

The usefulness of flexible sigmoidoscopy in bleeding per rectum during pregnancy: an observational study

V Abeysuriya^a, S H Dodampahala^b, L Chandrasena^c

Abstract

Introduction: Bleeding per rectum is not an infrequent complaint during pregnancy, which may require endoscopic evaluation and treatment. Flexible sigmoidoscopy is a relatively simple, quick procedure. The current study was aimed to assess the usefulness of flexible sigmoidoscopy in bleeding per rectum during pregnancy from a single tertiary care centre.

Methods: A single centre retrospective study was carried out. Randomly selected 1000 medical records of the pregnant mothers who were referred as out patients and hospitalized from 2012 to 2022 were retrieved. All patients had the passage of fresh blood as their chief complaint. All of them had not undergone any prior diagnostic workup for their presentation. All had undergone flexible sigmoidoscopies and patients with significant additional bowel symptoms underwent colonoscopy following sigmoidoscopy. Endoscopic findings were recorded in a computer based database. Ethical approval was obtained from the Ethical Review Committee of Nawaloka Hospitals of Sri Lanka. No conflict of interest.

Results: A total of 48 pregnant women had undergone lower GI endoscopies. The mean age of the patients was 25.3 ± 6.5 years. Twenty-four patients (50%) were primigravida. Majority was in the second trimester of pregnancy 89.5% (43/48). The mean (\pm SD) gestational age at the time of procedure was $18(\pm 2)$ weeks. All had undergone sigmoidoscopy, and an additional colonoscopy were done in 2 patients. Bleeding per rectum was the main indication. All flexible sigmoidoscopies were done without sedation. Wiliest, the colonoscopies were performed under conscious sedation. Majority of the pregnant mothers found to have haemorrhoids followed by anal fissures (46/48; 95.8%). Ulcerative colitis and a sigmoidal cancer were found in two patients (4.2%). None had an immediate post procedure-related complication.

Conclusion: Flexible sigmoidoscopy is useful and safe to be performed in pregnancy with clinically significant bleeding per rectum. It has a good diagnostic yield. Further prospective multicentre research studies are strongly recommended.

Key words: pregnancy, bleeding PR, endoscopy, haemorrhoids, cancer

Sri Lanka Journal of Obstetrics and Gynaecology 2023; **45**: 11-15

DOI: <https://doi.org/10.4038/sljog.v45i1.8068>

^a Faculty of Medicine, Ragama, University of Kelaniya, Sri Lanka.

^b Professor in Obstetrics and Gynaecology, Faculty of Medicine, Colombo, Sri Lanka.

^c Nawaloka Hospital Research and Education Foundation, Nawaloka Hospitals PLC, Colombo, Sri Lanka.

Correspondence: VA, e-mail: vasithaabey@hotmail.com

 <https://orcid.org/0000-0002-0986-7917>

Received 14th January 2023

Accepted 27th February 2023



This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License, which permits unrestricted use, distribution and reproduction in any medium provided the original author and source are credited.

Introduction

Pregnancy results in significant changes in almost every system in a human body physiology and anatomy^{1,2}. Gastro Intestinal (GI) symptoms can range from nausea to intractable vomiting. Also, altered bowel habits and bleeding per rectum is not infrequent, may require endoscopic evaluation and treatment. Flexible sigmoidoscopy, a relatively simple, quick procedure, usually requires only an enema preparation and minimal or no sedation and analgesia^{3,4}. When GI endoscopy is indicated during pregnancy, its effects on pregnancy outcomes should be considered with great care. Limited information is available about clinical efficacy and safety as well as maternal and foetal outcomes of lower GI procedures. Lower GI endoscopic procedures are performed in case of strong indication preferably in the second trimester of pregnancy^{3,4} since, many potential risks are associated with the procedure itself and during its preparation during pregnancy, such as GI bleeding, perforation, sedation induced maternal hypotension, maternal hypoxia, arrhythmias, aspirations, foetal hypoxia, foetal exposure of teratogenic drugs, and risk of premature birth⁵⁻¹¹. Sigmoidoscopy during pregnancy was associated with a high diagnostic yield and considered to be a relatively safer procedure than colonoscopy since, it requires more thorough preparation, longer procedure times, and significant sedation and analgesia⁴. The current study was aimed to assess the usefulness of flexible sigmoidoscopy in bleeding per rectum during pregnancy from a single tertiary care centre. The objective of the study was to evaluate the safety and efficacy of flexible sigmoidoscopy in pregnant females, and its effect on maternal and foetal outcome.

