PURE-VU EVS
by MOTUS GI

Pure-Vu® EVS System
Case Study Collection

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"When we have an inpatient struggling with bowel preparation, we typically have to remove them from the day's procedure list and try again the next morning. With Pure-Vu®, this is no longer an issue and we can perform successful colonoscopies on these patients within 24 hours. Pure-Vu is a terrific option for patients who are unable to adequately prep for their colonoscopies."

Dr Jason Samarasena, MD
UCI Health, California, USA

Watch Podcast

"It is not uncommon for inpatients to be inadequately prepped for colonoscopy procedures, resulting in delays in care and added costs to the healthcare system. Our ability to use a tool like Pure-Vu to achieve an adequate colon preparation at the initial colonoscopy is a great advantage that improves unit efficiency, reduces hospital length of stay and enhances patient satisfaction, comfort, and safety."

Raman Muthusamy, MD
UCLA, California, USA

Watch Podcast

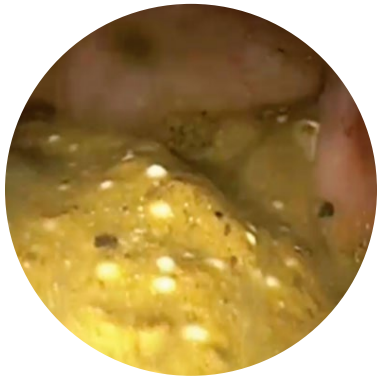
About Pure-Vu® EVS

IMPROVES VISUALIZATION TO EXPEDITE A HIGH-QUALITY COLONOSCOPY THE FIRST TIME

The Pure-Vu EVS System is a single use Oversleeve that easily fits on standard and slim colonoscopes to facilitate intraprocedural cleansing of the colon. It provides physicians support in addressing emergent or challenging colonoscopies by safely and rapidly cleansing the colon to provide clear visualization of the colon wall.

The cases in this study collection demonstrate the Pure-Vu EVS System's potential to:

- Address emergent patients sooner, expediting diagnosis and treatment
- Reduce incidence of delayed, aborted, and incomplete colonoscopies
- Reduce dependency on prep regimens
- Increase quality of colonoscopy in inadequately prepped patients and decrease follow-up intervals



Before Pure-Vu

After Pure-Vu

56-year-old female with Scleroderma and chronic constipation

Alireza Sedarat, MD

Gastroenterologist

Ronald Reagan UCLA Medical Center

UCLA Medical Center, Santa Monica, CA

PATIENT HISTORY

A 56-year-old female with a history of scleroderma and chronic constipation was referred for surveillance colonoscopy for a prior large polyp endoscopic mucosal resection (EMR). Subsequently, she had surveillance colonoscopies at 6 and 12 months, which exhibited inadequate preparation and poor visualization. For these reasons, the patient was given an extended preparation.

PURE-VU® PROCEDURE

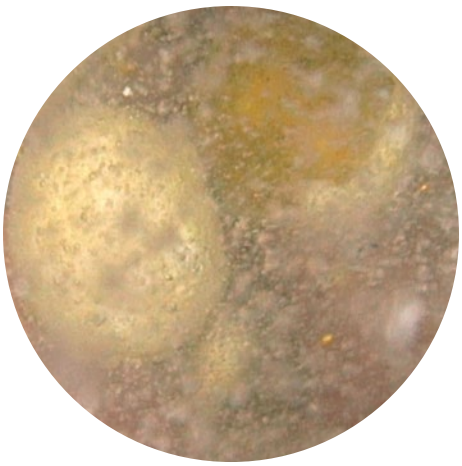
Prior to the procedure, when the patient was asked about her last bowel movement, she reported a clarity grade of 4-5. However, upon endoscopic visualization, the patient still had solid stool and debris present in the colon despite extended preparation. The scope was then withdrawn and a Pure-Vu® Oversleeve was loaded on to an Olympus PCF 190 colonoscope.

