

**SonoScape**

HD-550

Full High Definition Video Endoscopy System  
with multi-LED and SFI/VIST Technology

# CASE ATLAS

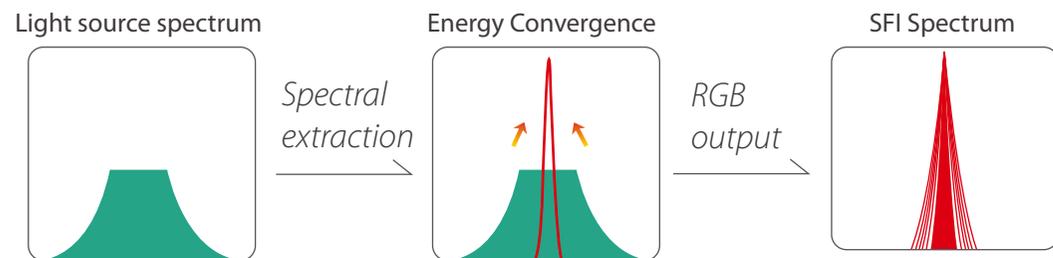


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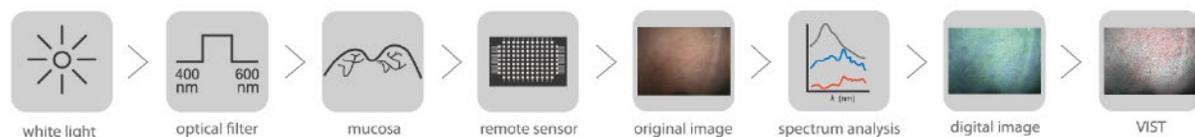
# SFI/VIST Chromoendoscopy



**SFI, Spectral Focused Imaging:** through processing spectrum digitally, the spectral energy was converged around the capillary's peak absorption. SFI enhances the structure contrast of the tissue, increases the color contrast and facilitates the lesion detection.



**VIST, Versatile Intelligent Staining Technology:** is a chromoendoscopy technology that combines optical and digital image processing like SFI. It provides clear and bright images with high contrast, results in clear visualization of the mucosal and vascular pattern morphology.



# FOREWORD

Over the years, optical diagnosis has become my second nature before proceeding to biopsy. The rapid increase in Image Enhanced Endoscopy, in my humble opinion, is one of the most remarkable innovations in the industry, and at times it replaces the classic sprays without fail. As an endoscopist, I am grateful of the various technology options that our industry partners provide us, amongst which is SonoScape's SFI/VIST chromoendoscopy technology. In my experience, SFI/VIST could bring an incredibly amount of extra information aiding endoscopic observation and is indispensable during diagnosis and therapeutic procedures.

From its very first endoscopy system to today's flagship HD-550, the Chinese company probably has set the record of fastest product development I have ever seen. In 2019, with patient consent, we have produced this clinical case atlas of HD-550 with some colleagues in Europe and China and India. This piece showcased explicitly some of the clinical utilities of SFI/VIST. VIST is particularly powerful in colorectal lesion characterisation. Indeed, the abstract of an initial study of VALID (VIST Appearance of colon Lesions and histology preDiction) Classification and validation, was accepted by ESGE and DDW this year in 2020. A good concordance was shown among the expert observers and a rather high accuracy of the VALID-classification has also been demonstrated in the initial video/still-image evaluation.

I wish the case authors all the best as they discover SFI/VIST and use it routinely, and I am pleased to recommend this atlas to anyone interested in Image Enhanced Endoscopy.



Prof. Helmut Neumann  
Professor of Medicine; Director Interdisciplinary Endoscopy Center; Consultant Internal Medicine and Gastroenterology, University Medical Center Mainz, Germany

# Case 1

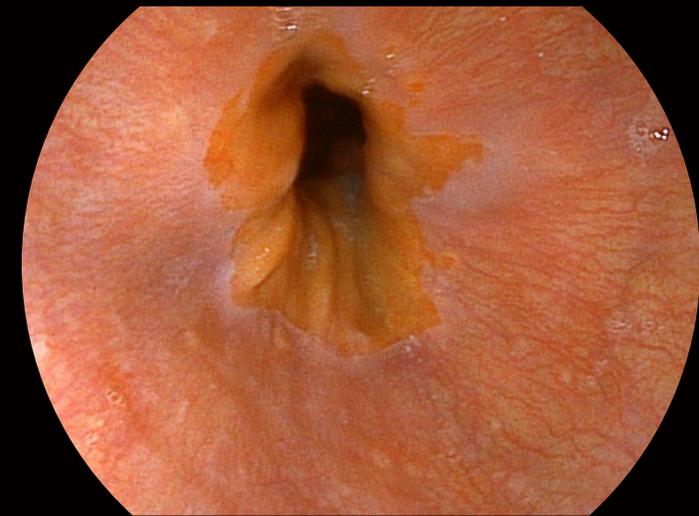
Patient's bio data was not available in this case.

