

H117 Sudden Unexpected Death in Childhood: A Case Report of Fatal Acute Pancreatitis

Fabio Innocenzi*, Università di Torino, Torino 10126, ITALY; Francesco Lupariello, MD*, University of Torino, Torino 10126, ITALY; Alessandro Gabriele, University of Turin, Turin 10126, ITALY; Giovanni Botta, MD, Department of Pathology, OIRM Sant'anna, Torino 10126, ITALY; Giancarlo Di Vella, MD, PhD*, University of Torino, Department of Public Health Sciences, Torino 10126, ITALY

Learning Overview: After attending this presentation, attendees will understand the importance of investigating a necrotizing pancreatitis in cases of sudden unexpected deaths in children.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by adding new knowledge about a pathology with little literature data regarding its occurrence in those of pediatric age, thus showing the importance of autopsy and histologic findings in order to understand the features of this rarely reported cause of death in children.

Necrotizing pancreatitis is a complication of acute pancreatitis wherein portions of the pancreas die and may get infected. The primary symptom of necrotizing pancreatitis is severe upper abdominal pain that radiates to the back in 50% of cases. Other related symptoms include swollen abdomen, fever, nausea, vomiting, dehydration, low blood pressure, and rapid heart rate. If left untreated, necrotizing pancreatitis may lead to bacterial infections and sepsis. Necrotizing pancreatitis is diagnosed by symptoms, but the following blood investigations are also helpful: pancreatic enzyme levels, sodium, potassium or glucose, and triglycerides levels. Abdominal ultrasound, Computed Tomography (CT) scan, and magnetic resonance imaging are additionally used to evaluate the pancreas. If these exams show that there is necrosis of the pancreas, a biopsy is necessary to test for infection. Treatments for pancreatitis include intravenous fluids, pain-relieving medication, rest, medication to prevent nausea and vomiting, and nasogastric feeding. According to a 2014 study, the best time to perform surgery is three or four weeks after the onset of the condition. However, if a person is in critical condition, surgery is mandatory to remove the necrotic or infected tissue. Early treatment is the best way to reduce the risk of necrotizing pancreatitis or other complications.¹

Pediatric pancreatitis has received attention during the past few years. Numerous reports have identified an increasing trend in the diagnosis of acute pancreatitis in children and key differences in disease presentation and management between infants and older children.² Acute necrotizing pancreatitis has a variable etiology in children. CT scan is useful for the diagnosis and assessment of its severity.³ Acute necrotizing pancreatitis accounts for 10% of acute pancreatitis cases and is associated with a higher mortality and morbidity. Necrosis within the first four weeks of disease onset is defined as an Acute Necrotic Collection (ANC), while Walled-Off Pancreatic Necrosis (WOPN) develops after four weeks from the disease onset. The infection of a necrotic pancreas is the most important risk factor contributing to death in severe acute pancreatitis, and it is generally accepted that infected pancreatic necrosis should be managed surgically. An infected or symptomatic WOPN requires drainage. The management of pancreatic necrosis has shifted away from open necrosectomy, as it is associated with a high morbidity, to less invasive techniques.⁴ In contrast, the management of sterile pancreatic necrosis accompanied by organ failure is controversial. Recent clinical experience has provided evidence that conservative management of sterile pancreatic necrosis, including early antibiotic administration, seems promising.⁵

In order to contribute to the knowledge of the topic, the case of a 2-year-old toddler brought to the local hospital for severe abdominal pain is presented. There was no significant history reported. Severe abdominal pain, fever, nausea, vomiting, low blood pressure, and rapid heart rate were found at physical examination. Laboratory blood testing showed increased liver enzymes and amylase. The patient suddenly died after 30 minutes, before the medical staff could perform the necessary instrumental investigations.

An autopsy was conducted. The external examination showed broad marbling, especially in the lower limbs. At internal examination, a serosanguinous peritoneal effusion and a 35ml pericardial effusion were detected. Histologic findings included lungs with marked vascular congestion and limited atelectasis, reactive pulmonary hilar lymph nodes, adrenal glands with reduced medullary thickness, kidneys with focal tubular necrosis, pancreas with massive hemorrhagic necrosis, and spleen with reactive foci. The pathologist certified the case as a sudden and unexpected death caused by multi-organ failure due to septic shock in pediatric necrotizing pancreatitis.

In conclusion, this case points out that a careful histologic investigation must always be carried out in order to execute a comprehensive autopsy study, especially in the case of a sudden and unexpected death in childhood caused by a pathology that is scarcely reported in the scientific literature.

Reference(s):

1. Yoon, Ji-Won, Marshall Austin, Takashi Onodera, and Abner Louis Notkins. 1979. Isolation of a virus from the pancreas of a child with diabetic ketoacidosis. *N Engl J Med* 300 (21): 1173-1179. doi:10.1056/nejm197905243002102.
2. Bai, Harrison X., Mark E. Lowe, and Sohail Z. Husain. 2011. What Have We Learned About Acute Pancreatitis In Children? *J Pediatr Gastroenterol Nutr* 52 (3): 262-270. doi:10.1097/mpg.0b013e3182061d75.
3. Raizner, Aileen, Uma Padhye Phatak, Kenneth Baker, Mohini G. Patel, Sohail Z. Husain, and Dinesh S. Pashankar. 2013. Acute Necrotizing Pancreatitis In Children. *J Pediatr* 162 (4): 788-792. doi:10.1016/j.jpeds.2012.09.037.
4. Boumitri, Christine, Elizabeth Brown, and Michel Kahaleh. 2017. Necrotizing Pancreatitis: Current Management and Therapies." *Clin Endosc* 50 (4): 357-365. doi:10.5946/ce.2016.152.
5. Büchler, Markus W., Beat Gloor, Christophe A. Müller, Helmut Friess, Christian A. Seiler, and Waldemar Uhl. 2000. Acute Necrotizing Pancreatitis: Treatment Strategy According To The Status Of Infection." *Ann Surg* 232 (5): 619-626. doi:10.1097/0000658-200011000-00001.

Sudden Unexpected Death, Childhood, Necrotizing Pancreatitis

Copyright 2020 by the AAFS. Permission to reprint, publish, or otherwise reproduce such material in any form other than photocopying must be obtained by the AAFS.

*Presenting Author