Grade 1 **Grade 2** **Grade 3** **Grade 4** **Grade 5**

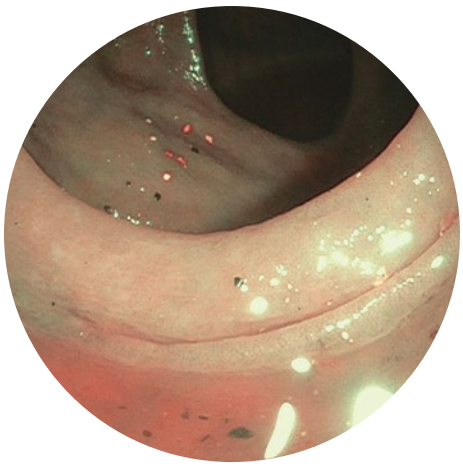
Pure-Vu was used to continuously irrigate and evacuate the colon to allow for clear visualization. After Pure-Vu cleansing, a Boston Bowel Prep Score of 8 was achieved. A poorly defined 1-2 cm sessile polyp was seen in the proximal to mid-ascending colon that was not recognized prior to cleansing with Pure-Vu. After injection with a submucosal lifting agent, cold snare polypectomy was performed successfully and completely with no patient complications. The use of Pure-Vu provided the necessary visualization required to perform the EMR procedure. Without Pure-Vu this outcome would not have been achieved.

CONCLUSIONS

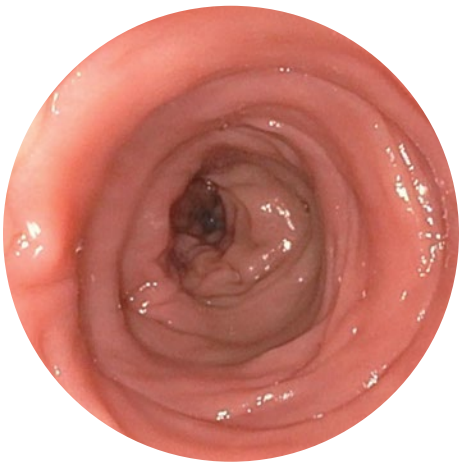
The patient had a long history of incomplete colonoscopies due to inadequate bowel prep. With the Pure-Vu® System, it was possible to directly visualize the entire colon. With the clearing of the debris, a lesion was found and subsequently removed. This patient will now be put on a standard surveillance protocol, as opposed to having a shortened surveillance interval due to poor visualization.



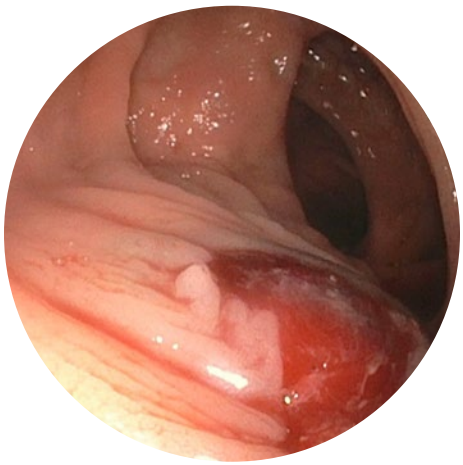
Pre-Pure-Vu



Post-Pure-Vu cleansing and evacuation



Colon view



Post-Cold EMR resection

52-year-old male in ICU with hemorrhagic shock from post-polypectomy bleeding

Brian C. Jacobson, MD, MPH

Director of Program Development for Gastroenterology

Massachusetts General Hospital, Boston MA

PATIENT HISTORY

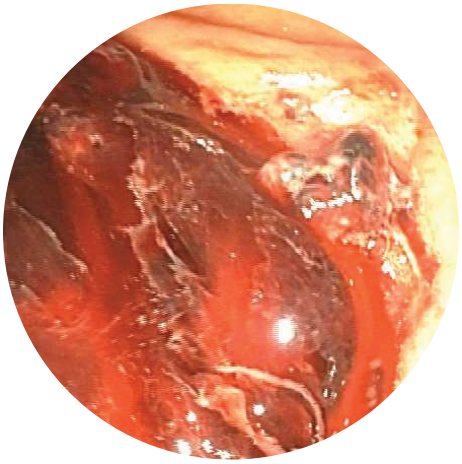
A 52-year-old male transferred from an outside hospital with hemorrhagic shock and acute kidney injury 6 days after a screening colonoscopy with removal of 9 polyps, including 2 >2 cm polyps in the cecum and ascending colon.