## Endoscopic findings:

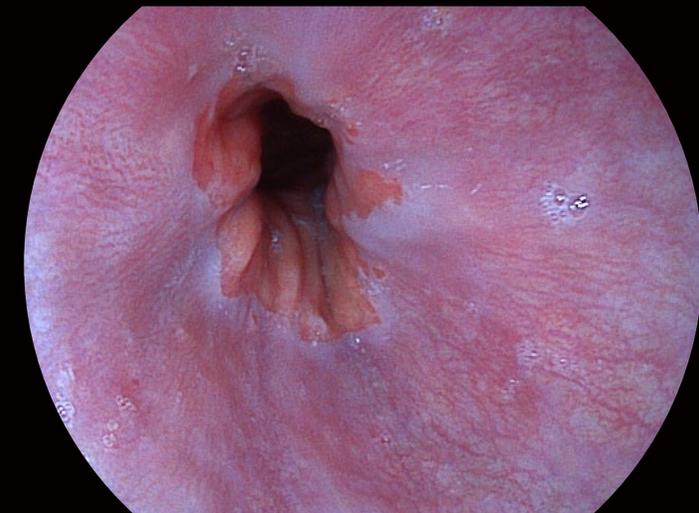
Under White light, abnormal lining close to EGJ was seen. Under SFI and VIST mode, the upper end of the gastric fold and lower end of esophagus squamous epithelium were much distinct, where a short segment Barrett's esophagus (SSBE) was suspected and targeted biopsies were performed.

## Histopathology results:

Segment Barrett's Esophagus (SSBE).



White Light



SFI Mode



VIST Mode

## Case 2

A 70-year old patient underwent screening gastroscopy.

### Endoscopic findings:

HDWL revealed a slightly depressed area at the gastroesophageal junction.

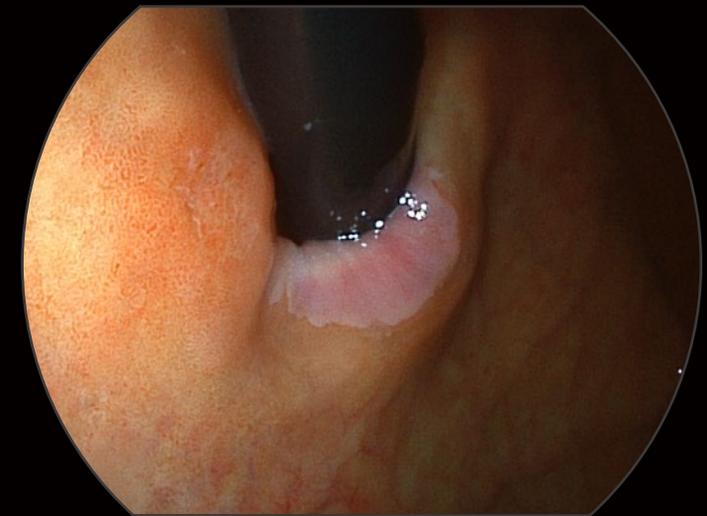
Switched to SFI mode, the vascular pattern was enhanced, helping to delineate the margins of the lesion.

Further close observation was done under VIST mode, revealing an irregular and disrupted mucosal vascular pattern morphology.

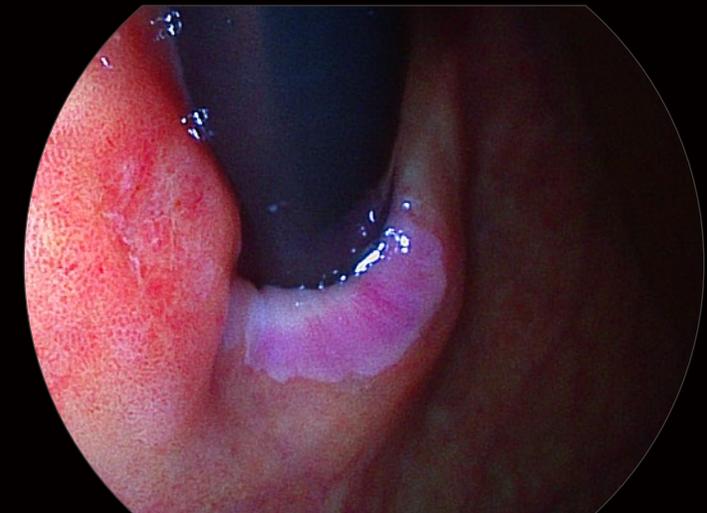
Stomach examination showed hyperemic antral mucosa.

### Histopathology results:

Patient underwent endoscopic mucosal resection. Histology confirmed HGIN with punctual LGIN. The lesion was resected in total.



White Light



SFI Mode



VIST Mode

## Case 3

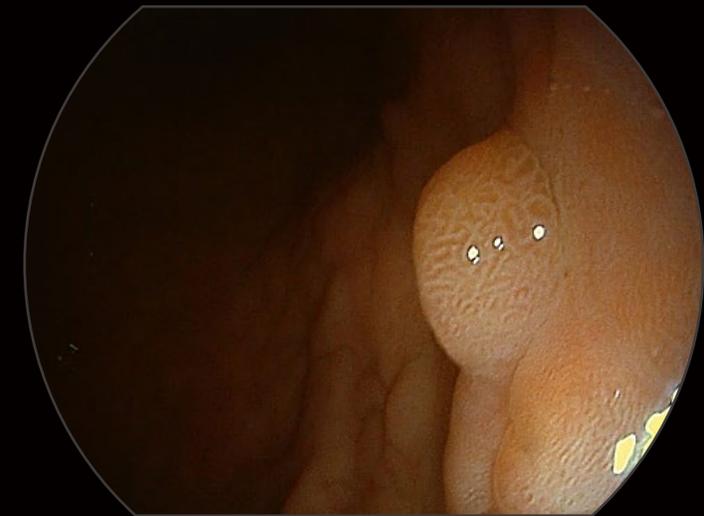
A 70-year old male complained about dyspepsia and underwent gastroscopy.

