CBI ATLAS

(First edition)

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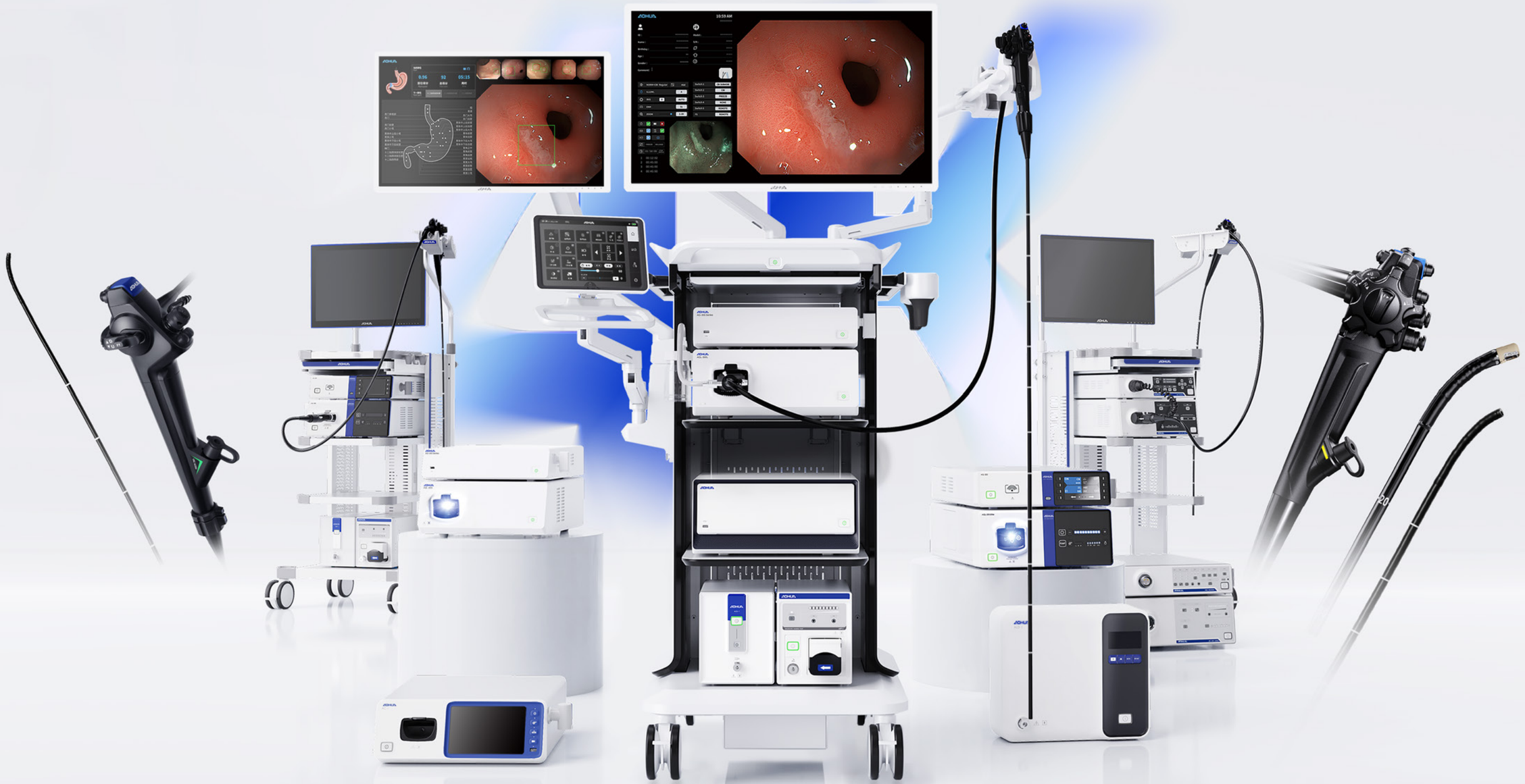
See the Manual for details of contraindications or precautions.

