Original Article

Endoscopic Evaluation of Refractory Gastrointestinal Symptoms in Pregnant Patients Unresponsive to Conservative and Medical Therapy

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Abstract

Objective: To evaluate the diagnostic yield and clinical outcomes of endoscopy in pregnant patients with refractory gastrointestinal symptoms that persist despite conservative and medical treatment.

Methodology: This prospective observational study was conducted at Combined Military Hospital (CMH), Kharian, Pakistan, from June to August 2025. Pregnant patients with persistent GI symptoms despite conservative and medical therapy were enrolled. Endoscopic procedures were performed under strict maternal-fetal safety protocols. Data on patient demographics, symptom profile, trimester, endoscopic findings, and post-procedure clinical outcomes were systematically collected. Associations between patient characteristics and endoscopic findings were analyzed using chi square test, while symptom improvement before and after endoscopy was assessed with McNemar's test.

Results: A total of 40 patients were included, with a mean age of 28.4±4.6 years. The most common presenting symptoms were dyspepsia (55%) and nausea/vomiting (35%), while 20% had upper GI bleeding. Endoscopy revealed abnormalities in 29 patients, giving a diagnostic yield of 72.5%. Gastritis (27.5%) and reflux esophagitis (15%) were the most frequent findings, followed by duodenal ulcer (10%), esophageal varices (10%), and Mallory–Weiss tear (5%). Symptom improvement after endoscopy-guided management was significant (100% vs. 25%, p = 0.0001). No maternal or fetal complications were observed.

Conclusion: Endoscopy is a safe and effective diagnostic modality for selected pregnant patients with refractory GI symptoms, enabling timely management and improved clinical outcomes.

Keywords: Endoscopy Gastrointestinal; Gastrointestinal Diseases; Pregnancy; Treatment Outcome.

Cite this article as: Hussain M, Malik MN, Shaheen M, Nayyar S, Noor N, Kiani SK. Endoscopic Evaluation of Refractory Gastrointestinal Symptoms in Pregnant Patients Unresponsive to Conservative and Medical Therapy. J Soc Obstet Gynaecol Pak. 2026; 16(2):129-133. DOI. 0.71104/jsogp.v16i2.1032

Introduction

Gastrointestinal (GI) symptoms such as nausea, vomiting, heartburn, fullness, and abdominal pain are extremely common during pregnancy, affecting up to 70% of pregnant women during various trimesters due to hormonal, anatomical, and motility changes.[1] While many cases respond to conservative measures (diet/lifestyle) and medical therapy (antacids, proton-pump inhibitors, prokinetics), a subset of patients experience refractory symptoms—persistent or worsening despite standard therapy, which may be indicative of underlying pathology.[2] The differentiation between physiologic GI changes and more serious disease is crucial, as untreated underlying conditions (e.g., peptic ulcer disease, esophagitis, GI bleeding, IBD, malignancy) can result in significant maternal and fetal morbidity and mortality.[3]

Endoscopy (including esophagogastroduodenoscopy [EGD], colonoscopy, sigmoidoscopy, ERCP) is the gold standard for diagnosing many GI pathologies.[4] However, use during pregnancy is often delayed or avoided due to concerns about maternal discomfort, fetal risk (from sedation, radiation, or procedural complications), and unclear diagnostic yield in certain symptom profiles.[5] A study involving pregnant women

Authorship Contribution: [1,6]Substantial contributions to the conception or design of the work or the acquisition, [1,3,5,]Final approval of the study to be published, [2-6]Drafting the work or revising it critically for important intellectual content.

