

Video Capsule Endoscopy To Detect Small Bowel Lesions- Experience From A Single Centre

Dr. Md. Musab Khalil,¹ Dr. Subrata Podder Chayan,² Dr. Md. Moshfiqur Rahman Chowdhury,³ Dr. Md. Yasir Arafat,⁴
Dr. Abu Sayeed,⁵ Dr. Imteaz Ahmed Dipon,⁶

Abstract

Background: Capsule endoscopy has been a ground breaking tool since its inception to diagnose small bowel lesions. Video capsule endoscopy started operating in Bangladesh few years back. The objective of the study is to find out the indications, findings and diagnostic yields of different indications used in video capsule endoscopy.

Patients and Methods: This cross sectional study was conducted at the inpatient department of medical Gastroenterology of National Gastroli-ver institute and hospital, Mohakhali, Dhaka from January 2024 till September 2025.

Results: Out of 26 patients, 23 patients had undergone video capsule endoscopy for evaluation of small bowel bleeding. Rest of them were for suspected small bowel Crohns' disease. The diagnostic yields of small bowel bleeding could be detected in 47.8% of the cases and evidence of Crohn's disease was seen in 60% of the cases. One patient had capsule retention due to presence of stricture which was removed surgically.

Conclusions: Video capsule endoscopy is a safe and effective procedure to detect small bowel pathology. Suspected Small bowel bleeding is the most common indication.

Key Words:

Small Bowel Ulcers, Small Bowel Bleeding, Capsule Retention

Authors:

Dr. Md. Musab Khalil, Medical officer
National Gastroli-ver institute and Hospital, Mohakhali, Dhaka

Dr. Subrata Podder Chayan, Junior consultant
Upazilla Health Complex, Sonaimuri, Noakhali

Dr. Md. Moshfiqur Rahman Chowdhury, Assistant Professor
National Gastroli-ver institute and Hospital, Mohakhali, Dhaka

Dr. Md. Yasir Arafat, Assistant Professor
National Gastroli-ver institute and Hospital, Mohakhali, Dhaka

Dr. Abu Sayeed, Medical Officer
National Gastroli-ver institute and Hospital, Mohakhali, Dhakar.

Dr. Imteaz Ahmed Dipon, Assistant Professor
National Gastroli-ver institute and Hospital, Mohakhali, Dhaka

Corresponding Author:

Dr. Md. Musab Khalil, Medical officer
National Gastroli-ver institute and Hospital, Mohakhali, Dhaka
Email: evandmc@gmail.com, Mobile: +8801818462121

Introduction:

Capsule Endoscopy is a noninvasive technology to diagnose small bowel diseases. Capsule endoscopy was first introduced in mid 1990s by Gavriel Iddan.¹ Since its inception, video capsule has revolutionized small bowel imaging by providing complete visualization of small bowel mucosal surfaces.² Capsule endoscopy is the investigation of choice for detecting small bowel disorders such as suspected small bowel bleeding, suspected Crohn's disease, celiac disease, polyposis syndromes etc.³ The diagnostic yield, compared to other technologies, varies from 38-87 % depending on the indications.² Suboptimal visualization of mucosa, inability to acquire tissue and inability to provide therapeutic benefit as well as the cost of the capsule, have been the major limitation of video capsule endoscopy. Despite the limitation, video capsule endoscopy has provided superior efficacy in comparison to small bowel follow through and comparable efficacy to device assisted enteroscopy to evaluate small bowel disorders. Video capsule endoscopy has been introduced in Bangladesh recently. However, there is no published data so far regarding the video capsule

endoscopies. Therefore, we are going to publish our study regarding the findings of capsule endoscopy.

Materials and Methods:

This cross sectional study was conducted at the inpatient department of medical Gastroenterology of National Gastroli-ver institute and hospital, Mohakhali, Dhaka from January 2024 till September 2025. Upto twenty six video capsule endoscopy data has been collected. Pillcam VCE was used to perform VCEs.

All adult patients, who were willing to participate in the study and who underwent VCE since 2024 January was included in the study. Before performing VCE, we have done CT enterography or MR enterography. If the patient had clinical features of small bowel obstruction; ie visible peristalsis; abdominal pain and vomiting along with constipation or if the patient had radiological presence of small bowel narrowing with proximal dilatation, were excluded from the study.

Patients were given 500 ml of mannitol solution along with 500 ml of plain water, in split doses for bowel clearance. After ensuring adequate bowel clearance, capsule was allowed to be ingested by the patient. Patient was kept under observation till the next morning for ensuring evacuation of the capsule. Clear fluid was allowed two hours after the capsule ingestion while light meal was allowed 4 hours after capsule ingestion.

Capsule was performed by three endoscopists who have experience in performing enteroscopies. CE findings were labeled as per international Delphi consensus on nomenclature and description of SB vascular lesions.⁴ The vascular lesions have been described according to Saurin classification and Yano- Yamamoto vascular lesion classification.⁵

All data were entered in standardized format in spreadsheets using Microsoft excel. Continuous variables were expressed as mean and standard deviation or median and interquartile range wherever appropriate. Categorical variables were expressed as a percentage. Categorical variables were compared using Chisquare test or Fisher exact test wherever appropriate.

Continuous variables were compared using student's t test or Mann-Whitney tests wherever appropriate. $P < 0.05$ was considered as statistically significant. The SPSS version 25 (IBM Corp., Armonk, New York, United States) was used for statistical analysis.