AQ-300

VIDEO ENDOSCOPY SYSTEM

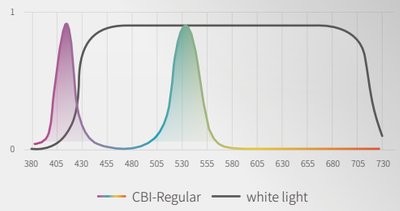


CONTENTS

4 CBI Modes On 5LEDs

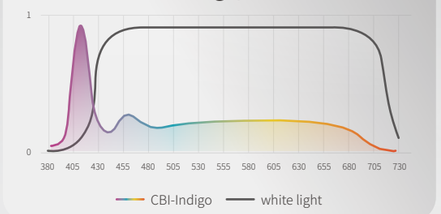
The aq-300 provides four chromoendoscopy modes achieved through various combinations of its five leds light source. These modes offer efficient, rapid, and precise solutions for clinical challenges in various scenarios.

CBI Regular/CBI-R



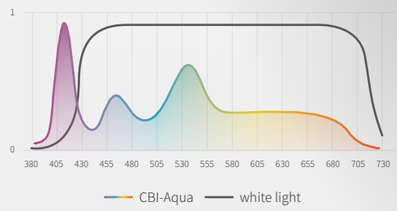
- 405-425nm wavelength blue light is easily absorbed by mucosal fibrous tissue, while 530nm wavelength light acts on submucosal blood vessels under led light source.
- The CBI mode uses 405-425nm and 530nm led light sources, which can distinguish the range of mucosal lesions and highlight the distribution of submucosal blood vessels

CBI Indigo/CBI-D



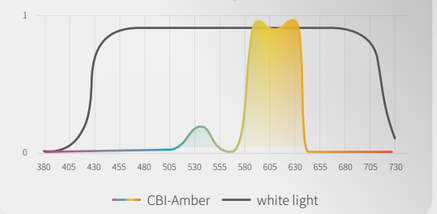
- On the basis of blue narrowband light, combined with an appropriate amount of white light illumination, further color expansion is carried out on the red area to enhance the contrast of blood vessel texture display and color difference contrast in the red area, effectively improving the contrast between mucosa and blood vessels

CBI Aqua/CBI-Q



- Using partial blue and green narrowband light and providing quantitative white light for the image
- Can better increase the visibility of mucosal tissue structure under endoscopy

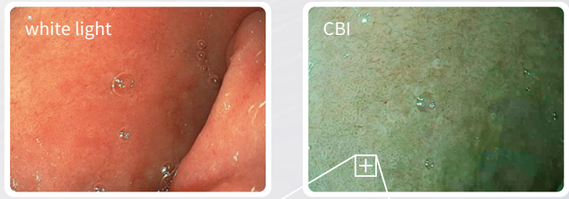
CBI Amber/CBI-M

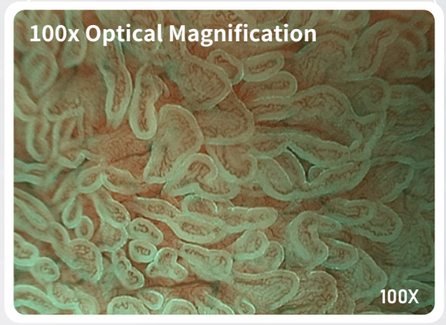


- Combining red and green light, amber mode is mainly using amber light paired with image processing algorithm and contrast feedback adjustment technologies to observe bleeding spot covered by superficial blood

100x Optical Magnification

The application of advanced micro sensor transmission image technology. Resolution is greatly improved, and the image can be enlarged without compromising clarity. Maximum magnification rate is no less than 100 times.





Clinical Case 1: Esophageal Early Cancer

Dr. Zhang Yingjie, Chengdu Second Hospital

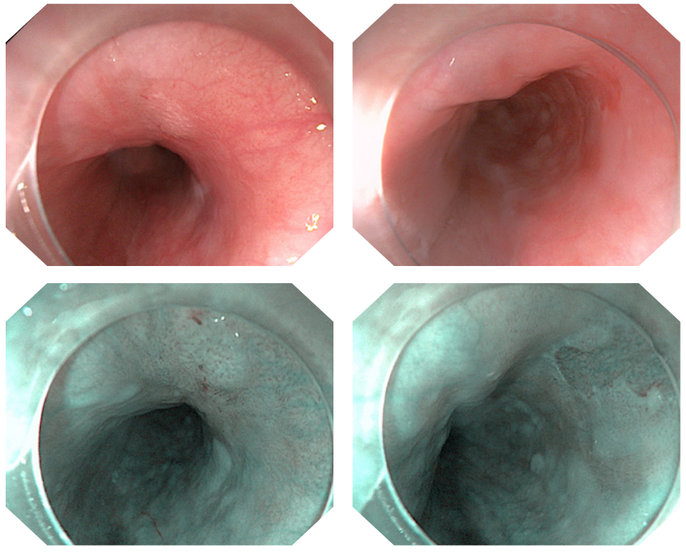
Patient information: a 72-year-old female complained abdominal distension and dysphagia. Physical investigation was inconspicuous.

