



H7 A Case of Fatal Sepsis by *Clostridium perfringens* After a Hepatic Liver Biopsy of a Rare Neuroendocrine Tumor

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After attending this presentation, attendees will understand that what was initially considered to be artifact, was in fact real pathologic findings due to antemortem sepsis and gas production by *Clostridium perfringens*, making this case an excellent example of how a systemic infection can mimic an advanced state of putrefaction.

This presentation will impact the forensic science community by the uniqueness of the case: (1) mode of dissemination of *Clostridium perfringens*; (2) presence of a rare Primary Hepatic Neuroendocrine Carcinoma; and, (3) body changes noted at the time of autopsy.

Introduction: *Clostridium perfringens* is a spore-forming and toxin-producing gram-positive bacteria that can be found in healthy humans, but in rare cases, cause sepsis and intravascular hemolysis in susceptible individuals. Presented here is a fatal case of *Clostridium perfringens* sepsis in a morbidly obese man who underwent a transcutaneous liver biopsy for the evaluation of multiple liver masses, later identified as hepatic neuroendocrine small cell carcinoma.

Case Report: Reported is a case of a 50-year-old morbidly obese man with hypertension and diabetes who was admitted to the hospital for right upper quadrant abdominal pain and unintentional weight loss of one month's duration. An ultrasound of the abdomen revealed a very enlarged liver with multiple nodules with central necrosis. To evaluate the hepatic lesions, a Computed Tomography (CT) guided liver biopsy was performed; the pathologic diagnosis was a hepatic neuroendocrine carcinoma, small-cell type. The following day, the patient complained of increasing abdominal discomfort with a significant drop in hemoglobin; he developed hypotension and multiple organ failure, followed by death. The postmortem external examination was remarkable for morbid obesity and multiple fluid- and gas-filled skin bullae. Internal examination revealed multiple tumor nodules in the liver without any other primary. There was evidence of gas formation in all organs, including the liver, heart, and brain; *Clostridium perfringens* was subsequently identified in blood cultures that had been drawn prior to death.

Discussion: Sepsis is a rare but deadly complication of *Clostridium perfringens* infection, characterized by rapid progression and death occurring in 24 to 48 hours; this case is unique in many aspects. First, the mode of dissemination of *Clostridium perfringens* was likely related to the CT-guided biopsy, since the patient's hemodynamic status deteriorated very rapidly following the procedure. Second, primary hepatic small-cell carcinoma represents the poorly differentiated end of the spectrum of neuroendocrine carcinomas and is very rare, with only a few reported cases in the literature. Due to its rarity, the clinical course, natural history, molecular profile, proper treatment, and overall prognosis have not yet been fully characterized. Third, this case is unique from a forensic perspective due to the external changes noted at the time of autopsy, namely the large fluid filled skin bullae that had been initially interpreted as accelerated decomposition due to obesity; however, in this case was initially considered to be artifact, were in fact real pathologic findings due to antemortem sepsis and gas production by *Clostridium perfringens*, making this case an excellent example of how a systemic infection can mimic an advanced state of putrefaction.

***Clostridium perfringens* Sepsis, Small-Cell Carcinoma, Therapeutic Complication**

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