TREATMENT CHALLENGES

We elected to use Pure-Vu® immediately without a bowel preparation to expedite the procedure. Active bleeding was expected based on clinical presentation and patient was already requiring Levophed for blood pressure support. Angiographic control of bleeding was not considered as first-line therapy because of acute kidney injury with a rising creatinine level.

PURE-VU® PROCEDURE

We used Pure-Vu with a slim scope sleeve at the bedside in the ICU. Old and fresh blood obscured views of the colonic mucosa but the Pure-Vu device functioned perfectly, resulting in excellent views.



PATIENT OUTCOME

Because of Pure-Vu®, we were able to identify the bleeding source: a large, visible vessel with active hemorrhage adjacent to a massive clot in the cecum. This was treated with 2 hemoclips, resulting in immediate and permanent cessation of bleeding. Moreover, because the patient had 9 polyps in total resected, it was important to achieve adequate cleaning to be sure there were no other synchronous sites of bleeding. Pure-Vu helped achieve a Boston Bowel Prep Score (BBPS) of 6 in an otherwise unprepared colon, enabling us to see the other, non-bleeding, polypectomy sites.

CONCLUSIONS

Pure-Vu was easily transported to the ICU to help stop a massive lower GI bleed, avoiding the delay that would have been associated with a rapid-purge bowel preparation and avoiding the need for angiography.

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Pure-Vu helped achieve a BBPS score of 6, enabling the physician to identify and treat a GI bleed

79-year-old female with atrial fibrillation on Coumadin, also with morbid obesity, and tubular adenoma

Elisabeth H. Kramer, MD

Gastroenterologist

Geisinger Health, Danville, PA

PATIENT HISTORY

A 79-year-old female with a history of atrial fibrillation on Coumadin, also with morbid obesity, and history of tubular adenoma who presented for a surveillance colonoscopy. Colonoscopy performed 6 months prior showed 1 small polyp in the rectum and was deemed poorly prepped. She was rescheduled for a repeat colonoscopy following a 2-day bowel preparation.

PURE-VU® PROCEDURE

The cecum was reached with a standard pediatric colonoscope not equipped with Pure-Vu. The bowel preparation was again deemed to be inadequate to identify polyps. Prior to aborting the procedure the decision was made to try to clean the colon with Pure-Vu. The endoscope was withdrawn and then re-inserted with Pure-Vu device attached. The device functioned perfectly and the clinicians were able to adequately clean the colon to identify polyps. The total withdrawal time, including cleaning, was 31 minutes.

2

Identified and removed 2 polyps, which would not have been identified without Pure-Vu

PATIENT OUTCOME

Because of Pure-Vu®, the clinicians were able to identify and remove 2 polyps, which were not identified on the last colonoscopy done 6 months prior and would not have been seen on the current exam without the Pure-Vu device.

CONCLUSIONS

Pure-Vu was easily used to effectively clean a poorly prepped colon, which otherwise would have required a repeat examination.

Pre-Ileocecal Valve

Clean Ileocecal Valve

Pre-Cecum

Clean Cecum

Clean Ascending Colon

76-year-old female with post-polio syndrome and positive fecal immunohistochemical test (FIT)

Brian C. Jacobson, MD, MPH

Director of Program Development for Gastroenterology

Massachusetts General Hospital, Boston MA

PATIENT HISTORY

A 76-year-old wheelchair-bound woman with limited mobility owing to post-polio syndrome underwent a fecal immunochemical test (FIT) for her final colon cancer screening at age 75. She had never undergone a colonoscopy, as the bowel preparation was deemed too onerous due to her inability to get to the bathroom easily. She had mild normocytic anemia with normal iron indices.