Methods

A single centre retrospective study was carried out. Randomly selected 1000 medical records of the pregnant mothers who were referred as out patients and hospitalized from 2012 to 2022 were retrieved. All patients had the passage of fresh blood as their chief complaint. All of them had not undergone any prior diagnostic workup for their presentation. Haemorrhoids or anal fissures were believed to be the cause of bleeding for the majority of patients prior to the sigmoidoscopy. Patients with significant additional bowel symptoms underwent colonoscopy following sigmoidoscopy. A single Fleet enema (CB Fleet Co. Inc., Lynchburg, US) was administered approximately 1 hour before sigmoidoscopy. The procedure was performed with the patient in the left lateral position,

and a standard 60-cm fibreoptic flexible sigmoidoscope (Olympus CFP20S; Olympus Optical Co., Ltd., Tokyo, Japan) was used. At the end of the procedure, examination of the anal canal was performed using retroflexion and proctoscopy. Requirement of sedation was decided on an individual case based. Endoscopic findings were recorded in a computer based database. The procedures were performed by a consultant surgeon. Ethical approval was obtained from the Ethical Review Committee of Nawaloka Hospitals of Sri Lanka. All patients gave informed written consent to participate in this study. No conflict of interest.

Statistical analysis

The data analysis was carried out using the Statistical Package for Social Sciences (SPSS®) software, version 20.0 (IBM® Corp., Armonk, NY, USA). The descriptive statistics were expressed as mean \pm standard deviation or number (percentage). A p-value of less than 0.05 was considered statistically significant.

Results

A total of 48 pregnant women had undergone lower GI endoscopies from January 2012 to 2022. The mean age of the patients was 25.3 ± 6.5 years. Twenty-four patients (50%) were primigravida, the rest were multigravida. During the first, second and third trimester of pregnancy, number of patients who underwent lower GI endoscopies were 3(6.3%), 43(89.5%), and 2(4.2%) respectively. The mean gestational age at the time of procedure was 18 weeks (range 6-30 weeks). All patients had undergone sigmoidoscopy, and colonoscopy were done on 2 patients following sigmoidoscopy. Bleeding per rectum was the main indication. (Table 1) All flexible sigmoidoscopies were done without sedation. Wiliest, the colonoscopies were performed under conscious sedation using midazolam in low doses 2 ± 1.5 mg.

Out of 48 patients 35(72.9%) patients had haemorrhoids [(1st degree; 30/35, 2nd degree; 03/35 and 3rd degree; 02/35); (1st trimester; 4/30; 1st degree haemorrhoids, 2nd trimester; 20/30; 1st degree haemorrhoids, 3rd trimester 6/30; 1st degree haemorrhoids); (2nd trimester; 01/03; 2nd degree haemorrhoids, 3rd trimester; 02/03 2nd degree haemorrhoids); (3rd trimester; 3rd degree haemorrhoids 02/02)]. Eleven (11/48; 22.9%) patients had anal fissures. One (1/48; 2.1%) patient had ulcerative colitis in her 1st trimester and one (1/48;

