Research Article ISSN 2771-5906

Trends in Internal Medicine

Rare Cause of Recurrent Deep Vein Thrombosis of the Lower Limbs in a Young Adult Woman Aged 21: Intestinal Malrotation a Case Report from Nianankoro Fomba Regional Hospital of Segou (HNF/S), Discovered in 2023

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Received: 03 May 2025; **Accepted:** 15 Jun 2025; **Published:** 22 Jun 2025

Citation: Boua Daoud Camara, Dramane Traoré, Amadou Koné, et al. Rare Cause of Recurrent Deep Vein Thrombosis of the Lower Limbs in a Young Adult Woman Aged 21: Intestinal Malrotation a Case Report from Nianankoro Fomba Regional Hospital of Segou (HNF/S), Discovered in 2023. Trends Int Med. 2025; 5(1): 1-4.

ABSTRACT

Presenting in adults, intestinal malrotation is difficult to diagnose, as it manifests itself with atypical symptoms such as chronic, vague abdominal pain and weight loss. Radiological correlation is often essential to diagnose these patients. For surgical intervention, a laparoscopic approach is considered best in expert hands. Even if the disease is chronic, great care should be taken when treating intestinal malrotation in adult men. Timely surgery can work wonders and prevent catastrophic complications.

Interrupting the 90° intestinal rotation with reintegration and abutments results in a position where the entire small intestine, including the duodenojejunal angle, is located on the right of the spine, while the entire colon is on the left. Vascular complications are dominated by ischemia of the mesenteric artery and occasionally thrombosis of the mesenteric vein.

Deep vein thrombosis of the lower limbs secondary to intestinal malrotation is an exceptional occurrence. To our knowledge, we report the only case in the literature.

***Conclusion:** If the diagnosis of intestinal malrotation is made late, surgical intervention may be life threatening; in our patient, surgical abstention was observed.*

Keywords

Small intestinal malrotation, Young adult, Repetitive lower limb venous thrombosis.

Introduction

The common mesentery results from a rotational anomaly of the digestive tract. It is characterized by the persistence of an embryonic anatomical arrangement secondary to an anomaly of rotation of the primitive umbilical loop, thus constituting a meso common to the entire intestinal loop and an extremely short root of the mesentery [1]. This rotation deficiency is most often associated with a docking defect. These intestinal rotation anomalies can lead to dreadful and sometimes fatal complications, which generally occur during the

neonatal period or at paediatric age.

The fact that this pathology is exceptional in adulthood, and that its symptomatology is quite varied, is the source of many errors and delays in diagnosis and treatment, to the extent that the majority of cases are diagnosed post-mortem. The causes of its late onset are still unknown. The most serious complication is total volvulus of the small intestine, which occurs when the type of rotational anomaly is incomplete common mesentery at 180° [2].

If intestinal malrotation presents in adults, it is difficult to diagnose, as it manifests itself with atypical symptoms such as chronic, vague abdominal pain and weight loss. Radiological correlation is often essential to diagnose these patients. For surgical intervention, a laparoscopic approach is considered best in expert hands. Even if the disease is chronic, great care should be taken when treating intestinal malrotation in adult men. Timely surgery can work wonders and prevent catastrophic complications [3].

Interrupting the 90° intestinal rotation with reintegration and abutments results in a position where the entire small intestine, including the duodenojejunal angle, is located on the right of the spine, while the entire colon is on the left. The mesentery root thus extends from the right hypochondrium to the left iliac fossa. This position, known as "complete common mesentery", is not at risk of GVT due to the length of the mesentery root [4].

Among all these exceptional forms of rotation anomaly, it is not logical to encounter a risk situation similar to that of 180° rotation anomaly, i.e. a very short mesentery close to the first and last small loop, except perhaps in a subgroup of 90° reverse rotation, where the cecum remains in front of the duodenum while the last small loop remains behind the mesenteric vessels (in which case, there would be a theoretical risk of GVT, not found in the literature...).

