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Rare Case of Gastrostomy Tube Migration Abutting Ampulla of Vater and Evidence-Based Treatment of the Resulting Pancreatitis

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1. Abstract

This case demonstrates a rare cause of acute pancreatitis secondary to migration of a gastrostomy tube into the descending part of the duodenum to cause pancreatic duct obstruction. Gastrostomy tubes are considered first line and preferred method in providing long term enteral nutrition in those who have functional gastrointestinal tracts however insufficient oral intake [1, 2]. It is superior and more suitable for long term use compared to total parenteral nutrition or nasoenteric feeding, and can be placed either endoscopically, surgically or radiologically [1]. Since the first case report of acute pancreatitis caused by migration of a Foley catheter Gastrostomy tube with an inflated balloon by Bui and Dang in 1986 [3], there have been a handful of cases reported to have caused pancreatitis, as well as other rare complications including duodenal perforation due to obstruction and obstructive jaundice [3]. Literature review on PubMed with MESH terms "complications" and "PEG tube" shows a steady increase in incidence of reporting of rare PEG tube complications in the last 15 years.

2. Discussion

74-year-old non-verbal lady presented to the Emergency Department with 1-day history of epigastric pain and bilious vomiting. She had a gastrostomy tube for enteral nutrition following a massive haemorrhagic stroke resulting in oropharyngeal dysphagia and non-verbal status in 2016. She had been feeding via the gastrostomy tube the day prior to presentation to emergency. Other past history included hypertension, cholesterol and pancreatic-duodenal artery aneurysm. She had previously been admitted to hospital six months prior with symptoms of gastric-outlet obstruction due to gastrostomy tube migration. Physical examination revealed a tender epigastrium on palpation without peritonism, and active bowel sounds. The gastrostomy tube had migrated with only 10cm showing externally. Biochemistry revealed White Cell Count [WCC] 9.3x109/L, lipase 607U/L and amylase 544U/L. Her liver function tests, and C-Reactive Protein were normal. Due to concerns for tube migration, a Computed Tomography [CT] of the abdomen was performed using intravenous contrast. This demonstrated migration of the gastrostomy tube with the balloon sitting within the second part of the duodenum, abutting the ampulla of Vater (Figure 1). There was also dilated intrahepatic biliary ducts and distension of the gallbladder without the presence of an obstructing choledocholithiasis.

The gastrostomy balloon was deflated, pulled back 7cm until resistance was felt and balloon reinflated. Fluoroscopic check of the tube placement revealed the gastrostomy tube was now within the pylorus causing an iatrogenic gastric outlet obstruction (Figure 2). Under fluoroscopic guidance, the tube was pulled back to 0cm at the skin bumper and confirmed to be within the body of the stomach (Figure 3). The patient subsequently had an unremarkable recovery from her pancreatitis and discharged back to the nursing home.

The migrated tube can be manipulated with simple traction [5]. If the gastrostomy tube has a balloon, it should be deflated prior to retracting it back to its baseline length or until resistance is felt and ensuring it is well secured [5]. If further migration, it may require endoscopic or radiologic guided removal [4, 5]. This case recognises that fluoroscopic check should be performed after retraction to en-

sure that complete retraction of the gastrostomy has been performed as patients can potentially be discharged with a gastrostomy tube induced gastric outlet obstruction. Despite external fixation of the gastrostomy tube with an external bumper along with balloon inflation, migration can still occur distally causing this rare and potentially fatal complication. Migration of a balloon from the gastrostomy tube into the duodenum can result in external manipulation of the ampulla of Vater thereby disturbing the flow of pancreatic secretions leading to acute pancreatitis. Recognition of this complication is important and should be included as potential ethology of acute pancreatitis in patients receiving percutaneous endoscopic gastrostomy feedings. Periodic examination and documentation of the distance of the balloon from the skin should be performed to document the position of the tubes or any inadvertent migration of the tubes [6].

Acute pancreatitis secondary to migrated replacement gastrostomy tubes has been reported. Duerksen et al. and Imamura et al. each described a case of acute pancreatitis caused by balloon gastrostomy tube. The acute pancreatitis was hypothesized to be caused by the migration of the balloon which caused direct mechanical irritating the major and or minor papilla resulting in a disturbance of the flow of pancreatic juice, an accepted cause of in acute pancreatitis. Duerksen et al. described spontaneous loosening of the external bumper as the cause of the tube migration. Imamura et al. described a case in which the replacement gastrostomy tube was inserted too deeply in the duodenum and inflated there causing pancreatitis and cholangitis [6,9,10]. The treatment for acute pancreatitis secondary to PEG tube migration is PEG tube removal, which is followed by placement of a new PEG tube. Expert guidelines recommend a Gastrografin study after blind placement of the gastrostomy tube. The feeding tube should be marked where it exits from the abdominal wall once adequate placement has been documented [7,8].