TREATMENT CHALLENGES

The patient was interested in hospital admission for the preparation, but it would not have been covered by her insurance. The Pure-Vu® System with magnesium citrate prep was deemed acceptable for her. She had used magnesium citrate in the past for constipation; this would soften her stool without creating the large volume of diarrhea that a traditional bowel preparation would cause. Clinicians believed a single 10-ounce dose of magnesium citrate, taken at home with 32 ounces of water and a clear liquid diet the day before the procedure, would suffice.

PURE-VU PROCEDURE

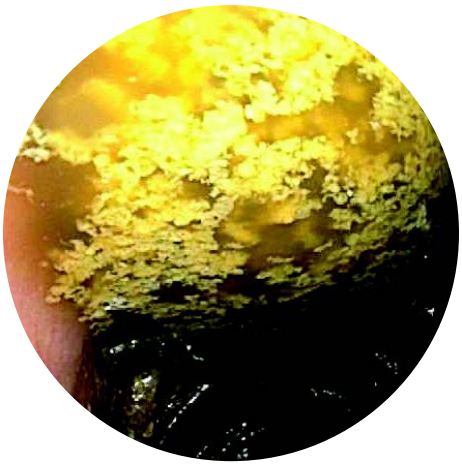
The clinical team used the standard Pure-Vu device, performing the procedure with monitored anesthesia care (Propofol). The scope reached the cecum, and the patient tolerated the procedure well. The Boston Bowel Preparation Scale (BBPS) score at insertion was 1-1-1 (3); at the end of the procedure the BBPS score was 2-2-2 (6). The procedure took 36 minutes total (23 minutes for insertion with cleaning; 13 minutes on withdrawal).

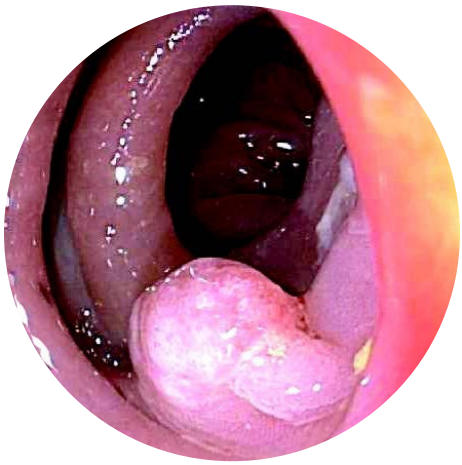
PATIENT OUTCOME

A single 10mm tubular adenoma was found and resected. The endoscopist felt the procedure would not have been feasible without the Pure-Vu System and that a basic water jet pump would not have sufficed.

CONCLUSIONS

The Pure-Vu® System, along with a mini-prep of magnesium citrate and clear liquid, proved to be a great option for this patient who would have required an inpatient admission for bowel preparation, and for whom a traditional bowel preparation was not feasible.





The endoscopist felt the procedure would not have been feasible without Pure-Vu and that a basic water jet pump would not have sufficed.

64-year-old male in ICU with lower GI bleeding

Brian C. Jacobson, MD, MPH

Director of Program Development for Gastroenterology

Massachusetts General Hospital, Boston MA

PATIENT HISTORY

A 64-year-old man initially presented with 1 day of bright red blood per rectum (BRBPR). He had a history of alcohol use disorder, seizure disorder, hypertension, heart failure with reduced ejection fraction (HFrEF) of 30% likely secondary to alcohol use, chronic sinus tachycardia, long corrected QT interval with history of torsades de pointes, post implantable cardioverter-defibrillator (ICD). He was treated for multidrug-resistant tuberculosis, achalasia post myotomy with Dor fundoplication, gastritis with recurrent GI bleeding, gastroparesis with history of gastric outlet obstruction post pyloroplasty, and chronic hyponatremia due to psychogenic polydipsia. His hemoglobin (Hgb) at presentation was 4.8 from a baseline of 10.

