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**Assignment**

**Rotation of the Intestine**

**Intestinal malrotation** is a congenital anomaly of rotation of the midgut. It occurs during the first trimester as the fetal gut undergoes a complex series of growth and development. Malrotation can lead to a dangerous complication called volvulus. Malrotation can refer to a spectrum of abnormal intestinal positioning, often including:

* the small intestine found predominantly on the right side of the abdomen
* the cecum displaced from its usual position in the right lower quadrant into the epigastrium or right hypochondrium
* an absent or displaced ligament of Treitz
* fibrous peritoneal bands called bands of Ladd running across the vertical portion of the duodenum
* an unusually narrow, stalk-like mesentery

The position of the intestines, narrow mesentery and Ladd's bands can contribute to several severe gastrointestinal conditions. The narrow mesentery predisposes some cases of malrotation to midgut volvulus, a twisting of the entire small bowel that can obstruct the mesenteric blood vessels leading to intestinal ischemia, necrosis, and death if not promptly treated. The fibrous Ladd's bands can constrict the duodenum, leading to intestinal obstruction. The exact cause of intestinal malrotation is unknown. It is not definitively associated with a particular gene, but there is some evidence of recurrence in families. Intestinal malrotation can lead to a number of disease manifestations and complications such as:

* Acute midgut volvulus
* Chronic midgut volvulus
* Acute duodenal obstruction
* Chronic duodenal obstruction
* Short bowel syndrome, in cases of volvulus with intestinal necrosis
* Death, in cases of volvulus with pan-necrosis of the bowel, severe septic shock or hypovolemic shock

Prompt surgical treatment is necessary for intestinal malrotation when volvulus has occurred:

* First, the patient is resuscitated with fluids to stabilize them for surgery
* The volvulus is corrected (counterclockwise rotation of the bowel),
* The fibrous Ladd's bands over the duodenum are cut,
* The mesenteric pedicle is widened by separation of the duodenum and cecum,
* The small and large bowels are placed in a position that reduces their risk of future volvulus

With this condition the appendix is often on the wrong side of the body and therefore removed as a precautionary measure during the surgical procedure.

This surgical technique is known as the "Ladd's procedure", after Dr. William Ladd. Long-term research on the Ladd's procedure indicates that even after surgery, some patients are susceptible to GI issues and may need further surgery.