Table 1. The characteristics of the study sample

Variable	Number or mean±SD	%
Mean age	25.3 ± 6.5 years	-
Mean gestational age	18± weeks (range 6-30 weeks)	-
Gravid		
Primigravida	24	50
Multigravida	24	50
Bleeding per rectum		
Without pain	40	83.3
With pain	8	16.7
Trimester		
1 st trimester	3	6.2
2 nd trimester	43	89.5
3 rd trimester	2	4.3
Haemorrhoids (n=35)		
1 st degree	30	83.3
2 nd degree	3	8.6
3 rd degree	2	5.7
Anal fissure	11	22.9
Ulcerative colitis	1	2.1
Sigmoid colon cancer	1	2.1

2.1%) had a sigmoid cancer in her 2nd trimester. All patients with haemorrhoids and fissures were conservatively managed during the pregnancy. Out of 48 patients, none had an immediate post procedure-related complication. A patient who had been diagnosed of having ulcerative colitis had a miscarriage in the first trimester and another patient had termination of pregnancy on medical grounds because the mother was diagnosed with metastatic colon cancer (Table 1).

Discussion

Sigmoidoscopy should be strongly considered in pregnancy with relatively strong procedure indications, including clinically significant acute lower GI bleeding, refractory chronic diarrhoea of unknown aetiology, distal colonic stricture, suspected IBD flare, and potential colonic malignancy¹². Flexible sigmoidoscopy

during pregnancy was associated with a high diagnostic yield. Lower GI endoscopies were mostly performed during the second trimester. Flexible sigmoidoscopy, a relatively simple procedure, usually requires only enema preparation and minimal or no sedation and analgesia⁴. Colonoscopy, however, requires more thorough colonic preparation, longer procedure times, and significant sedation and analgesia¹²⁻¹⁵. The medication administered during colonoscopy may be teratogenic during the first trimester and may cause foetal injury in the third trimester by mechanical compression or by neonatal respiratory depression from medications administered¹²⁻¹⁵. Furthermore, colonoscopy often deferred during pregnancy for bright red blood per rectum because of this high incidence of haemorrhoidal bleeding during pregnancy and the low incidence of colon cancer in the young female population¹⁵⁻¹⁷. Colonoscopy should be

considered when an evaluation of a known colonic mass or stricture; clinically significant lower GI bleeding; decompression of colonic pseudoobstruction; or to avoid colonic surgery by colonoscopic therapy^{4,5,14,15}.

In keeping with the literature, in our study, the patients were relatively young in their age and most of them were primigravida. The main complaint was significant bleeding per rectum. Majority were in their second trimester. All flexible sigmoidoscopies were done without sedation. Most of them had haemorrhoids and anal fissures. Two patients had undergone colonoscopies under conscious sedation following sigmoidoscopy and were found to have ulcerative colitis and advanced colonic cancer. A patient who had been diagnosed of having ulcerative colitis following colonoscopy had a miscarriage in the first trimester and patient had advanced colonic cancer underwent termination of pregnancy on medical grounds. All patients with haemorrhoids and fissures were conservatively managed during the pregnancy.

The commonest complications of lower GI endoscopy were bowel perforation and bleeding. Furthermore, additional complications related to lower GI endoscopies during pregnancy included, maternal hypoxia, teratogenic drug exposure, foetal death, prematurity, stillbirth, and congenital malformation. It is shown that complications are more common with colonoscopy than sigmoidoscopy^{5,9,10,13,14}. We have observed that in our study, none had maternal or foetal complications per or post lower GI endoscopy, throughout the pregnancy or following delivery.

The major limitation of our study was that, it was a retrospective and single centre study. Though it was a small case series and the results cannot be generalized, it will be helpful in planning prospective studies in lower GI endoscopy in pregnancy.

Conclusion

The flexible sigmoidoscopy may be performed safely in pregnant patients in the presence of a clinically significant bleeding per rectum, without posing major risk to the mother and the baby. It has a good diagnostic yield. However, further prospective multicentre research studies are strongly recommended.

Authors contributions

VA, HD and LC formulated the concept and design of

study, acquisition of data and analysis and drafting the article. Contributed to design and concept of study, revising it critically for important intellectual content and approval of the final version to be published. All authors read and approved the final manuscript.

Funding

None declared.