TREATMENT CHALLENGES

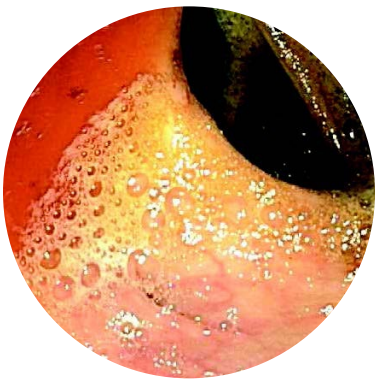
In the emergency department, a CT angiogram indicated bleeding at the hepatic flexure. Interventional radiology placed a coil into the middle colic artery and the patient was admitted to the ICU. Due to recurrent episodes of bleeding, a repeat CT angiogram was performed, but it showed no active extravasation. The patient had stuttering episodes of BRBPR, ultimately requiring a total of 13 units of packed red blood cells, 2 units of plasma, and 10 units of platelets. To enable definitive diagnosis and appropriate treatment, there was a need to clearly visualize the colon. A decision was made to try to “catch” the bleeding source, presumed to be a diverticulum in the hepatic flexure, by using Pure-Vu® at the bedside in the ICU. Pure-Vu was used to avoid further dye load from CT angiography and to attempt therapeutic intervention to stop the bleeding, if active bleeding could be found. The on-and-off nature of his bleeding made it advisable to avoid the time delay associated with an oral bowel preparation.

PURE-VU PROCEDURE

Physicians were called for an episode of BRBPR and immediately went to the bedside with the Pure-Vu equipment. A standard sleeve was used and the procedure was performed with moderate sedation (Midazolam 6 mg IV, Fentanyl 175 mcg IV) in the ICU. The patient received 2 tap water enemas while the equipment was being set up.

The scope was passed to the ileocecal valve. The colonoscopy was successful, although performed with difficulty due to restricted mobility of the colon. The quality of the bowel preparation was evaluated using the Boston Bowel Preparation Scale (BBPS): right colon 2, transverse colon 3, and left colon 3; total BBPS score 8.

Red blood was found in the entire colon, heaviest in the descending and sigmoid colon. This was cleared away using Pure-Vu®, but no active sites of bleeding were seen. There was no ischemic colitis. Multiple small-mouthed diverticula were found in the sigmoid colon, the descending colon, and the ascending colon. There were only a few diverticula in the ascending colon. The bulk of diverticular disease was in the sigmoid colon.



PATIENT OUTCOME

The patient was transferred out of the ICU 2 days later and discharged 3 days after transfer to the floor. At discharge his Hgb was stable at 9.2.

With minimal preparation, Pure-Vu was successfully used at bedside in the ICU on a patient with emergency GI bleed.

CONCLUSIONS

This was the clinical team's first time using Pure-Vu on a travel case, taking the equipment to the ICU for what appeared to be active lower GI bleeding. It was a proof of concept that such a case could be performed with minimal preparation, enabling rapid investigation of ongoing bleeding in a very complex patient. While the patient's bleeding had stopped by the time the colon was examined, the ability to directly visualize the entire colon helped avoid further dye load from CT angiography. Moreover, physicians could confirm that prior coil embolization by IR had not resulted in focal colonic ischemia.

72-year-old male with family history of colon cancer

Sri Komanduri, MD, MS, FASGE, AGAF

Feinberg School of Medicine

Northwestern University, Chicago, IL

TREATMENT CHALLENGES

A 72-year-old man with a strong family history of colon cancer (2 1st-degree relatives) presented for surveillance colonoscopy. He had a history of poor bowel preparation despite trying dietary changes and multiple preparations, including a 2-day extended prep. The inability to achieve a clean colon limited the ability to assess his cancer risk. That meant a short interval for surveillance colonoscopy, a source of frustration to the patient. He asked whether some other approach was available that could extend the surveillance interval.