Past history: history of gallbladder removal, no history of hypertension, diabetes, etc.

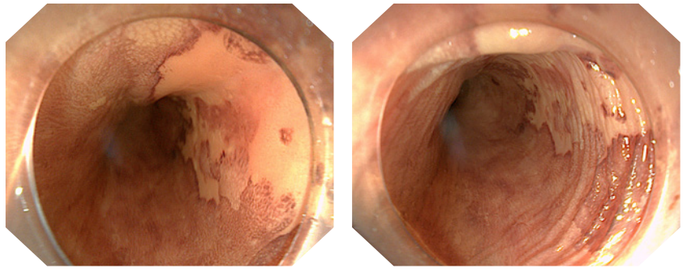
Family history: no history of tumors or hereditary diseases.

Endoscopic findings: a thorough examination revealed mucosal changes in the esophagus approximately 25-30 cm from the incisors.

-under white light observation, the affected mucosa appeared coarse, red, involving approximately 1/3 to 1/2 of the lumen.
-under chromoendoscopy (CBI) observation, the boundary was relatively clear, and the local lesion showed a brownish change with increased vascular density, irregular distribution, and disorderly arrangement.

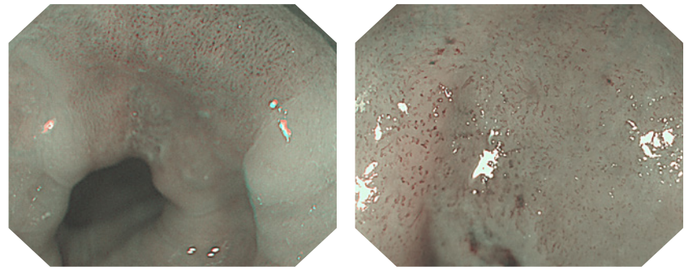


-under Lugol's iodine observation, an obvious area without iodine staining was visible with a clear boundary.

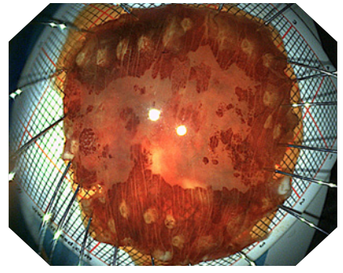


Esophageal mucosa high-grade intraepithelial neoplasia (HGIN)

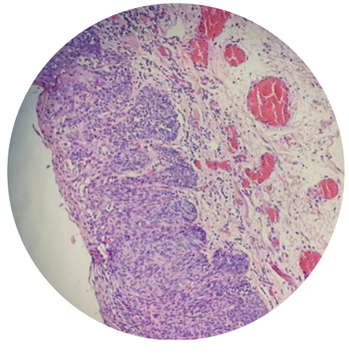
-under magnification closer observation, the lesion had a clear border, appeared brownish, with increased and uneven vascular density, varying thickness, irregular direction, and morphology. according to the jes classification, it was v1, and according to the ab classification, it was type a, with no apparent ava formation.



Histopathological results:
Well-differentiated squamous cell epithelial dysplasia was observed, with incomplete keratinization in the surface layer. The blood vessels between the epidermis showed irregular elongation with twisting. There was an increase in small blood vessels within the submucosal layer, congestion, and scattered infiltration of a small number of lymphocytes.



Diagnostic result:
High-grade dysplasia of the esophageal mucosa, with a lesion size of approximately 2.5x1.5 cm. No residual tumor tissue was observed at the vertical and horizontal margins.