### Endoscopic findings:

Under white light, a small sessile polyp can be seen in the antrum. There was no evidence of hemorrhagic changes or discoloration under SFI mode. Under the VIST mode, the surface of the polyp appeared regular and resembled to its surroundings mucosa, despite of the slightly enlarged pit pattern.

### Histopathology results:

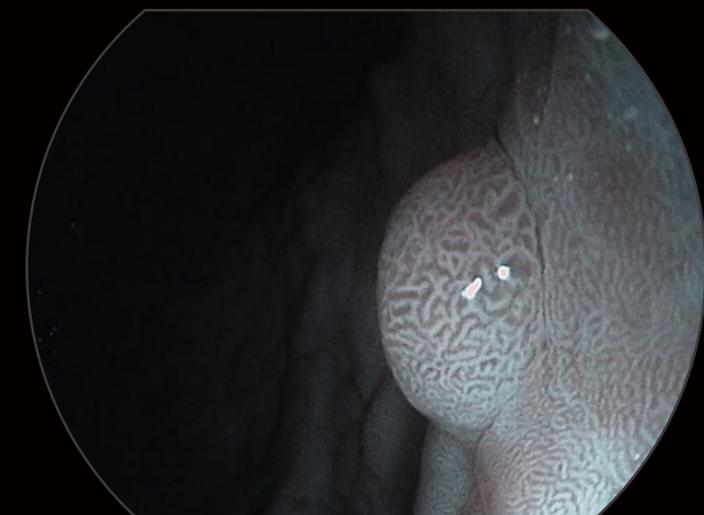
Hyperplastic antral polyp.



White Light



SFI Mode



VIST Mode

## Case 4

A 22-year old woman was referred for surveillance endoscopy. Celiac disease has been diagnosed 7 years ago.

Physical examination and laboratory investigation remained inconspicuous.

### Endoscopic findings:

HDWL endoscopy showed regular surface pattern morphology.

SFI, dedicated to enhanced detection of subtle mucosal irregularities, did not show any mucosal abnormalities.

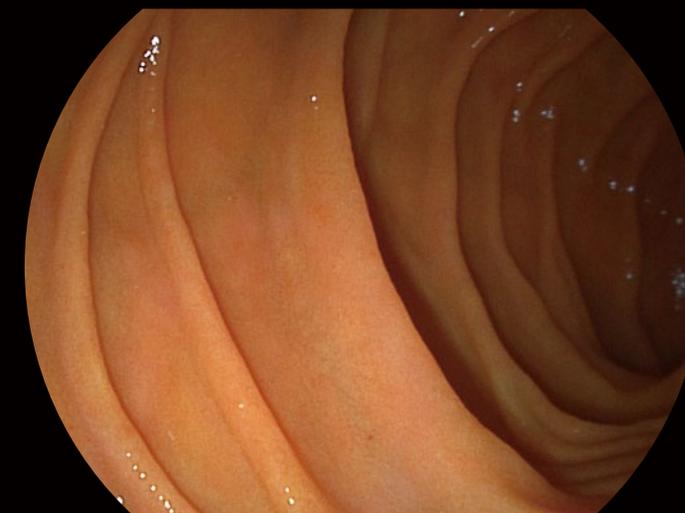
VIST, dedicated to enhanced characterization of the mucosal surface and vascular pattern morphology, revealed normal intestinal villi.

### Histopathology results:

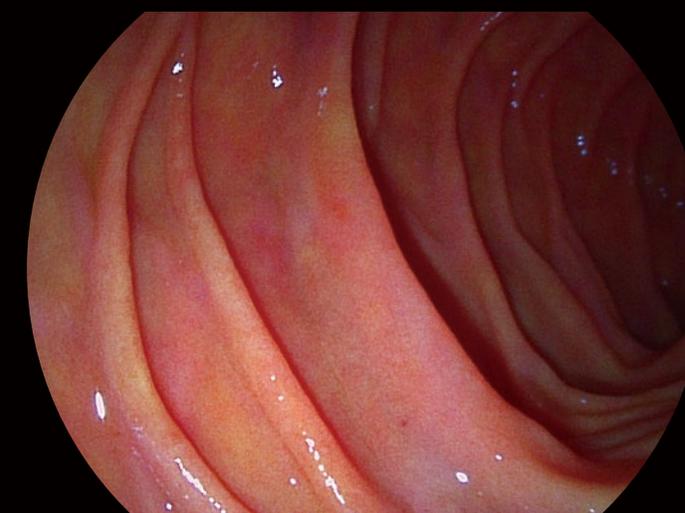
Endoscopic biopsies from the duodenal mucosa were obtained showing consistent findings to endoscopy according to Marsh Type 1.

### Patient's follow-up:

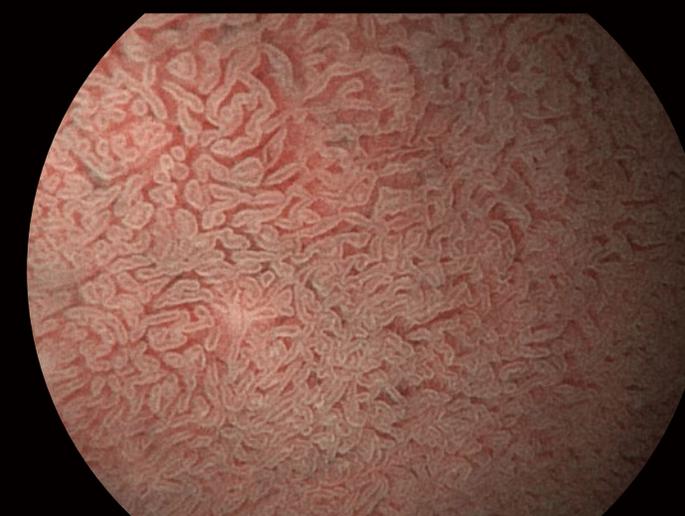
Dietary recommendations were given to the patient.



