Fatal complication after endoscopic ultrasound-guided celiac plexus neurolysis

A 57-year-old woman with a diagnosis of idiopathic recurrent pancreatitis and progressive epigastric pain radiating to her back was admitted to the hospital. Abdominal computed tomography (CT) showed a suspicious 3-cm pancreatic head mass involving the superior mesenteric artery (SMA) and vein. Endoscopic ultrasound (EUS) showed the suspicious pancreatic head mass with bile duct and main pancreatic duct dilatation and changes compatible with chronic pancreatitis. However, EUS-guided fine needle aspiration cytology was negative on three occasions.

EUS-guided celiac plexus neurolysis (EUS-CPN) was carried out using a 19-gauge needle. Absolute alcohol (10 cc) and bupivacaine 0.5 % (5 cc) were injected on each side of the celiac takeoff. Color Doppler imaging after the procedure revealed the permeability of the SMA and celiac takeoff.

After the procedure, the patient experienced stabbing pain radiating to the back, with nausea, hypotension, and fever. CT demonstrated complete thrombosis of the celiac takeoff, as well as wall thickening and bubble-like pneumatosis of the stomach, duodenum, jejunum, ileum loops, and ascending colon. Signs of hepatic infarction of segments I and III, and near-total right-kidney and splenic infarction were discovered. Conservative management was carried out and the patient died 8 days later.

Major complications have rarely been reported using EUS-CPN or EUS-guided celiac plexus block (**Tab.1**) [1 – 7]. The present case is the first to document a fatal outcome. The sclerosing effect of absolute ethanol, arterial embolisms after injection, and vasospasm could explain the necrosis of organs distant to the celiac takeoff [8]. All cases of major complications due to CPN, except one, were reported in the setting of chronic pancreatitis (**Tab.1**). The issue of using CPN in patients with chronic pancreatitis is still a matter of debate [9].

In conclusion, major complications of CPN can include death. It may be preferable to limit EUS-guided CPN to patients with histologically proven cancers.

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Table 1 Reported complications secondary to the endoscopic ultrasound (EUS)-guided celiac plexus neurolysis (CPN) or celiac plexus block technique.

Author	Procedures	Complication	Indication	Technique	Substance
Gress et al. [6]	80	1 Retroperitoneal bleeding 1 Retroperitoneal abscess	CP	Bilateral	Alcohol + bupivacaine Triamcinolone + bupivacaine
Mahajan et al. [4]	167	3 Empyema	CP	Unstated	Triamcinolone + bupivacaine
Muscatiello et al. [3]	1	1 Retroperitoneal abscess	PC	Unstated	Alcohol + bupivacaine
Sahai et al. [2]	160	1 Retroperitoneal bleed	CP	Bilateral	Triamcinolone + bupivacaine
O'Toole et al. [1]	220	1 Retroperitoneal abscess	CP	Unstated	Triamcinolone + bupivacaine
Ahmed et al. [7]	1	1 Ischemia	CP	Unstated	Alcohol + bupivacaine
Lalueza et al. [5]	1	1 Brain abscess	CP	Unstated	Alcohol + bupivacaine
Current study	1	Ischemia/dead	PC?, CP	Bilateral	Alcohol + bupivacaine

CP, chronic pancreatitis; PC, pancreatic cancer.