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Case Report

# Liver abscess after endoscopic sleeve gastroplasty: A case report ☆,☆☆

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ABSTRACT

Endoscopic sleeve gastroplasty is a minimally invasive procedure for the treatment of obesity. The procedure is generally safe and well-tolerated, but major adverse events occur in up to 3% of patients. Perigastric abscess is a potential complication caused by postprocedural gastric leak. To the best of our knowledge, no cases of hepatic abscess (HA) following endoscopic sleeve gastroplasty have been reported, while HA is a well-known complication of laparoscopic sleeve gastrectomy. We report the case of a patient who developed a liver abscess 2 weeks after endoscopic sleeve gastroplasty. The patient improved with administration of intravenous antibiotics and endoscopic drainage.



## Introduction

Bariatric endoscopic therapies (BETs) are a valid treatment option for obese patients. Several retrospective studies and randomized clinical trials have demonstrated that BETs are associated with significant weight loss and an improvement of comorbidities caused by obesity [1,2]. Endoscopic sleeve gastroplasty (ESG) is a minimally invasive endoscopic procedure designed to treat grade 1 obesity [1–4]; it consists of an endoscopic suture of the anterior and posterior walls of the stomach along the greater curvature, resulting in a reduction of the gastric volume by 80%. This leads to a decreased food intake, with significant weight loss at 1-year follow-up [5].

Despite being a sufficiently safe procedure, major complications such as leakage, bleeding, and gastroesophageal reflux may occur in up to 3% of cases of ESG [3–7].

We present the case of a gastric leak complicated by a hepatic abscess, occurring 2 weeks after ESG.

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## Case report

A 31-year-old woman was admitted to our emergency department with fever (maximum peak 39.3°C) and epigastric pain in the last 2 days. She underwent ESG 2 weeks before due to degree I obesity and had been discharged the day after surgery without complications.

Laboratory tests showed leukocytosis and increased C-reactive protein.

Contrast-enhanced abdominal CT demonstrated a 6.5 × 6 × 5 cm mixed-density, lobulated, peripherally enhancing lesion in the III hepatic segment. The lesion appeared closely adherent to the anterior wall of the stomach (Fig. 1).

Considering the recent endoscopic procedure, CT findings suggested a hepatic abscess. No previous abdominal CT scans were available.

Endoscopy revealed a small orifice near the surgical suture on the anterior wall of the stomach. The orifice was cannulated with a catheter and approximately 60 cc of purulent material were drained and sent for culture test. Endoscopic fistulography showed a communication between the hepatic collection and the gastric lumen. A pig-tail prosthesis was placed to drain the collection into the gastric lumen.

Cultures grew *Streptococcus intermedius* and the patient was started on Cefotaxime and Gentamicine.

CT scan performed 3 days later showed a slight decrease in the abscess' size (Fig. 2).

The patient's clinical condition and laboratory tests progressively improved and she was discharged 10 days after endoscopic drainage.

Two months' follow-up abdominal CT showed complete resolution of the abscess (Fig. 3).

## Discussion

ESG is a minimally invasive procedure designed to treat grade 1 obesity. Unlike laparoscopic sleeve gastrectomy, it is performed with an endoscopic suturing device.

Despite being one of the safest bariatric procedures, complications such as bleeding, leaks, ulcers, and gastroesophageal reflux may occur in up to 3% of cases [3–7].

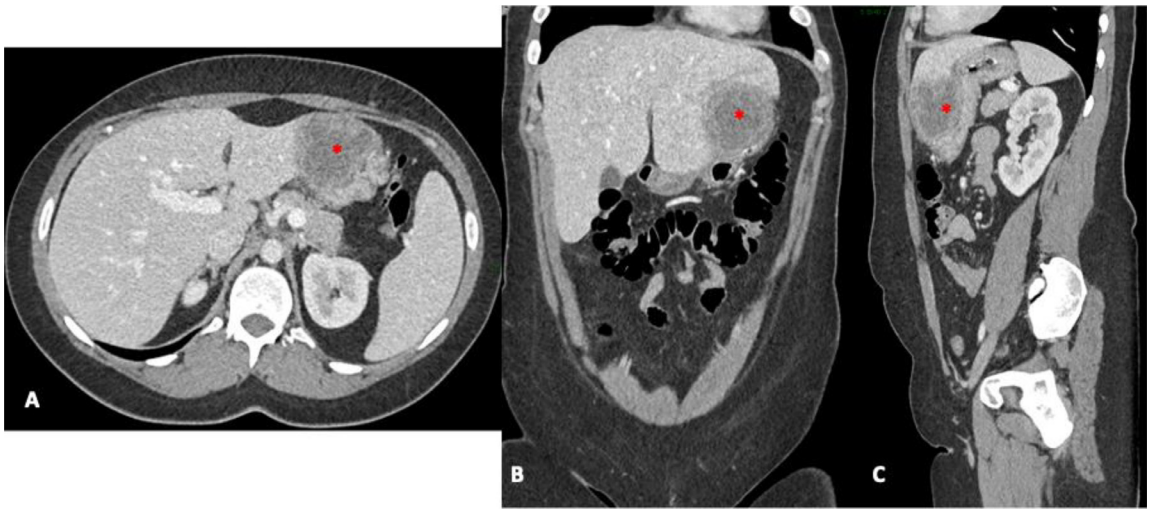


**Fig. 1 – Axial (A), coronal (B), and sagittal (C) contrast-enhanced abdominal CT, demonstrating a round ill-defined hypodense lesion in the left hepatic lobe (red asterisk).**

