G42 Prolonged Survival Time Following Duodenal Transection in a Child With Abdominal Trauma

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After attending this presentation, attendees will be able to recognize the symptomatology associated with abdominal trauma and will be able to understand the correlation between symptoms and pathologic injury correlating histologic examination of tissues with a timeline of events.

This presentation will impact the forensic community by providing valuable information about symptomatology associated with blunt abdominal trauma. Seemingly minor external injuries may harbor terminal internal pathology. Recognition of the potential severity of these injuries may prompt clinicians to conduct more thorough patient examinations and pursue imaging studies to identify unexpected internal injuries. In many cases of homicidal blunt force injury, forensic pathologists are asked to estimate the time of injury despite the uncertain circumstantial timeline of case investigation. In this case, a relatively accurate timeline was known. Hence, the correlation with microscopic sections of the injury can provide assistance in the evaluation of previously published timelines for the inflammatory response.

Upon completion of this presentation, attendees will have an appreciation for the clinical symptomatology associated with duodenal transection following blunt abdominal trauma and the importance of histologic evaluation of this type of injury to foster the sequencing of events. Subtle symptoms can dissimilate potentially emergent, life- threatening pathology. This particular case discussion exemplifies prolonged (approximately 24 hrs) survival in a child that sustained a duodenal transection injury after falling from a bicycle. A literature review of comparable cases will also be performed. Case correlation may aid in establishing a time range of survival, which would portend significant clinical value. Clinicians who are knowledgeable about the potential injuries caused by abdominal trauma are more likely to suspect injury despite the absence of suggestive symptoms. Such analysis will likely demonstrate that an official clinical diagnosis of intestinal laceration occurs when an individual's symptoms are more severe (postulating that there is a period of survival status-post injury).

A 9-year-old Hispanic female sustained head and abdominal injuries after falling from her bicycle on 6/27/08 at approximately 1-2 p.m. She was examined and released from a local hospital without having undergone imaging studies. According to the report, later that evening, the child began vomiting and subsequently went to sleep. The next morning, she continued to feel nauseous and vomited in the morning. She went to bed around noon and was found unresponsive at 12:50 pm on 6/28/08. The child was pronounced dead at 1:47 pm on the same day. Investigation revealed no evidence of anything other than unintentional injury. Autopsy revealed a laceration of the head with an underlying depressed skull fracture and focal epidural hemorrhage; focal minor contusions and abrasions of the torso; hemoperitoneum; duodenal transection distal to the pylorus; contusion of the liver; intra-abdominal soft tissue hemorrhage of the ligamentum teres, greater and lesser omentum, and mesentery; petechial hemorrhages of the lower lobe of the right lung; peri-pancreatic soft tissue hemorrhage with bile staining; and minor abrasions and contusions of the extremities. Histologic examination revealed an abundance of neutrophils, fibrinous debris, scattered monocytes, and an absence of hemosiderin laden macrophages, which confirmed the timeline of investigation. The cause of death in this 9-year-old female was head and abdominal injuries sustained after falling from a bicycle.

A common cause of accidental abdominal trauma in grade-school children is due to impact with bicycle handlebars. This injury can mimic homicidal blunt force injury. The importance of histologic examination of injuries in different tissues with a known timeline of events aids in predicting an unknown timeline in homicidal blunt force injury cases. Such trauma commonly causes lacerations of the duodenum, and in many instances, severe internal organ damage is accompanied by a dramatic paucity of significant external injury. Abdominal organ injury has a poor prognosis due to delay in therapy. An appreciation for the potential severity of blunt abdominal trauma, which can provoke more efficient diagnosis of the injury and hastened therapy, may save a precious life.

Duodenum, Trauma, Survival

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