Availability of data and materials

The datasets generated and analysed during the current study are available from the corresponding author on reasonable request.

Ethics approval and consent to participate

Ethical approval was obtained from the Ethical Review Committee of Nawaloka Hospital of Sri Lanka to conduct the study.

Competing interests

The authors declare that they have no competing interests.

References

1. Preston KL, Peluso FE, Goldner F. Optimal bowel preparation for flexible sigmoidoscopy-are two enemas better than one? *Gastrointest Endosc* 1994; 40: 474-6.
2. Winawer SJ, Miller C, Lightdale C, et al. Patient response to sigmoidoscopy. A randomized, controlled trial of rigid and flexible sigmoidoscopy. *Cancer* 1987; 60: 1905-8.
3. Christie JP. Flexible sigmoidoscopy-why, where and when? *Am J Gastroenterol* 1980; 73: 70-2.
4. Talley NJ, Jones M. Self-reported rectal bleeding in a United States community: prevalence, risk factors, and health care seeking. *Am J Gastroenterol* 1998; 93: 2179-83.
5. Acosta JA, Fournier TK, Knutson CO, Ragland JJ. Colonoscopic evaluation of rectal bleeding in young adults. *Am Surg* 1994; 60: 903-6.
6. Graham DJ, Pritchard TJ, Bloom AD. Colonoscopy for intermittent rectal bleeding: impact on patient management. *J Surg Res* 1993; 54: 136-9.
7. Guillem JG, Forde KA, Treat MR, Neugut AI, Bodian CA. The impact of colonoscopy on the

- early detection of colonic neoplasms in patients with rectal bleeding. *Ann Surg* 1987; 206: 606-11.
8. McCallum RW, Meyer CT, Marignani P, Cane E, Contino C. Flexible sigmoidoscopy: diagnostic yield in 1015 patients. *Am J Gastroenterol* 1984; 79: 433-7.
 9. Smith LE. Symposium on outpatient anorectal procedures. Flexible fiberoptic sigmoidoscopy: an office procedure. *Can J Surg* 1985; 28: 233-6.
 10. Traul DG, Davis CB, Pollock JC, Scudamore HH. Flexible fiberoptic sigmoidoscopy-the Monroe Clinic experience. A prospective study of 5000 examinations. *Dis Colon Rectum* 1983; 26: 161-6.
 11. Mehanna D, Platell C. Investigating chronic, bright red, rectal bleeding. *ANZ J Surg* 2001; 71: 720-2.
 12. Patel V, Nicar M, Emmett M, Asplin J, Maguire JA, SantaAna CA, Fordtran JS. Intestinal and renal effects of low volume phosphate and sulfate cathartic solutions designed for cleansing the colon: pathophysiological studies in five normal subjects. *Am J Gastroenterol* 2009; 104: 953-65.
 13. Tan HL, Liew QY, Loo S, Hawkins R. Severe hyperphosphataemia and associated electrolyte and metabolic derangement following the administration of sodium phosphate for bowel preparation. *Anaesthesia* 2002; 57: 478-83
 14. Siddiqui U, Denise Proctor D. Flexible sigmoidoscopy and colonoscopy during pregnancy. *Gastrointest Endosc Clin N Am* 2006; 16: 59-69
 15. Cappell MS, Colon VJ, Sidhom OA. A study at 10 medical centers of the safety and efficacy of 48 flexible sigmoidoscopies and 8 colonoscopies during pregnancy with follow-up of fetal outcome and with comparison to control groups. *Dig Dis Sci* 1996; 41: 2353-61
 16. Cappell MS, Fox SR, Gorrepati N. Safety and efficacy of colonoscopy during pregnancy: an analysis of pregnancy outcome in 20 patients. *J Reprod Med* 2010; 55: 115-23
 17. Khodaverdi S, Kord Valeshabad A, Khodaverdi M. A Case of Colorectal Cancer during Pregnancy: A Brief Review of the Literature. *Case Rep Obstet Gynecol* 2013; 2013: 626393.