Clinical Case 2: Esophageal Early Cancer

Dr. Sun Zhongxin, Chengdu Third Hospital

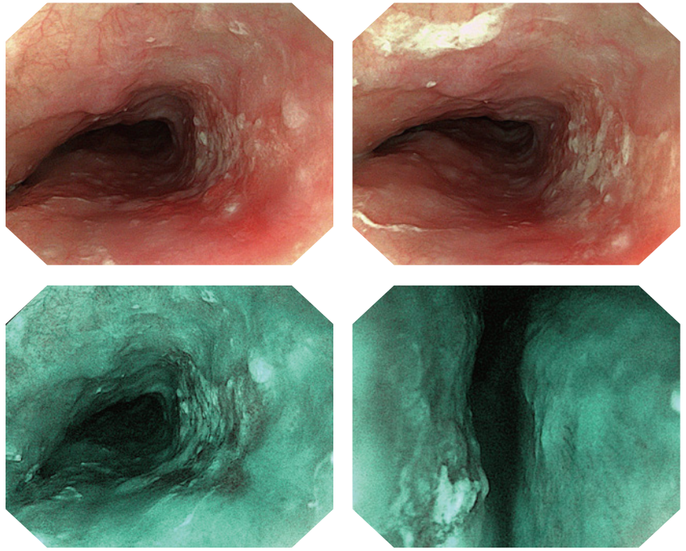
Patient information: a 55-year-old male suffered from poor appetite and diarrhea for more than 6 months, reported a significant weight loss. Physical investigation was unremarkable.

Past history: history of appendectomy 2+ years ago, colonoscopy revealed multiple colonic polyps. Post-descending colon surgery pathology indicated tubulovillous adenoma with intramucosal carcinoma. No history of hypertension, diabetes, etc.

Family history: no history of hereditary diseases.

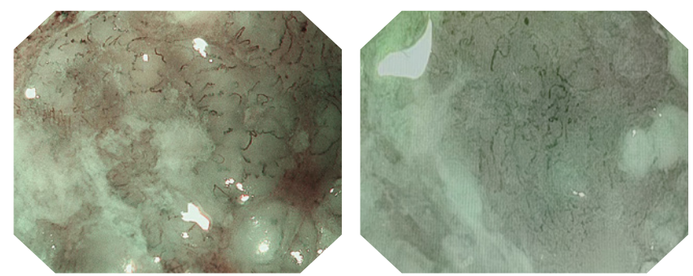
Endoscopic findings: a thorough examination revealed mucosal changes in the esophagus approximately 30-34 cm from the incisors.

-under white light observation, the affected mucosa appeared coarse, hyperemic, with two lesions on the left wall, each approximately 0.8 cm, and one lesion on the right wall, approximately 2.5 cm, all showing type IIc mucosal changes.
-under chromoendoscopy (CBI) observation, the boundary was relatively clear, and the local lesion showed a brownish change with increased vascular density, irregular distribution, and disorderly arrangement.



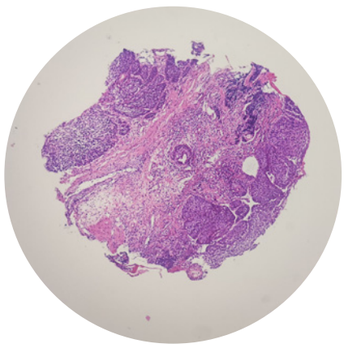
High-grade Dysplasia of Esophageal Mucosa

-under Lugol's iodine observation, the lesion had a relatively clear border, appeared brownish, with increased and uneven vascular density, varying thickness, irregular direction, and morphology.
-under closer magnification view, the lesion had a clear border, appeared brownish, with increased and uneven vascular density, varying thickness, irregular direction, and morphology. according to the ipcl ab classification, b1-type changes were predominant, with some b2-type changes, and small ava formation was observed.



Histopathology result:

Esophagus, 30 cm from the incisors, left wall: high-grade dysplasia of the squamous epithelium.
Esophagus, 29 cm from the incisors: mild dysplastic squamous epithelial proliferation, tending towards high-grade dysplasia.
Esophagus, 30 cm from the incisors, right wall: high-grade dysplasia of the squamous epithelium, with localized consideration of carcinoma, infiltrating the submucosal layer.