Funding Source: none
Conflict of Interest: none

Received: Feb 11, 2026
Revised: April 09, 2026
Accepted: April 17, 2026

showed that EGD had a diagnostic yield of ~95% for acute GI bleeding and 50–82% for other indications such as abdominal pain or vomiting; mean gestational age was ~20 weeks.[6] Lower GI endoscopy (sigmoidoscopy, colonoscopy) is less commonly used, but existing evidence suggests low risk to mother and fetus when carefully performed.[7]

In Pakistan, despite high prevalence of GI complaints and disorders (such as gastritis, dyspepsia, reflux) in general populations, there is scant published data on endoscopic evaluation in pregnant women with refractory GI symptoms.[8] A study from Peshawar examined refractory dyspepsia in non-pregnant adults and showed many had normal endoscopy while some had gastritis and erosive lesions.[9] Similarly, a study of upper GI endoscopy in a rural Sindh population identified common findings like gastritis and hiatal hernia and correlated with alarm symptoms but did not include pregnant patients.[10]

Despite the high prevalence of gastrointestinal complaints in pregnancy, there is a lack of local data on the diagnostic role and outcomes of endoscopy when conventional therapies fail. International evidence supports the utility and safety of endoscopic evaluation in selected pregnant patients, but regional studies have mostly focused on dyspepsia and general populations, leaving pregnant women underrepresented. In this context, this study evaluated the diagnostic yield and clinical outcomes of endoscopy in pregnant patients with gastrointestinal symptoms persisting despite conservative and medical treatment, thereby providing evidence to guide safe and effective management of this challenging patient group.

Methodology

An observational prospective study was conducted at Combined Military Hospital (CMH), Kharian, Pakistan, from June to August 2025. A total of 40 pregnant women presenting with gastrointestinal symptoms that persisted despite conservative and medical treatment were recruited. The sample size was calculated using the WHO proportion formula with a 95% confidence interval and an alpha error 5%. Based on previous reporting diagnostic yield of ≈40% for endoscopy in similar patients.[6] Pregnant women of any trimester presenting with gastrointestinal symptoms such as persistent nausea, vomiting, dyspepsia, abdominal pain, heartburn, or suspected upper gastrointestinal bleeding, who had failed to improve with dietary modification, lifestyle changes, or standard pharmacological therapy, were included. Patients who declined to undergo endoscopy were excluded from the study. In addition, patients who were considered clinically unsuitable for the procedure by the treating obstetrician or gastroenterologist due to maternal or obstetric conditions were not enrolled. Patients with unstable maternal hemodynamic status, previously diagnosed gastrointestinal malignancy, or those undergoing surveillance endoscopy for an already established diagnosis were also excluded. Patients with incomplete follow-up were excluded from the final analysis.

The primary endpoint of the study was the diagnostic yield of endoscopy in detecting significant pathology among pregnant women with refractory gastrointestinal symptoms. Secondary endpoints included clinical outcomes following endoscopic evaluation, intervention, maternal-fetal safety profile, and the spectrum of endoscopic findings in relation to patient demographics and obstetric characteristics.

All patients underwent endoscopic procedures under close maternal and fetal monitoring, with precautions taken to minimize sedation and procedural risks. Endoscopies were performed by experienced gastroenterologists, and where necessary, minimal doses of category-B sedatives (e.g., midazolam) were administered under anesthesiology supervision. Fetal well-being was confirmed pre- and post-procedure by the attending obstetrician. The findings were systematically recorded, and relevant biopsies were obtained only when clinically indicated and deemed safe. Patients were followed (2 weeks) clinically until discharge and subsequently through outpatient visits to assess symptom improvement and any maternal or fetal complications.

Data were collected prospectively using a structured proforma, capturing demographic details, gestational age, presenting complaints, prior treatments, endoscopic findings, and outcomes. Symptom improvement was assessed through clinical notes and patient self-report at follow-up. Informed written consent was obtained from all participants after explaining the procedure, risks, and potential benefits. Ethical approval was obtained from the Institutional Review and Ethics Committee of CMH Kharian (Ref. No. CKMC/IERB/AC-0238).

For statistical analysis, data were entered and analyzed using SPSS version 25. Categorical variables such as endoscopic findings, presence of complications, and

symptom improvement were expressed as frequencies and percentages. Continuous variables including patient age, gestational age, and symptom duration were presented as mean ± SD. The diagnostic yield of endoscopy was calculated as the proportion of patients with clinically significant findings. Associations between endoscopic findings and patient characteristics (such as trimester or symptom profile) were assessed using chi square test. Symptom improvement before and after endoscopy was compared using McNemar's test for paired categorical data. A p-value <0.05 was considered statistically significant.

