



# ACUTE PANCREATITIS AFTER EGD: CASE PRESENTATION AND LITERATURE REVIEW OF THIS RARE POST-PROCEDURE COMPLICATION

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## ABSTRACT

**Background:** Acute pancreatitis is a common cause of hospitalisation characterised by inflammation of the pancreas. While mechanical, toxic and iatrogenic factors typically cause it, post-oesophagogastroduodenoscopy (EGD) pancreatitis is extremely rare. This report examines a case of acute pancreatitis following EGD, aiming to highlight this rare but significant complication.

**Case description:** A 46-year-old woman with a history of breast cancer, anxiety, vitamin D deficiency and gastro-oesophageal reflux disease underwent an EGD, which revealed and led to the removal of duodenal polyps. Six hours post-procedure, she presented with severe abdominal pain radiating to her back, accompanied by nausea. Laboratory results indicated elevated lipase levels, and a computed tomography (CT) scan confirmed acute pancreatitis. The patient was managed with aggressive fluid resuscitation, bowel rest and pain management, leading to an improvement in her condition and subsequent discharge. We believe that the pancreatitis was likely caused by the use of cautery during the endoscopic mucosal resection of duodenal polyps.

**Conclusion:** This case underscores the need for clinicians to recognise acute pancreatitis as a potential complication of EGD, especially in the absence of other common risk factors.

## KEYWORDS

EGD, oesophagogastroduodenoscopy, pancreatitis, gastroscopy, endoscopy

## LEARNING POINTS

- Acute pancreatitis following oesophagogastroduodenoscopy (EGD) is an uncommon but significant complication.
- Possible mechanisms include mechanical trauma, gas insufflation or electrical injury during endoscopic mucosal resection.
- Clinicians should be aware of this potential complication, especially when no typical aetiological factors for pancreatitis are present.



## INTRODUCTION

Acute pancreatitis is the inflammation of the pancreas caused by various factors, resulting in severe abdominal pain. It is one of the most common reasons for hospitalisations in the USA. The causes of acute pancreatitis can be broadly categorised as mechanical (such as gallstones, pancreatic duct obstruction, congenital malformations), toxic (such as alcohol, hyperlipidaemia, organophosphate poisoning), iatrogenic (post-endoscopic retrograde cholangiopancreatography (ERCP), sulfa drugs, immunomodulators) and miscellaneous causes (such as cystic fibrosis, ischaemia, infection)<sup>[1]</sup>. While most cases of post-procedural pancreatitis result from ERCP, only a few cases have been reported following oesophagogastroduodenoscopy (EGD) and ours is one such case. We present a case in which the patient developed acute pancreatitis shortly after undergoing an EGD, with no other apparent aetiologies. Such sequelae are purported to be a result of pancreatic trauma or gas insufflation in the duodenum, which can directly affect the pancreas or trigger an inflammatory reaction that leads to pancreatitis. Treatment involved administering fluids, managing pain and restricting the patient's diet, resulting in positive clinical outcomes<sup>[2,3]</sup>.

## CASE DESCRIPTION

A 46-year-old woman with a history of breast cancer with spinal metastasis status post bilateral mastectomy, anxiety, vitamin D deficiency and gastro-oesophageal reflux disease (GERD) underwent outpatient EGD a year ago due to persistent GERD. Her EGD revealed duodenal polyps, which were removed. After a year the patient underwent a follow-up EGD, which showed two new duodenal polyps, removed with endoscopic mucosal resection (EMR), and was discharged home. She presented to the emergency department with severe abdominal pain within six hours of the procedure. The pain was located in the upper abdomen, was aching and radiated to her back. It was very intense, scoring 9 out of 10, and worsened with movement and eating, but improved with paracetamol and while curled up in a foetal position. She also felt nauseous and experienced dry heaving but had not vomited. She denied experiencing chest pain, fever, chills, blood in the stools, headache, bowel or bladder difficulties, and recent alcohol intake. The patient's prescribed medications included clonazepam and vitamin supplementation. The patient was stable, and a physical examination revealed tenderness in the epigastric and periumbilical area, with no other notable findings. The levels of alcohol, lipids and electrolytes were within normal limits. However, laboratory results showed elevated lipase at 2,002 U/l and alkaline phosphatase at 154 IU/l. A CT scan of the abdomen and pelvis with contrast revealed acute pancreatitis with reactive changes in the gallbladder and duodenum, and no free air. The patient was advised of the need for bowel rest and started on aggressive fluid resuscitation. A repeat EGD after 48 hours of admission showed two non-bleeding duodenal ulcers at the site of



Figure 1. CT scan of the abdomen revealing pancreatitis.

the recent EMR, and one at the site of the ampulla. Our patient did not have any of the common aetiological risk factors associated with acute pancreatitis such as alcohol intake, hypertriglyceridaemia, history of cystic fibrosis, organophosphate poisoning, snake bite, recent ERCP or use of sulfa drugs or immunomodulators. The use of cautery during the EMR from the recent polypectomy was presumed to be the cause of acute pancreatitis. Over three days, the patient's symptoms gradually improved. She tolerated the diet, and her lipase levels improved to 169 U/l. Hence, the patient was discharged home with outpatient follow-up and gastroenterology service. A CT scan of the abdomen and pelvis with contrast (Fig. 1) revealed pancreatitis.