Clinical Case 3: Esophageal Early Cancer

Dr. Zhao Jimin, Shandong University Second Hospital

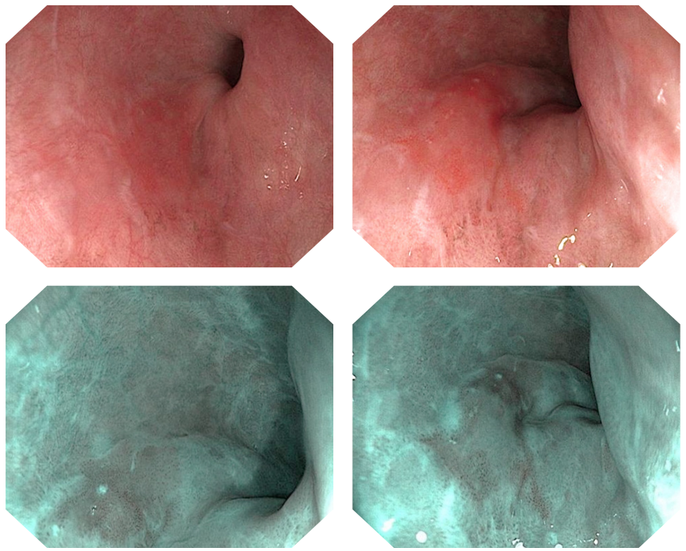
Patient information: a 73-year-old man previously underwent distal gastric surgery 4 months ago. Surveillance one month ago revealed early esophageal cancer with high-grade squamous epithelial dysplasia in the lower esophagus. Physical investigation was unremarkable.

Past history: distal gastric surgery more than 4 months ago. No history of hypertension, diabetes, coronary heart disease, etc.

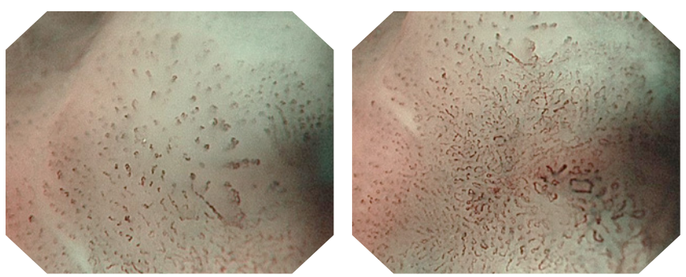
Family history: no history of tumors or hereditary diseases.

Endoscopic findings: gastroscopy revealed hyperemic, coarse, and irregular mucosa with loss of vascular pattern, measuring approximately 2.0x2.0 cm, at the esophageal local landmark of 33 cm.

-under CBI observation, the lesion appeared brown with clear boundaries.

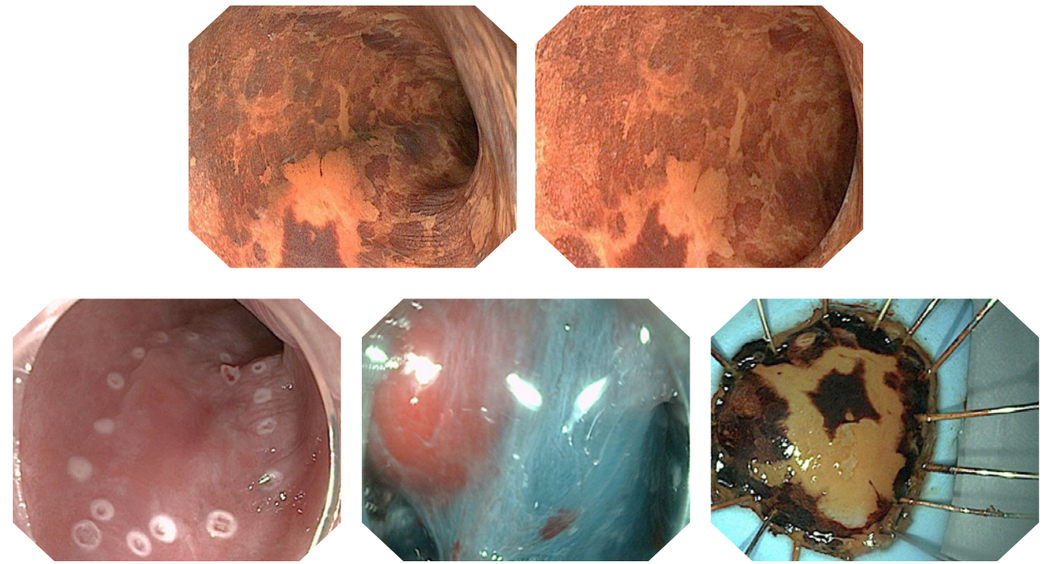


-under closer observation of magnification endoscopy, the lesion had a clear border, appeared brownish, with microvessels showing tortuosity and increased caliber, with varying directions and morphologies. according to the ab classification, it was b1-type, with no apparent ava formation.



