perfusion in volvulus, but is not a definitive test. Hence, while it is important to arrange an urgent Doppler ultrasound of the abdomen, one should not be reassured by the presence of good intestinal perfusion.
16. Clinical judgement and bed side discussion with the surgeons is highly desirable in unwell infants with distended abdomen.
17. Once a diagnosis of malrotation and or volvulus is confirmed, the infant should be reviewed by the surgeon as soon as possible with a view to urgent laparotomy.

**References:**

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