## DISCUSSION

Oesophagogastroduodenoscopy (EGD) is a common diagnostic and therapeutic procedure used to visualise the upper gastrointestinal tract. Endoscopies have become increasingly important for gastroenterologists over the past few decades, and they have become more technically complex. Complications are rare but can include cardiopulmonary effects related to sedation, infection, bleeding, haematoma, bowel perforation or post-procedure polyps<sup>[4]</sup>. While ERCP has been associated with pancreatitis, only a few cases of pancreatitis following EGD have been reported.

Based on a review of similar cases in the literature, several theories about the potential causes of pancreatitis following EGD were identified. The first theory involves direct mechanical trauma, the second suggests that gas insufflation causes increased pressure in the intestines and subsequent bile reflux, and the third proposes that the electric current from EMR penetrates the duodenal wall, damaging the adjacent pancreas<sup>[5-7]</sup>. Although the exact mechanism remains unclear, these theories represent the most commonly reported potential causes of such injuries. Manipulation of the duodenum during the procedure could have led to mechanical trauma that caused a submural haematoma and oedema, which temporarily obstructed the bile duct. Endoscopic gas insufflation may

Author	Age and Sex	Indication	Type of the procedure	Duration of onset of symptoms from the procedure	Probable mechanism of injury	Management
Nevins et al. <sup>[2]</sup>	69, Male	Anemia evaluation	EGD and colonoscopy	Within 18 hours	Local trauma during the procedure	N/A
Deschamps et al. <sup>[3]</sup>	58, Female	Anemia evaluation	EGD	Within 2 hours	Over Insufflation or reflux of duodenal secretions into the pancreatic duct	N/A
Dai et al. <sup>[4]</sup>	56, Female	Malignancy screening	EGD	Within 2 hours	Bile reflux into pancreatic ducts due to increased abdominal pressure	Bowel rest, octreotide, ulinastatin, esomeprazole, and fluid replacement.
Nwafo et al. <sup>[5]</sup>	33, Female	Chronic abdominal pain	EGD	Within 2 hours	Pancreatic trauma or gas insufflation near the pancreas	Bowel rest, Fluid replacement, pain management and anti-emetics.
Oshima et al. <sup>[6]</sup>	48, Male	Abdominal pain	EGD	Within 12 hours	Endoscopic insufflation	N/A
Kwak et al. <sup>[7]</sup>	60, Male	Elective endoscopic polypectomy	EGD	Within 4 hours	Direct mechanical trauma or endoscopic diathermy or adrenaline injection to raise the polyp	Analgesia, bowel rest, fluid replacement.
Sturlis et al. <sup>[8]</sup>	41, Female	Persistent GERD	EGD	Within 12 hours	N/A	Fluid replacement, and pain management with ketorolac
Ahmad et al. <sup>[9]</sup>	69, Male	Dysphagia	EGD	Within 4 hours	N/A	Fluid replacement, pain management and anti-emetics
Fadaee et al. <sup>[10]</sup>	52, Male	Malignancy screening	Gastroscopy and colonoscopy	Within 5 hours	Biopsy of polyp probably causing injury to the ampulla of Vater	Bowel rest, Fluid replacement and analgesia

Table 1. Review of literature on cases of Acute pancreatitis immediately after EGD.

lead to increased intraluminal pressure. This could cause duodenal hypertension and subsequent reflux of pancreatic enzymes, resulting in acute pancreatitis. Finally, prolonged electrocautery during EMR of the duodenal polyp could have conducted heat through the duodenal mucosa, resulting in a transmural burn. The transmitted heat could damage the pancreatic acinar cells and cause the activation of trypsin<sup>[7]</sup>. Although a direct causal relationship between upper endoscopy and acute pancreatitis is not well established, the onset of abdominal pain immediately post-procedure in our case suggests a potential link between acute pancreatitis and EGD. Additionally, the patient did not exhibit classic risk factors for pancreatitis such as excessive alcohol consumption, hypercalcaemia or hypercholesterolaemia.

We have identified three possible mechanisms of pancreatitis resulting from EGD by reviewing similar cases in the literature. In our case, we believe that the pancreatitis was likely caused by the use of cautery during the EMR of duodenal polyps. We conducted a literature review on cases of pancreatitis immediately after EGD and have summarised a few such cases in *Table 1*.

## CONCLUSION

Acute pancreatitis following EGD is an uncommon but significant complication that warrants attention, especially in the absence of typical aetiological factors such as alcohol consumption or hyperlipidaemia. Our case underscores the importance of recognising post-EGD pancreatitis, mainly

when procedures involve interventions such as EMR. This case contributes to the limited but growing body of literature on EGD-associated pancreatitis, emphasising the necessity for clinicians to be aware of this possible adverse event and to manage it promptly with appropriate interventions. Further research and case accumulation are essential to better understand this rare complication's pathophysiology and prevention strategies.

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