Results:

We analyzed 26 patients data who had underwent Video Capsule Endoscopy (VCE). Median age of the participants was 57.50 (SD \pm 18.261 years). Four of the patients were smokers. The major indications were suspected small bowel bleeding (23 patients) while rest of the patients had VCE due to suspected Crohn's disease. The diagnostic yield for small bowel bleeding was 47.82% while the diagnostic yield for crohns' disease was 60%. Among the 26 VCE examinations, 16 (61.5%) had lesions in their examinations while no lesion could be found amongst the rest. Among the lesions, small bowel ulcers were present in 25% patients. Vascular ectasias were present in 18.8%. Erosions were present in 12.5 % patients as well.

Table I: Locations of VCE lesions

VCE Lesion Location	Number of Patients (n)
Duodenum	4
Jejunum	12
Ileum	11

Table II: VCE Findings

VCE Findings	Frequency	Percentage (%)
Erosions	2	7.7
Ulcerations	4	15.4
Nodularities	1	3.8
Stricture	1	3.8
Vascular Ectasia	3	11.5
Ulcerated	1	3.8
Strictures		
Others	3	11.5

Discussion:

Capsule endoscopy has become an essential investigation to detect small bowel diseases. It is a relatively safe and comfortable procedure having few contraindications namely bowel obstruction, strictures as well as fistulas.⁶ Small bowel bleeding has been the most common indication for VCE worldwide that coincides with our indications for VCE as well.³ The diagnostic yield for suspected small bowel bleeding of our study was 47.82%. study done at one of largest centres in India showed similar scenario as well.³ The capsule retention rate is 1% which is also consistent with other studies as well.¹ Video Capsule endoscopy has proven to be an important diagnostic tool to detect Crohn's Disease as well. It has been superior in diagnosing suspected small bowel crohns disease than other diagnostic modalities such as imaging, enteroscopies, barium follow through as well.⁷

The diagnostic yield for Crohns' disease varies from 52% to 71% which are comparable to our studies as well.⁸

The present study has some limitations. Sample size is small to bring into any completion. It is a single centre study. Also follow up of patients could not be done to reach a final diagnosis.

Conclusion:

High diagnostic yield, relatively safe and tolerable procedure have made Video capsule endoscopy is the procedure of choice for evaluating small bowel diseases. Yet, inability to capture biopsies is one of the major limitations to reach into a final diagnosis. Further samples are needed to improve the diagnostic yields of different small bowel lesions. Video capsule endoscopy will definitely help to diagnose seemingly undiagnosable small bowel diseases in future diagnosable and thereby will help to reduce patients sufferings and save lives.

Conflict of Interest:

There is no conflict of interest of any authors in this study.

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References:

- Song HJ, Shim KN. Current status and future perspectives of capsule endoscopy. Vol. 14, *Intestinal Research. Korean Association for the Study of Intestinal Diseases*; 2016. p. 21–29.
- Pennazio M, Spada C, Eliakim R, Keuchel M, May A, Mulder CJ, et al. Small-bowel capsule endoscopy and device-assisted enteroscopy for diagnosis and treatment of small-bowel disorders: European Society of Gastrointestinal Endoscopy (ESGE) Clinical Guideline. Vol. 47, *Endoscopy. Georg Thieme Verlag*; 2015. p. 352–376.
- Singla N, Inavolu P, Jagtap N, Singh AP, Kalapala R, Memon SF, et al. Small Bowel Capsule Endoscopy: Experience from a single large tertiary care centre. *Endosc Int Open*. 2023 Jun;11(06):E623–628.
- Leenhardt R, Li C, Koulaouzidis A, Cavallaro F, Cholet F, Eliakim R, et al. Nomenclature and semantic description of vascular lesions in small bowel capsule endoscopy: an international Delphi consensus statement. *Endosc Int Open*. 2019 Mar;07(03):E372–379.
- Yano T, Yamamoto H, Sunada K, Miyata T, Iwamoto M, Hayashi Y, et al. Endoscopic classification of vascular lesions of the small intestine (with videos). *Gastrointest Endosc* [Internet]. 2008 Jan 1 [cited 2025 Sep 20];67(1):169–172. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S0016510707024972>
- Goenka MK, Majumder S, Kumar S, Sethy PK, Goenka U. Single center experience of capsule endoscopy in patients with obscure gastrointestinal bleeding. *World J Gastroenterol*. 2011;17(6):774–778.
- Li F, Gurudu SR, De Petris G, Sharma VK, Shiff AD, Heigh RI, et al. Retention of the capsule endoscope: a single-center experience of 1000 capsule endoscopy procedures. *Gastrointest Endosc* [Internet]. 2008 Jul 1 [cited 2025 Sep 21];68(1):174–180. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S0016510708002691>
- Hara AK, Leighton JA, Heigh RI, Sharma VK, Silva AC, De Petris G, et al. Crohn Disease of the Small Bowel: Preliminary Comparison among CT Enterography, Capsule Endoscopy, Small-Bowel Follow-through, and Ileoscopy1. <https://doi.org/10.1148/radiol.2381050296> [Internet]. 2006 Jan 1 [cited 2025 Sep 21];238(1):128–134. Available from: <https://pubs.rsna.org/doi/10.1148/radiol.2381050296>