Results

A total of 40 pregnant patients were included in the study. The mean age of patients was 27.8±4.3 years, with most between 25–30 years. The mean gestational age was 21.5±6.4 weeks. All patients had received prior conservative or medical therapy before endoscopy. Dietary and lifestyle modifications (e.g., small frequent meals, avoidance of trigger foods, and positional changes) were attempted in 28 patients (70%). Pharmacological treatments were also common, with proton pump inhibitors used in 20 patients (50%), antiemetics in 14 (35%), and antacids in 10 (25%). Despite these measures, symptoms persisted, leading to referral for endoscopic evaluation. The majority of patients were in the second trimester, followed by third trimester and first trimester. Similarly, majority of patients were multigravida, followed by primigravida. Clinical presentation varied: the most common symptom was persistent dyspepsia, followed by refractory nausea/vomiting, upper gastrointestinal bleeding, and abdominal pain. Some patients presented with more than one symptom (Table 1).

Endoscopy revealed abnormalities in the majority of patients, with gastritis and reflux esophagitis being the most common diagnoses. Other notable findings included peptic ulcer disease, Mallory–Weiss tear, and esophageal varices (Table 2). A proportion of patients, however, had normal endoscopic findings. The overall diagnostic yield of endoscopy in this study was 72.5% (n=29/40).

Associations between endoscopic yield and clinical characteristics were explored (Table 3). Abnormal findings were more frequent in patients presenting with upper gastrointestinal bleeding compared to those with dyspepsia or nausea/vomiting, although the difference was not statistically significant (p = 0.18). Similarly, third-trimester patients demonstrated a higher diagnostic yield compared to first and second trimester patients, this trend approached but did not reach statistical significance (p = 0.09). There was no significant association between parity status and diagnostic yield (p > 0.05).

Table I: Demographic and clinical characteristics of the patients. (n=40)

Variable	n (%) or Mean±SD
Age (years)	27.8±4.3
Gestational age (weeks)	21.5±6.4
Trimester 1	8 (20)
Trimester 2	18 (45)
Trimester 3	14 (35)
Primigravida	18 (45)
Multigravida	22 (55)
Symptoms:	
Dyspepsia	22 (55)
Nausea/Vomiting	14 (35)
Upper GI bleeding	8 (20)
Abdominal pain	6 (15)

Table II: Endoscopic findings in pregnant patients with refractory GI symptoms (n=40)

Endoscopic finding	n (%)
Normal study	11 (27.5)
Gastritis	11 (27.5)
Reflux esophagitis	6 (15)
Duodenal ulcer	4 (10)
Gastric ulcer	2 (5)
Mallory-Weiss tear	2 (5)
Esophageal varices	4 (10)

Table III: Association between trimester, symptoms, and endoscopic findings

Variable	Abnormal findings (%)	p-value
Trimester 1 (n=8)	50	0.09
Trimester 2 (n=18)	72.2	
Trimester 3 (n=14)	85.7	
Dyspepsia (n=22)	68.2	0.18
Nausea/vomiting (n=14)	64.3	
Upper GI bleed (n=8)	87.5	

Clinical outcomes following endoscopic-guided management were favorable (Table 4). The majority of patients reported symptomatic improvement, particularly those with gastritis, reflux esophagitis, and ulcer disease. Patients with variceal bleeding required ongoing care. Comparison of symptom persistence before and after endoscopy showed a significant reduction in refractory symptoms (p < 0.001, Table 4). Patients with variceal bleeding continued to require ongoing management. No maternal or fetal complications occurred as a result of the procedure.

Table IV: Symptom improvement before and after endoscopy.