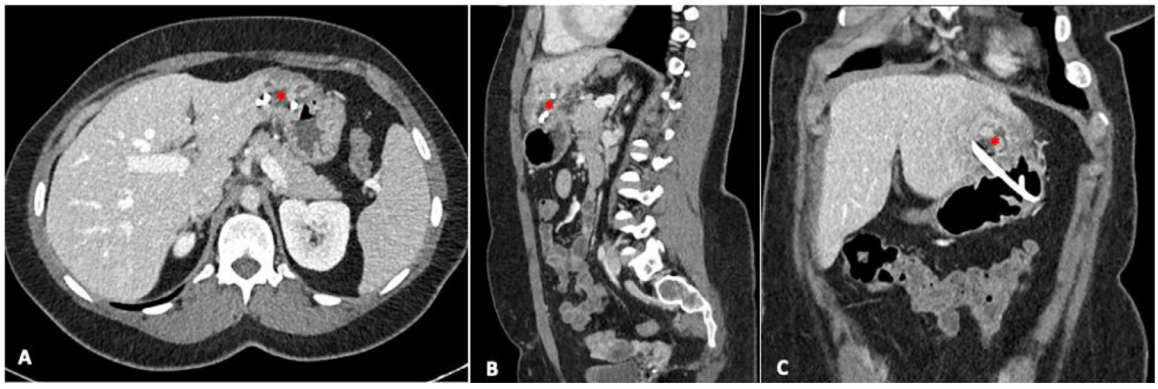


**Fig. 2 – Axial (A), sagittal (B), and coronal (C) contrast-enhanced abdominal CT performed 3 days after endoscopic drainage, showing reduction of the abscess's size (red asterisks).**

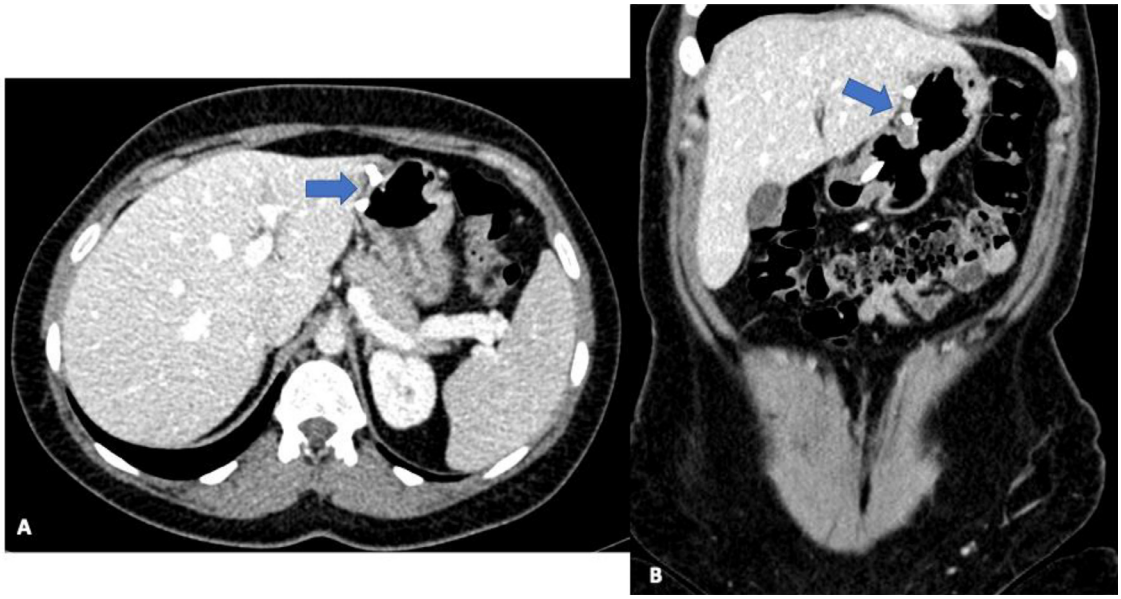


**Fig. 3 – Axial (A) and coronal (B) contrast-enhanced abdominal CT performed 2 months after endoscopic drainage, showing complete disappearance of the abscess (blue arrows).**

Gastric leak is considered the most serious complication, being associated with a high mortality rate [3–6]; it can be caused by mechanical (misfiring, direct tissue injury) or ischemic causes [7]. Infected gastric leak may evolve into a perigastric abscess.

While perigastric (PA) and hepatic (HA) abscess are well-known complications of laparoscopic sleeve gastrectomy, to the best of our knowledge, no cases of HA after ESG have been reported yet.

Since HA may lead to life-threatening complications such as sepsis, empyema, and peritonitis, early diagnosis is crucial. Contrast-enhanced CT is the first-choice imaging modality.

Imaging features are variable. In the presuppurative phase, the lesion is heterogeneously hypodense, poorly demarcated with irregular contours. In our case, the first contrast-enhanced CT was performed in the presuppurative phase: the abscess lacked intralesional gas, air-fluid levels, and the central hypoattenuating area was not clearly demarcated; thus, it was not possible to completely rule out a liver neoplasm.

In the suppurative phase, the center of HA becomes more hypoattenuating. Contrast-enhanced CT shows peripheral enhancement (ring sign), sometimes outlined by a hypodense ring (double target sign). Internal gas and air-fluid levels may be observed in the suppurative phase and are quasi-pathognomonic of HA [8,9].

CT or US-guided percutaneous needle aspiration is the first-line treatment option. It is combined with empiric antibiotic coverage that may be shifted according to culture results [3].

## Conclusions

Hepatic abscess may be a complication of ESG. Early diagnosis is crucial for an adequate treatment. Contrast-enhanced CT has a high diagnostic potential, but in some cases, differential diagnosis with liver neoplasms may be difficult, especially when the abscess is imaged in an early (presuppurative) phase.

## Patient consent

Informed consent was obtained from all individual participants included in the study.

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