White Light



SFI Mode



VIST Mode

## Case 5

A 54-year old male underwent screening gastroscopy under sedation.

### Endoscopic findings:

The esophagus wall appeared slightly coarse. Observation under Lugol's iodine was unremarkable.

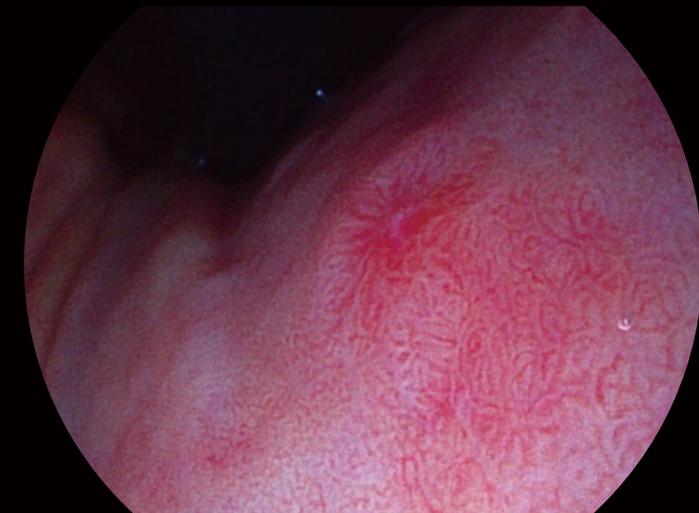
Under HD WL, a hyperemic and slightly depressive change with irregular surface was pointed out at the upper gastric body. SFI mode offered a much clearer view of the lesion allowing for exact demarcation of the lesion to the surrounding mucosa. A close observation under VIST mode showed an increased vascular pattern morphology highly suggestive of an adenoma with severe dysplasia.

### Histopathology results:

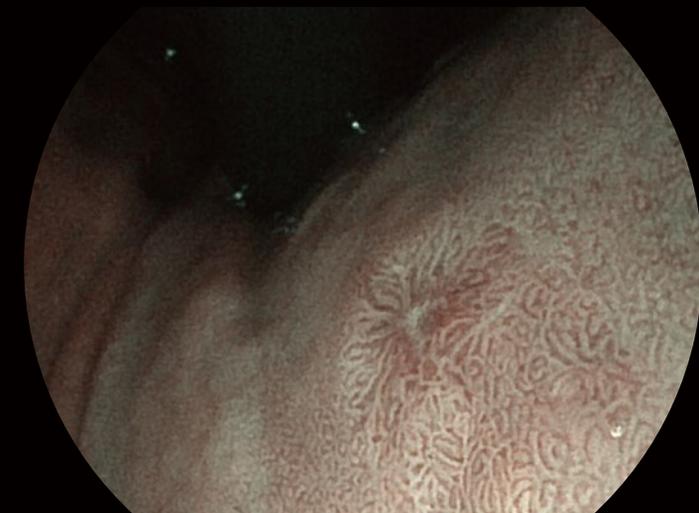
ESD was performed and a 3.5x1.8cm specimen was retrieved for histology. Final diagnosis confirmed in vivo diagnosis of gastric adenoma with HGIN and R0 resection.



White Light



SFI Mode



VIST Mode

## Case 6

A 58-year old woman was submitted to our hospital for screening colonoscopy. Physical examination as well as laboratory investigations were unremarkable. Family history was inconspicuous and faecal occult blood testing remained negative.

### Endoscopic findings:

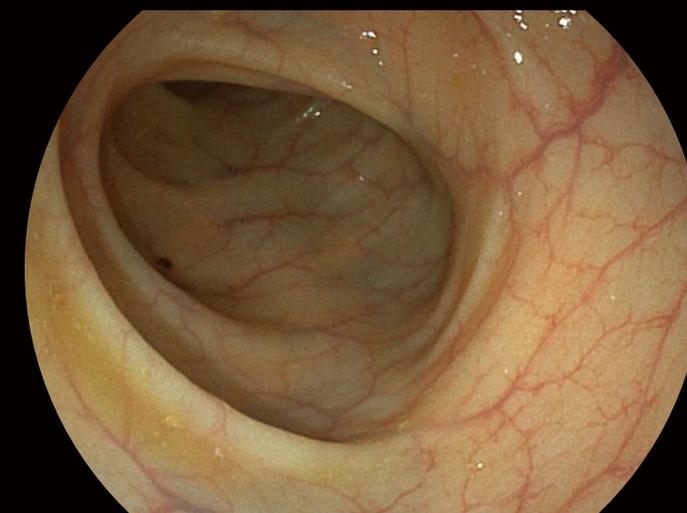
Advancement of the scope to the cecum was performed in HDWL mode.

This mode used for detection, enhances the natural contrast of the tissue. Importantly, residual stool components and fluids appear in the natural color.