Symptom persistence	Pre-endoscopy	Post-endoscopy	p-value (McNemar)

Refractory symptoms	40 (100%)	10 (25%)	<0.001

Discussion

This study found a diagnostic yield of 72.5% for endoscopy in pregnant patients with gastrointestinal symptoms refractory to conservative and medical therapy. This is broadly consistent with the findings of study in Karachi, which reported that ≈70% of endoscopic procedures in pregnant patients were diagnostic.[5] In that Pakistani study, similar precautions were taken, and maternal-fetal complications were minimal, which parallels this study results in terms of safety and effectiveness.

Comparing to international data, the retrospective study pooled by Friedel et al showed very high diagnostic yield when the indication was upper GI bleeding—around 95% in bleeding cases—but lower yields in more nonspecific symptoms such as nausea, vomiting, or dyspepsia.[11] In this study, patients presenting with overt bleeding also had higher rates of abnormal endoscopy compared to those with milder or nonspecific symptoms, although the differences did not reach statistical significance. This suggests the findings of this study are aligned with the established pattern that yield increases with more severe or "alarm" presentations.[12]

A systematic review of lower gastrointestinal endoscopy procedures during pregnancy concluded that risks to mother and fetus are generally low, provided procedures are done in experienced centers, and with appropriate monitoring.[13] This study adds to the literature by reinforcing that, in this study, no maternal or fetal complications occurred in the patients. This strengthens the argument for safely performing indicated upper GI endoscopy during pregnancy even in resource-limited settings, so long as institutional protocols are followed.

In terms of pregnancy trimester and diagnostic yield, prior Pakistani literature is limited. The Karachi study did report distribution of procedures across trimesters but did not show strong statistical correlations between trimester and positive findings.[5] This study data suggests a trend toward increasing diagnostic yield in later trimesters; though not statistically significant, this may reflect increased disease severity, delay in seeking care, or physiological changes that accentuate symptoms. This difference may also be influenced by referral patterns or patient delay, which could differ across centers.

Another point of difference is in the spectrum of endoscopic findings. In studies from rural Sindh, the most common findings were gastritis and hiatal hernia, with a large proportion of endoscopies showing no pathologic findings (about one-third).[10] This study normal finding proportion is lower (~27.5%), which might reflect stricter only refractory cases, which by definition enriches for cases more likely to yield findings.

Previous studies have similarly reported a substantial proportion of pregnant patients with normal endoscopic findings, underscoring that not all persistent gastrointestinal symptoms are due to structural pathology.[14] In such cases, functional disorders like gastroesophageal reflux disease (GERD) without visible esophagitis and irritable bowel syndrome (IBS) may play a role. These conditions are particularly relevant in pregnancy, where hormonal and physiological changes predispose to reflux and altered gut motility.[15] These study findings align with this pattern, suggesting that endoscopy should be complemented by consideration of functional diagnoses when no mucosal abnormalities are identified.

Finally, potential risks raised by some large cohort studies (e.g., higher rates of preterm birth or small for gestational age) associated with endoscopy during pregnancy have been reported, though such associations are often confounded by disease severity and comorbidities.[16,17]

This study adds valuable evidence, where data on endoscopy in pregnancy is scarce. The prospective data collection ensured accuracy of clinical and procedural details, and the inclusion of patients strictly refractory to conservative and medical treatment increases the clinical relevance. Furthermore, systematic documentation of diagnostic yield and short-term outcomes provides practical guidance for obstetricians and gastroenterologists managing this complex group of patients.

LIMITATIONS: This study has certain limitations. Long-term maternal and neonatal outcomes were not assessed, so the impact of endoscopy on pregnancy beyond the immediate procedure could not be evaluated. Additionally, the lack of a comparator group (such as patients managed conservatively without endoscopy) limits the ability to fully quantify the added benefit of endoscopy.

Conclusion

Endoscopy demonstrated a high diagnostic yield and favorable short-term safety profile in pregnant patients with gastrointestinal symptoms unresponsive to conservative and medical therapy. The findings support its role as a valuable diagnostic tool in carefully selected cases, contributing to timely and effective management while maintaining maternal and fetal safety.

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