PURE-VU® PROCEDURE

Dr Sri Komanduri and his staff at Northwestern Memorial Hospital used the Pure-Vu Slim Oversleeve from MotusGI and with minimal difficulty reached the patient's cecum. Monitored anesthesia care (MAC) was used. With cleansing cycles of irrigation and suction using Pure-Vu, the Boston Bowel Prep Scale (BBPS) was initially scored as 1-2-3. With the right colon most often being the source for missed, flat lesions, it was beneficial to have increased the cleanliness to a 3, whereby the entire mucosa was visible with no residual staining, fragments, or opaque liquid. The aggregate BBPS went from a 6 (conditional assessment) to 9 (adequate, best), enabling a 1.2 cm sessile flat polyp to be identified in the ascending colon, which was subsequently resected. No complications were noted.

PATIENT OUTCOME

The patient tolerated the procedure well and was pleased that it yielded a completely clean colon, making it possible to find the polyp. The success enhanced the patient's confidence in colonoscopy as a definitive approach to surveillance. The patient asked that the Pure-Vu System be used on future colonoscopies for his peace of mind. Dr Komanduri was pleased to have completed a surveillance colonoscopy as part of a comprehensive risk analysis.

CONCLUSIONS

Dr Komanduri appreciated the additional access and visibility provided by the Pure-Vu® System. He stated, “Use of Pure-Vu in these difficult preps can be helpful to finding flat polyps and preventing interval colorectal cancer.”

64-year-old female with history of multiple large polyps

Sri Komanduri, MD, MS, FASGE, AGAF

Feinberg School of Medicine

Northwestern University, Chicago, IL

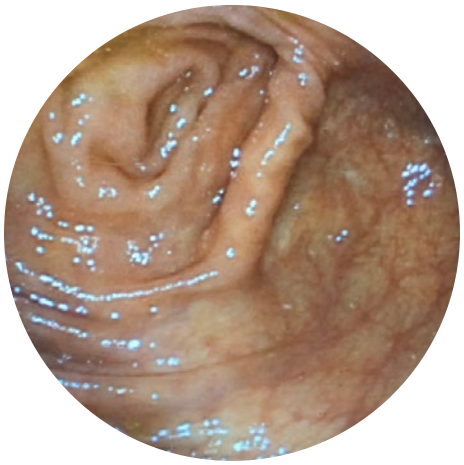
TREATMENT CHALLENGES

A 64-year-old woman presented for a routine surveillance colonoscopy. She was considered at high risk for colon cancer due to a history of multiple, large polyps requiring endoscopic mucosal resection (EMR). She had received colonoscopies at 1- to 2-year intervals, in part because she could not tolerate consumption of purgatives and so had difficulty completing prescribed bowel preparation.

At her last surveillance colonoscopy in 2016, there were no alternatives to the bowel preparation regimen she had been using. Two years later, the Pure-Vu® System from MotusGI had become available, and it was decided to use it for cleansing to allow a complete assessment of the lower digestive tract and potentially enable a longer colonoscopy surveillance interval.

PURE-VU PROCEDURE

Dr Sri Komanduri and his staff at Northwestern Memorial Hospital used the Pure-Vu Slim Oversleeve and achieved cecal intubation without difficulty. Monitored anesthesia care (MAC) was used. With cleansing cycles of irrigation and suction using Pure-Vu, the Boston Bowel Prep Scale was increased from 4 (inadequate) to 9 (adequate, best). Because a pristine colon was achieved, a thorough exam ensued in which no polyps were identified, no complications were noted, and all mucosa was well visualized.



PATIENT OUTCOME

The patient tolerated the Pure-Vu® procedure and was “thrilled” that a completely clean bowel preparation was achieved, enabling her surveillance interval to be extended to 5 years.

CONCLUSIONS

Dr Komanduri was equally pleased with the thorough cleansing and the interval extension provided to his patient. He stated, “Pure-Vu is a novel tool that can help improve patient care in the face of previous bad bowel preparation. It was especially useful in this high-risk patient, who required frequent surveillance because poor preparation had limited my ability to truly assess her risk.”

