



Pathology/Biology Section - 2016

H79 Unexpected Pediatric Death Due to Congenital Mesenteric Defect

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After attending this presentation, attendees will understand that a congenital transmesenteric hernia is an uncommon cause of intestinal obstruction that can be rapidly fatal. With careful dissection of the gastrointestinal tract at autopsy, the underlying etiological diagnosis and cause of death can be identified and documented.

This presentation will impact the forensic science community by highlighting an unexpected pediatric death due to a congenital transmesenteric hernia. Ascertaining the etiology of the necrotic bowel at autopsy is often difficult but pertinent in determining the cause and manner of death.

Transmesenteric hernia is a rare form of internal hernia through an acquired or congenital defect in the mesentery. It most commonly affects the small bowel and can result in intestinal obstruction with subsequent incarceration and strangulation that can be rapidly fatal. Although an uncommon entity, the mortality rate in untreated cases with gangrenous bowel can reach 80% and potentially even higher.^{1,2} This report is of an unexpected pediatric death due to a congenital mesenteric defect.

A six-year-old Hispanic boy with no past medical history presented to the emergency department from home via ambulance in cardiac arrest. The previous day, the child's mother had taken him to the pediatrician with complaints of rhinorrhea and multiple episodes of vomiting. He was diagnosed with a viral syndrome and sent home with an oral electrolyte solution. The next day, the child continued to vomit and became unresponsive. Upon arrival in the emergency department, the child was noted to have dry mucosa and a mildly distended abdomen. The Pediatric Advanced Life Support (PALS) protocol was followed without success. The death was reported to the medical examiner's office, as the cause of death was unclear.

At autopsy, the child was well developed and external examination was unremarkable. The esophagus and stomach were unremarkable except for focal gastritis. At 70 inches distal to the ligament of Treitz, there was a sharp demarcation in the small bowel, from a normal tan-pink color to dark and necrotic. This necrotic segment of bowel was 76 inches long. Distal to this was viable small and large bowel extending to the distal rectum. Near the ligament of Treitz, there was a one-half inch oval-shaped defect in the mesentery through which three loops of necrotic small bowel protruded. Histological examination demonstrated transmural necrosis without inflammation. Postmortem cultures were non-contributory. No drugs were detected in a routine toxicological panel. The cause of death was incarcerated internal hernia with entrapped small intestine due to congenital mesenteric defect. The manner of death was natural.

A transmesenteric hernia is a rare cause of intestinal obstruction and death. First documented by Rokitansky in 1836, the incidence of internal hernias is estimated to be 0.2%-0.9%.^{3,4} Congenital transmesenteric hernias comprise 35% of congenital internal hernias.⁵ Patients may be asymptomatic or present with non-specific misleading symptoms, particularly in elderly and pediatric patients, ultimately leading to an unexpected fatality. Radiological and laboratory studies are minimally helpful as there are no specific findings.⁶ Transmesenteric hernias are difficult to diagnose because their appearance and location can be variable. These internal hernias lack a hernia sac and, therefore, can present anywhere in the peritoneal cavity.⁷ Acquired transmesenteric defects usually present in adults as a result of surgical manipulation of the bowel and mesentery, such as in a Roux-en-Y gastric bypass or from blunt abdominal trauma. Ascertaining the etiology of the necrotic bowel at autopsy is often difficult but pertinent in determining the cause and manner of death. On opening the abdomen, there is usually free fluid, which may be blood-stained or dark in the presence of a strangulation. The bowel can be gangrenous or perforated, resulting in fecal contents or exudate in the abdominal cavity. The mesenteric defect is usually located close to the ligament of Treitz or the ileocaecal valve, and is typically ~one inch in diameter.⁸ Careful, meticulous dissection, along with photographs, will help identify and document the underlying etiology and cause of death.



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