H74 Strangulated and Incarcerated Internal Hernia: A Rare Complication of Meckel's Diverticulum

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Learning Overview: The goal of this presentation is to highlight a rare, potentially fatal complication of Meckel's diverticulum.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by showing how to better recognize potentially fatal complications of Meckel's diverticulum.

Meckel's diverticulum is the most common congenital gastrointestinal abnormality, occurring in between 1%–4% of the population. The diverticulum is a remnant of the embryonic vitelline duct which fails to involute, resulting in a true diverticulum of the small intestine. The embryonic vitelline duct is supplied with blood by the vitelline artery, most commonly supplied from what will become the superior mesenteric artery. This blood supply can also fail to involute or partially involute, resulting in a mesodiverticular band that is most commonly attached to the ileal mesentery.

Most people with Meckel's diverticula are asymptomatic and the diverticulum is found incidentally during another procedure or at autopsy. It is estimated that between 4%–6% of individuals with these diverticula will present with gastrointestinal pathology, most commonly Small Bowel Obstruction (SBO). The causes of SBO vary, but most commonly include volvulus, adhesions, hernias, and intussusception. These complications are more commonly documented in adults and older children.

Meckel's diverticula are difficult to diagnose and their complications typically mimic generic SBO symptoms, including nausea, vomiting, abdominal pain, and abdominal distention, making antemortem diagnosis difficult. If left untreated, they carry a high risk of morbidity and mortality. SBO is even more difficult to diagnose in small children due to the non-specific symptoms and their inability to verbalize their complaints. These complications should be recognized, especially in cases of SD in children with non-specific gastrointestinal symptoms as they can be easily missed during autopsy without careful dissection and a high degree of suspicion.

This presentation will highlight the case of a 17-month-old infant who developed vomiting and decreased oral intake with rapid progression to death within 24 hours of symptom onset. Postmortem, non-contrast computed tomography revealed non-specific intestinal and mesenteric edema with a small amount of free fluid in the abdomen. At the time of autopsy, an internal hernia containing the majority of the small bowel was identified. The hernia contents were contained between the mesentery of a Meckel's diverticulum and a mesodiverticular band attached to the mesentery and retroperitoneal tissues adjacent to the ileocecal valve. The large length of herniated bowel resulted in incarceration with compression of the mesentery and vascular pedicle of the contained small intestine, causing ischemia and strangulation.

Internal Hernia, Meckel's Diverticulum, Mesodiverticular Band