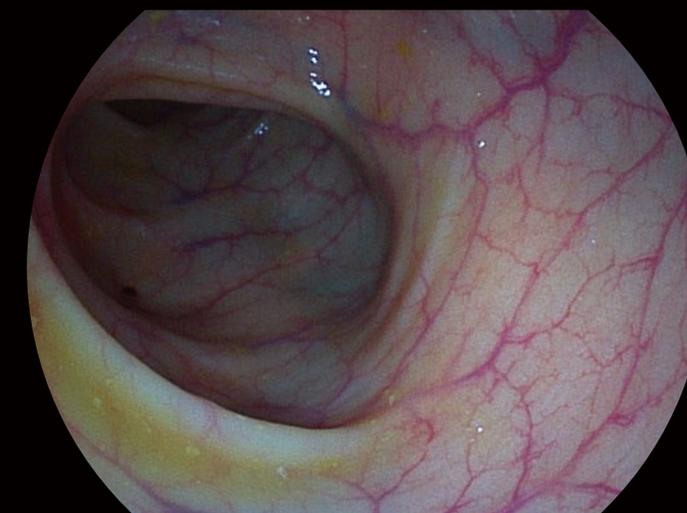
VIST mode is used for enhanced characterization of the surface and vascular pattern morphology.

### Patient's follow-up:

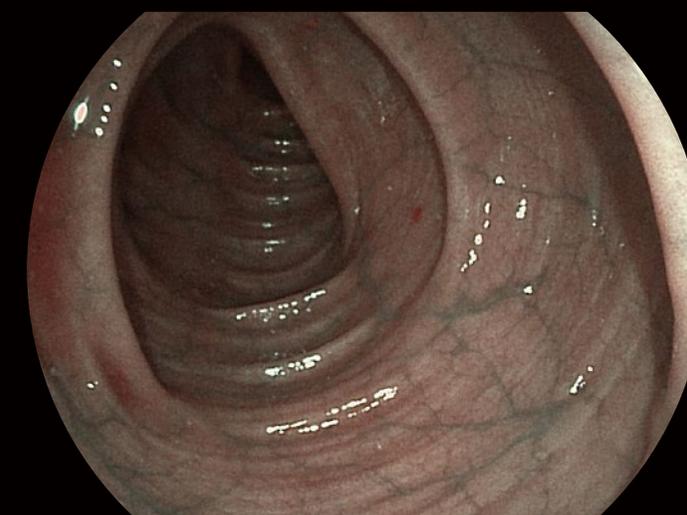
According to current surveillance guidelines we recommended follow-up colonoscopy after ten years.



White Light



SFI Mode



VIST Mode

## Case 7

A 71-year old male underwent a screening colonoscopy.

Physical examination was unremarkable, while laboratory investigations showed a slight anemia with a hemoglobin level of 11.6 g/dl (normal range 13.5-17.5 g/dl).

Family history was inconspicuous.

### Endoscopic findings:

HDWL endoscopy revealed a large, non-polypoid, slightly elevated lesion in the rectum (Paris IIa).

SFI mode clearly demonstrated the borders of the lesion. Importantly, the mode is not changing the natural colour of residual stool components and fluids.

VIST mode clearly highlighted the vascular and surface pattern morphology of the lesion thereby demonstrating a tubulovillous adenoma.

The polyp was resected in piecemeal technique by snare polypectomy and the patient was discharged.

### Histopathology results:

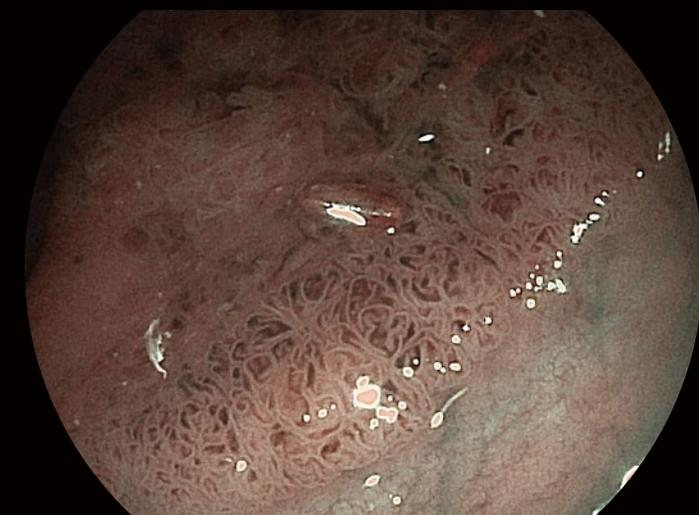
Tubulovillous adenoma with HGIN.



White Light



SFI Mode



VIST Mode

## Case 8

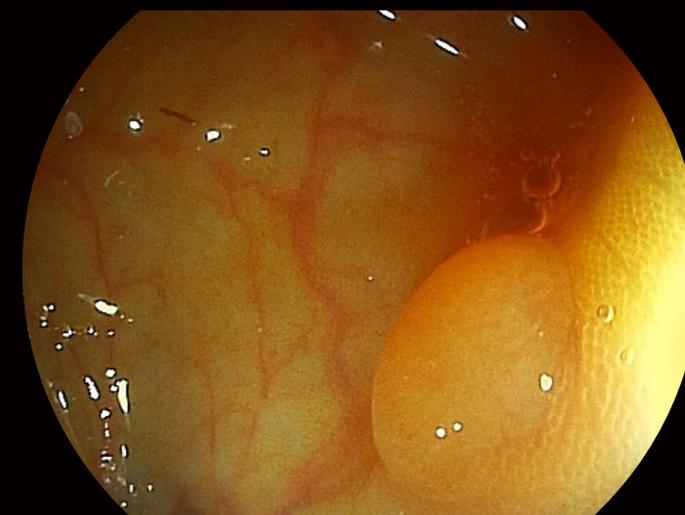
A 58-year old female underwent colonoscopy because of an altered bowel habit.