In other words, the complications encountered in these forms of reverse rotation or hyper rotation are threefold:

- or a mechanical obstacle due to extrinsic compression of an intestinal segment onto which another intestinal segment has been aberrantly attached;
- or a volvulus of the ileocaecal region, free or too elongated.

In 1856, Virchow was the first to describe the events involved in the formation of a thrombosis.

This triad, which is still relevant today, includes:

- blood stasis.
- lesions of the endothelial lining.
- altered hemostatic equilibrium responsible for hypercoagulability.

Blood stasis favors the accumulation of various coagulation factors and limits the elimination of activated factors [5]. We report here on a case study of an exceptional complication that we did not learn about in the literature: recurrent deep vein thrombosis of the lower limbs due to the phenomenon of blood stasis by compression of the veins of the portal system with visible collaterals on the left abdominal wall secondary to an anomaly in bowel rotation.

Clinical Cases

Miss AS. T, aged 21, who presented with severe exertional dyspnoea, which had led to her dropping out of military service. This dyspnoea was accompanied by abdominal pain, physical asthenia, anorexia and moderate weight loss. These symptoms severely altered the patient's quality of life, forcing her to abandon military training and all other physical activities.

She has a history of recurrent deep vein thrombosis of the lower limbs; three episodes between 2019 and 2022 for which she was treated, the first two episodes were three months apart after the end of anticoagulant treatment, no notion of taking medication, in particular estrogestogens, no notion of recent surgery, no notion of trauma to the pelvis, she is not a smoker.

Physical examination

Temperature 37.8°C, general condition altered, weight 56 kg for a height of 1.77 m, BMI 17.87 kg/m [2] (underweight), patient very anxious. Cardiovascular examination showed regular tachycardia at 100 beats/min, no murmur, no jugular turgor, positive Homans sign in the left calf. Digestive examination: diffuse abdominal pain with palpable mass in the right hypochondrium extending to the right flank, presence of left collateral venous circularity. The rest of the examination was unremarkable.

Biological Tests

Normal CBC, normal CRP, normal creatinine and creatinine clearance, normal blood protein electrophoresis, normal hemoglobin electrophoresis, normal anti-cardiolipins, PT, APTT, coagulation factors, immunological and infectious workup all normal. All blood tests for primary or secondary causes of thrombosis were normal.

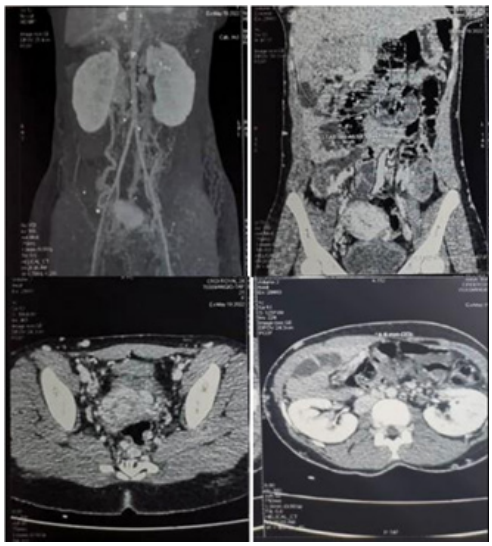

Figure 1: Angio-Scanner, small bowel rotation anomaly, which is clustered on the right in the sub-hepatic region, associating diffuse, mesenteric, pelvic and superficial venous dilatation with multiple collaterals.

Morphological Assessments

- Angioscan Aorta TAP: anomaly of intestinal rotation of the small intestine, which is clustered on the right in the sub-hepatic region, associating diffuse, mesenteric, pelvic and superficial venous dilatation with multiple collaterals.
- Echo-Doppler of the lower limbs: partial thrombosis of the left femoral vein.