4→9

Using Pure-Vu, the Boston Bowel Prep Scale was increased from 4 (inadequate) to 9 (adequate, best)

Pure-Vu

was especially useful in this high-risk patient, who required frequent surveillance because poor preparation

86-year-old male with history of congestive heart failure and decreased mobility

Adarsh M. Thaker, MD

Gastroenterologist

David Geffen School of Medicine at UCLA

Los Angeles, CA

TREATMENT CHALLENGES

An 86-year-old male with history of severe osteoarthritis in the knees, atrial fibrillation on anticoagulation, congestive heart failure, and decreased mobility was hospitalized with fatigue and found to have iron deficiency anemia. Previous endoscopy and colonoscopy were performed and multiple large colon polyps and fair-to-poor prep with no active bleeding were discovered. He was given blood transfusions and discharged.

PURE-VU® PROCEDURE

After discussing his goals of care with regards to the polyps and risk of colon cancer, he wished to proceed with treatment and was referred to interventional endoscopy for endoscopic mucosal resection.

At follow-up colonoscopy, immediately upon scope insertion, there was dark brown solid and semisolid stool, too copious to adequately clear for safe polyp removal, so the procedure was aborted early. The patient reported difficulty prepping due to decreased mobility.

A repeat colonoscopy was scheduled using Pure-Vu. The exam initially showed a fair prep and multiple large polyps with tightly adherent mucus and stool, particularly in the right colon. The Pure-Vu System was used to lavage the entire colon, with improvement to excellent visualization of the colon and polyps. The endoscope was then exchanged for a pediatric colonoscope with a cap to facilitate endoscopic mucosal resection (EMR).

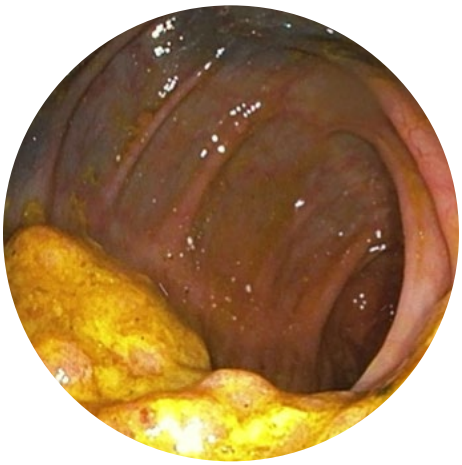
PATIENT OUTCOME

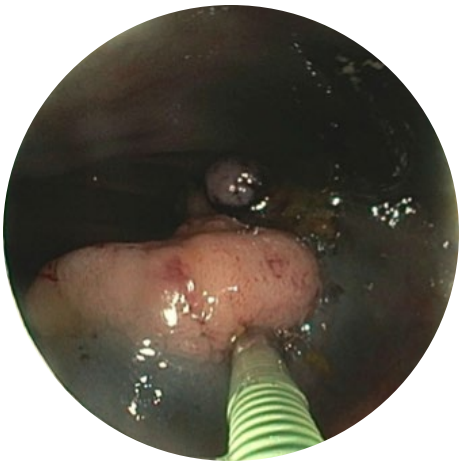
Multiple large polyps were removed, including a 3 cm flat-elevated polyp in the cecum removed with en bloc EMR; a 3 cm sessile polyp in the proximal ascending colon removed with en bloc EMR; a 6-7 cm hemi-circumferential polyp in the distal ascending colon near the hepatic flexure with flat elevated and sessile components removed with piecemeal EMR; and a 1.5 cm sessile polyp in the sigmoid colon removed en bloc.

CONCLUSIONS

This patient was at high-risk of a poor prep due to his comorbidities and decreased mobility. Without the Pure-Vu device, it would have been difficult

to clear the stool debris and the adherent mucus overlying the polyps. Overall, the Pure-Vu® System saved a significant amount of time which would have been needed to optimize the colon for EMR, since it would not have been safe or practical to proceed with treatment with a heavy stool burden. Quickly using the Pure-Vu System early in the case to clear the colon allowed the physician to focus entirely on the therapeutic intervention thereafter, rather than having to continuously manage the inadequate prep to avoid potential complications. It made for a more efficient (and successful) advanced endoscopic procedure overall.





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For more information about the procedure, indications, contraindications, warnings and precautions, please contact MOTUSGI or consult the complete Instructions for Use (IFU) at www.motusgi.com.