### Endoscopic findings:

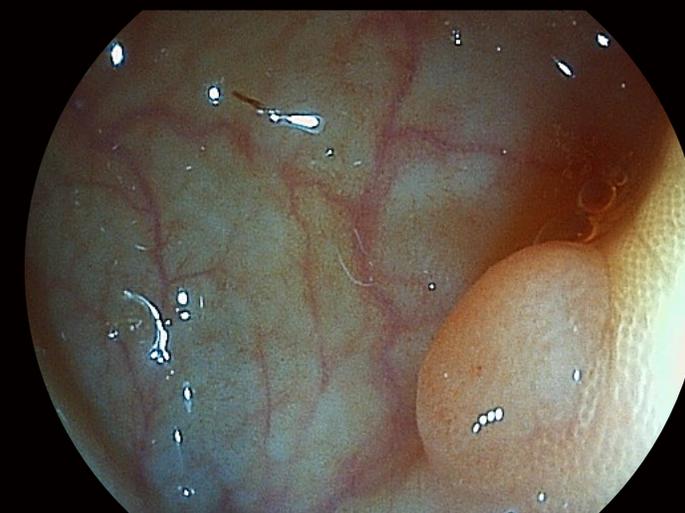
Under white light, two small 5-mm sessile polyps were discovered in the sigmoid colon. There was no evidence of inflammation under SFI mode. Switching to VIST, the tubular pit pattern was observed. Polypectomy was performed.

### Histopathology results:

Tubular Adenoma without malignancy.



White Light



SFI Mode



VIST Mode

## Case 9

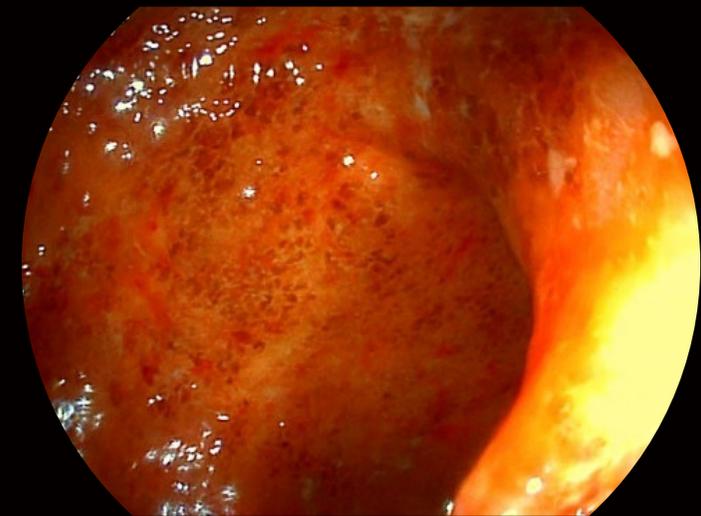
A 39-year old male underwent a follow-up colonoscopy due to his rectal bleeding medical history.

### Endoscopic findings:

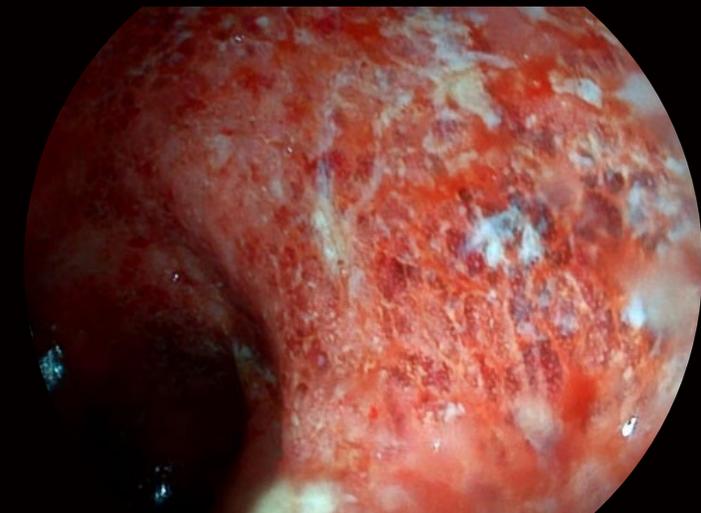
Under White Light, a friable part with a few superficial ulcers were visible. Under SFI mode, the hyperemic patches and shallow ulcers of various size and shapes became very obvious. A loss of vascularity was also noted. VIST emphasized further the erythema and a surface granularity which indicated ulcerative colitis.

### Histopathology results:

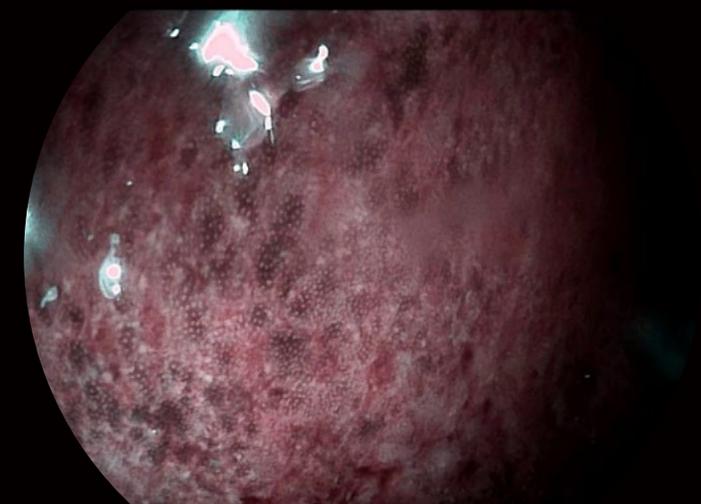
Ulcerative colitis (Mayo Grade 3).