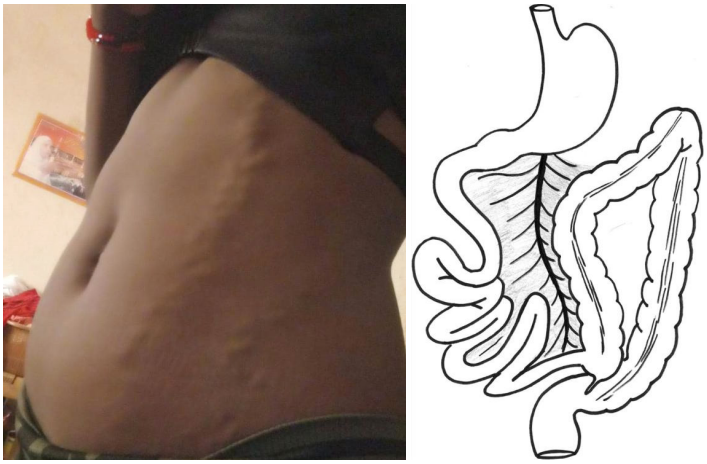

Figure 2: Right collateral venous circulation on complete common mesentery.

Discussion

Complications of bowel rotation anomalies are most often marked by ischemia of the mesenteric artery.

A case of exceptional vascular complication revealed by computed tomography (CECT) of the abdomen with a duodenojejunal junction located to the right of the spine with clockwise twisting of the intestinal loops, SMA, superior mesenteric vein (SMV) and mesentery.

The relationship between SMA and SMV was reversed. Progressive attenuation of the SMA was observed, with complete occlusion at the level of the twisted segment.

The VSM was not visualized beyond the twisted segment, with multiple dilated collaterals forming from the portal vein and proximal VSM in the subhepatic and umbilical region. The ileocaecal junction was elevated and lay to the right of the midline at the level of the L2- L3 vertebrae. The twisted loops of the midgut showed normal contrast opacification with no evidence of intestinal ischemia [3].

It is estimated that the prevalence of these congenital malformations in adulthood is in the order of 0.2% to 0.5%, an age at which they very often remain asymptomatic and therefore undiagnosed. This makes it a difficult diagnosis to make, and one that often goes unrecognized in clinical practice. It is usually diagnosed incidentally during abdominal surgery (particularly for ectopic appendicitis), X-rays or even autopsies performed for other reasons.

When not diagnosed and corrected early, these anomalies can be responsible for late occlusive complications in both children and adults [6,7].

Acute complications include duodenal occlusion due to flange and/or pathological adhesions, as well as total volvulus of the small intestine, an exceptional complication in adults, but one with a dreadful prognosis.

Chronic complications result from incomplete duodenal stenosis or chronic small bowel volvulus with mesenteric arterial insufficiency. Symptomatology is therefore not very specific, which makes diagnosis all the more difficult.
Patients often report repetitive abdominal pain episodes, sometimes occlusive, dating back to childhood in some cases, as in our patient's case.

The persistence of the common mesentery can have different anatomopathological aspects, of which the 2 most frequent are complete and incomplete common mesentery. Although generally latent in adults, persistent common mesentery can sometimes lead to acute or chronic complications. However, acute accidents are sufficiently rare in adults that the majority of practitioners, and even surgeons, are never confronted with them. This increases the risk of delayed or missed diagnosis, and consequently of a life-threatening situation if the surgical indication is not established in time [7].

We add to the literature with our case of repetitive venous thrombosis of the lower limbs due to intestinal malrotation of the small intestine with multiple collaterals without associated mesenteric ischemia (Figure 2).

Conclusion

Malrotation of the intestine in adults is a rare phenomenon. Children who are asymptomatic and benefit from conservative management need to be monitored frequently, as the course of the disease is unpredictable. If the diagnosis is made late, surgical intervention can be life-threatening; in our case, the patient abstained from surgery.

She was put on a continuous AOD (Anticoagulant Oral Direct) = Rivaroxaban 15 mg to prevent recurrence of thrombosis.

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