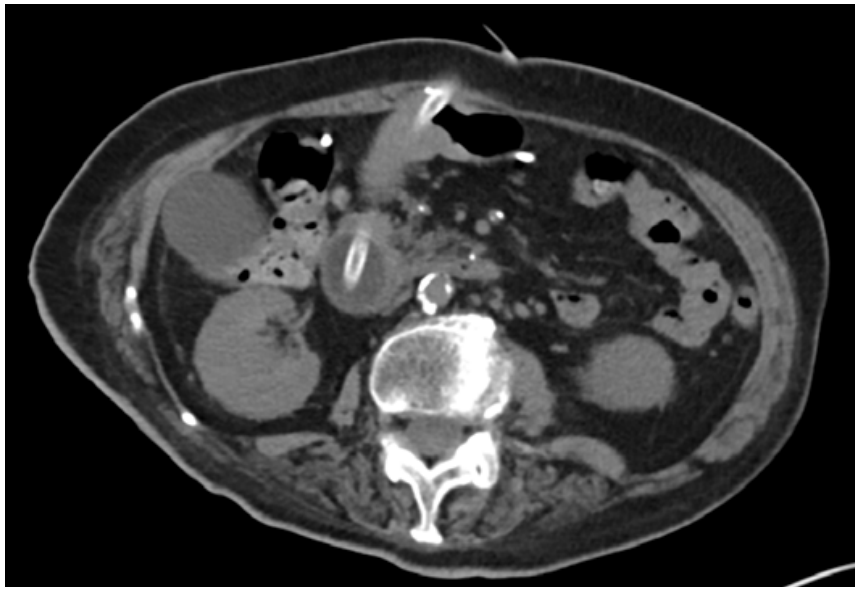

Figure 1: Gastrostomy balloon in the duodenum abutting the ampulla of Vater (yellow arrow).

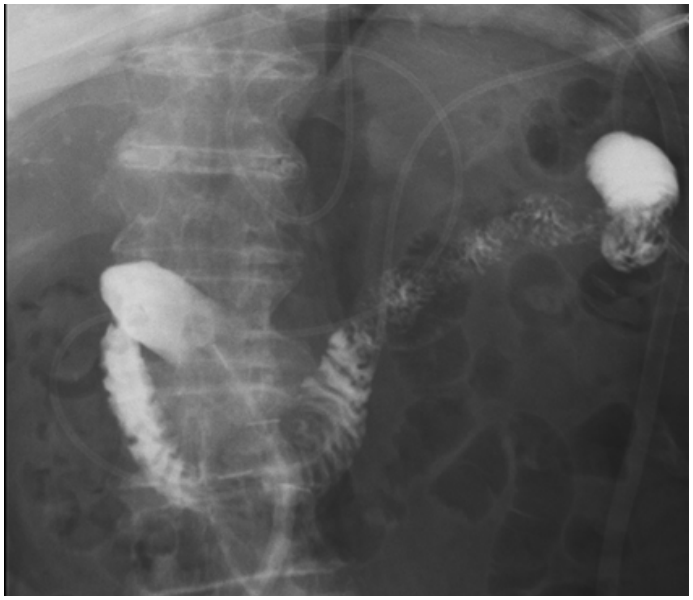

Figure 2: Fluoroscopic imaging of gastrostomy tube within the pylorus after manipulation until resistance. There is contrast within the duodenum into the jejunum.

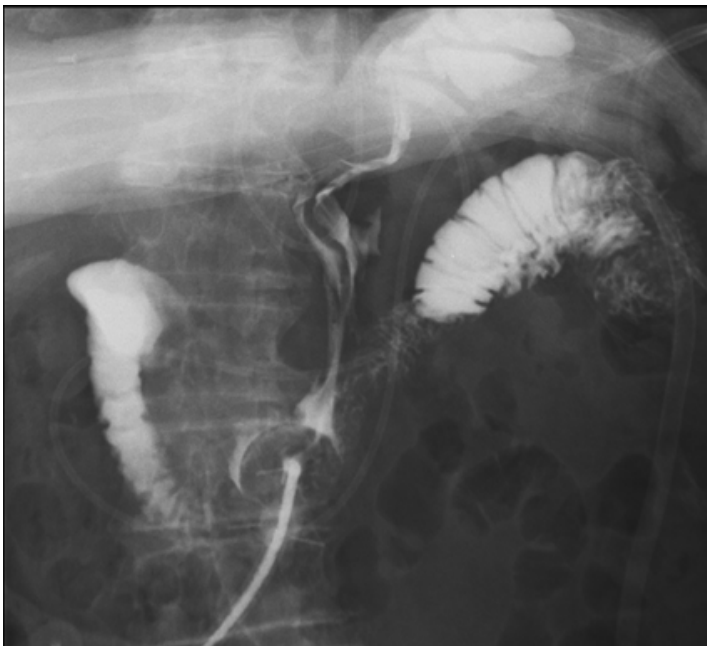

Figure 3: Fluoroscopic imaging of gastrostomy tube within the gastric antrum with contrast flowing to the fundus after further manipulation to 0cm at the skin bumper.

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