White Light



SFI Mode



VIST Mode

## Case 10

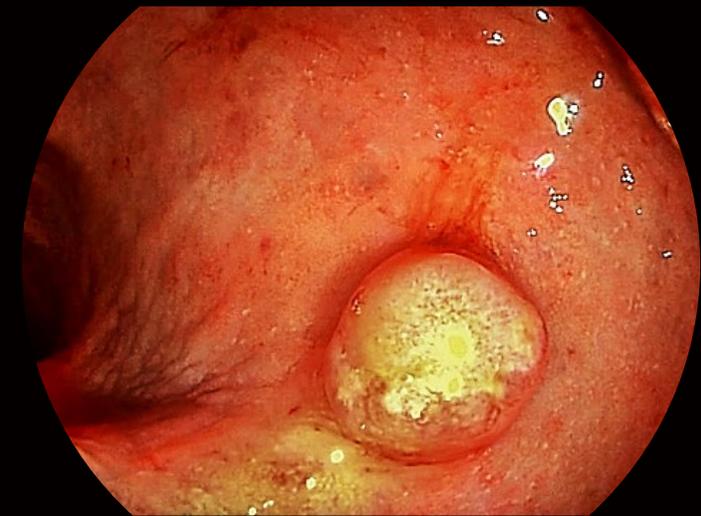
A 29-year old male underwent colonoscopy because of an altered bowel habit.

### Endoscopic findings:

A 1.5-cm round polyp was discovered in the rectosigmoid. SFI mode revealed a hyperemic surface. Under VIST mode, it showed normal pit patterns.

### Histopathology results:

Inflammatory polyp.



White Light



SFI Mode



VIST Mode

# Case 11

A 61-year-old male patient underwent colonoscopy on March 8, 2019 (BBPS 9/9). The inspection of the anal region and the digital rectum examination were unremarkable. During the colonoscopy, mild diverticulosis was discovered in the sigmoid. Internal hemorrhoid was seen.

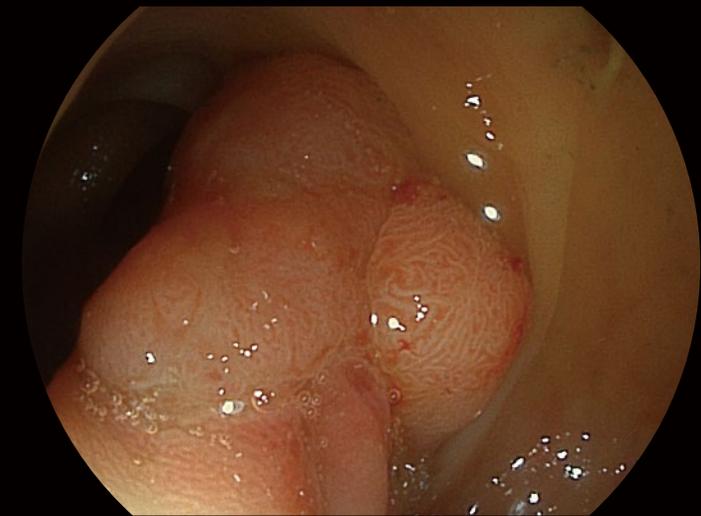
## Endoscopic findings:

One 15mm pedunculated polyp in the proximal sigmoid was removed.

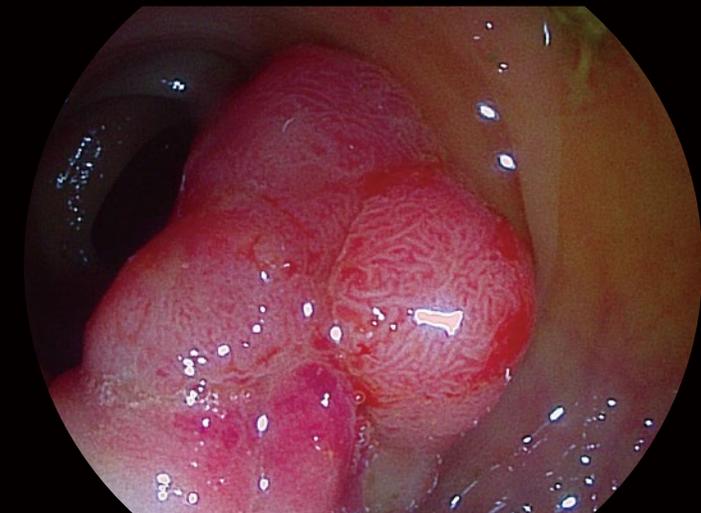
## Histopathology results:

Tubulovillous adenoma with HGD, of G1 differentiation level, associated with the infiltration to muscularis mucosa and invasion to the submucosa. It shows abundant mucosal extravasation, in which some groups of epithelial cells of atypical appearance are present, reaching up to at the endoscopic resection margin.

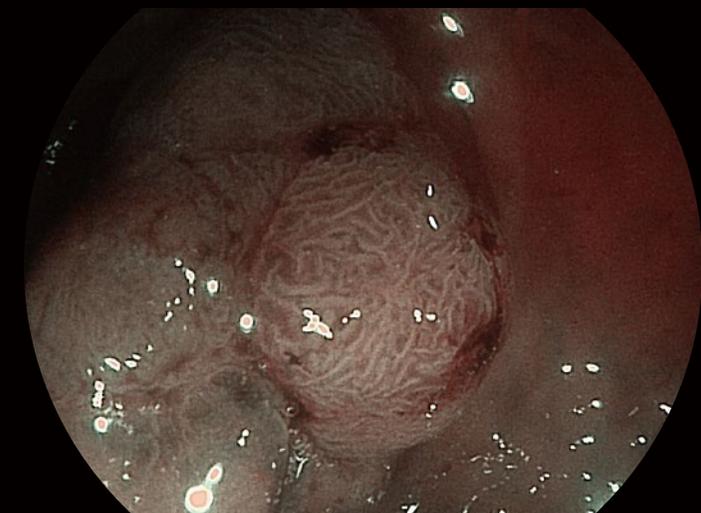
Level 3 of invasion in Haggitt Classification Scheme.



White Light



SFI Mode



VIST Mode

## Case 12

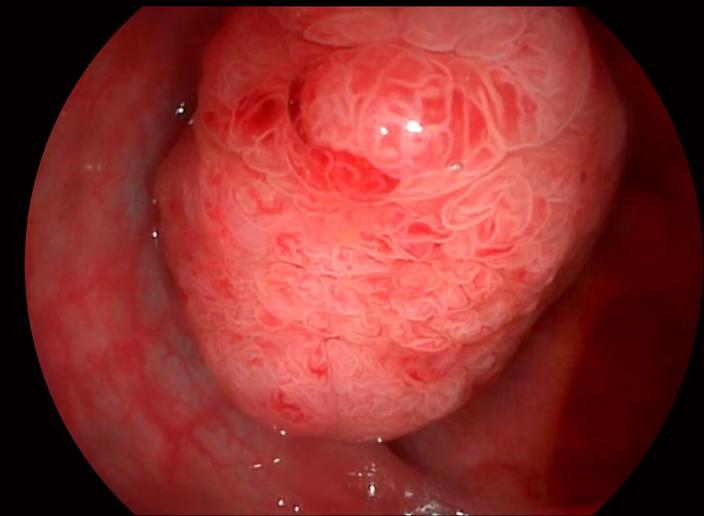
A 60-year old female patient came for abdominal pain. CT scan in the ER concluded possible inflammatory stenosis of the sigmoid(diverticular or neoplastic).

### Endoscopic findings:

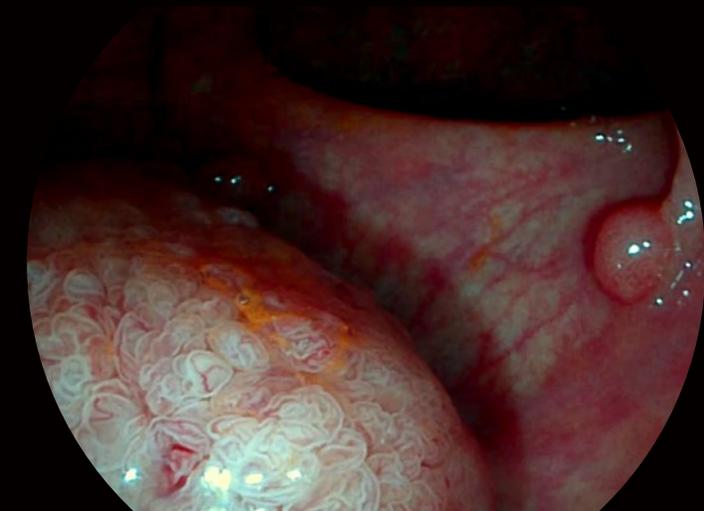
1. Stenotic tumor of the sigmoid.
2. Three polyps were detected with ease in the upper rectum, size of 0.8 cm, 0.7 cm and 2.5 cm respectively. To examine the large polyp, the VIST mode on top of a closer view was adopted. The surface appeared to be irregular and ulcerated at a few spots. The pit pattern was showing a very clear flowing and villous aspect. We concluded it was a villous adenoma.

### Histopathology results:

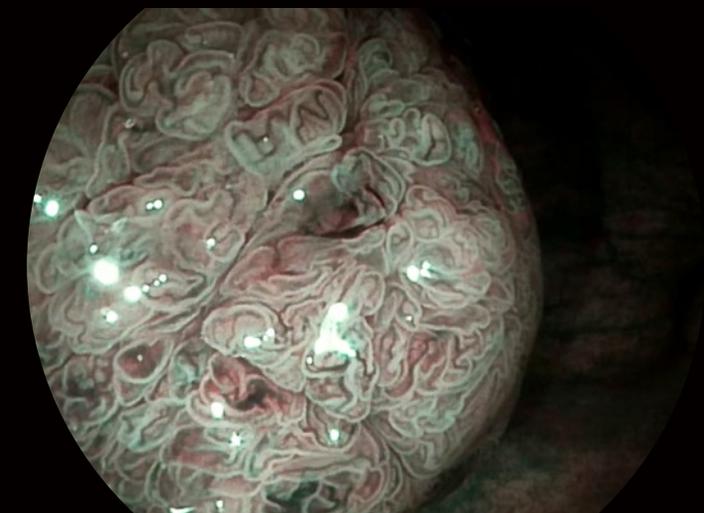
Villous adenoma with high-grade dysplasia.



White Light



SFI Mode



VIST Mode