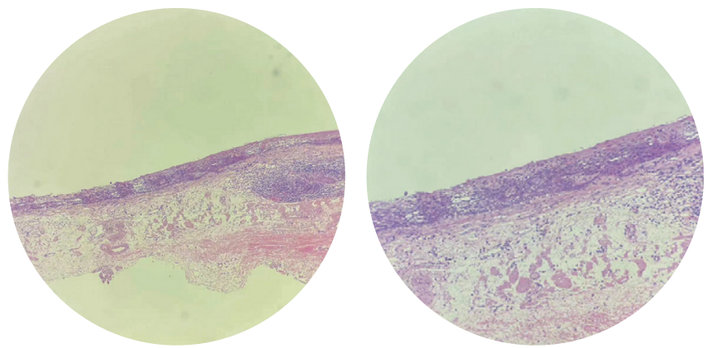
Multifocal Invasive Squamous Cell Carcinoma within the Submucosa

-under Lugol's iodine, there was an obvious area without iodine staining with a clear boundary.



Histopathological results:

Severe dysplasia of the squamous epithelium was observed, with irregular elongation and twisting of blood vessels between the epidermis. There was an increase in small blood vessels within the submucosal layer, congestion, and scattered infiltration of a small number of lymphocytes.



Clinical Case 4: Esophageal Early Cancer

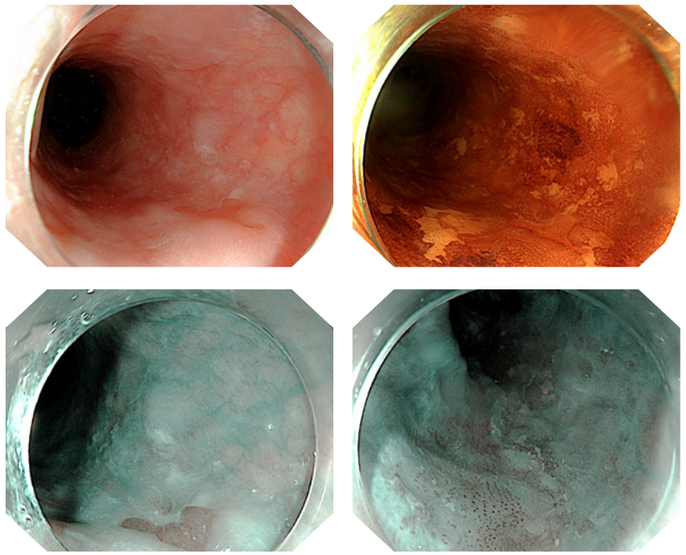
Dr. Chen Ziyang, Sichuan People's Hospital

Patient information: a 67-year-old male complained an intermittent pain below xiphoid process 6 months ago. Physical investigation was unremarkable. History of smoking and alcohol both for more than 40 years.

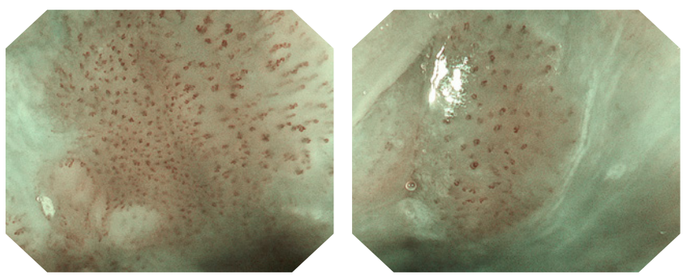
Past Medical History: generally average constitution, with a history of hypertension for 3+ years, controlled with oral antihypertensive medication.

Endoscopic findings: gastroscopy revealed multiple lesions in the esophagus, superficial esophageal cancer, chronic non-atrophic gastritis, and gastric fundic polyps.

-under white light: at the distance of 15 cm from the incisors, a red lesion with a diameter of approximately 0.6 cm was observed, with clear borders.
-under CBI: clear borders, the lesion showed a tea-brown color change.
-under Lugol's iodine dyeing: an approximately 0.6 cm non-staining area was seen with clear borders.

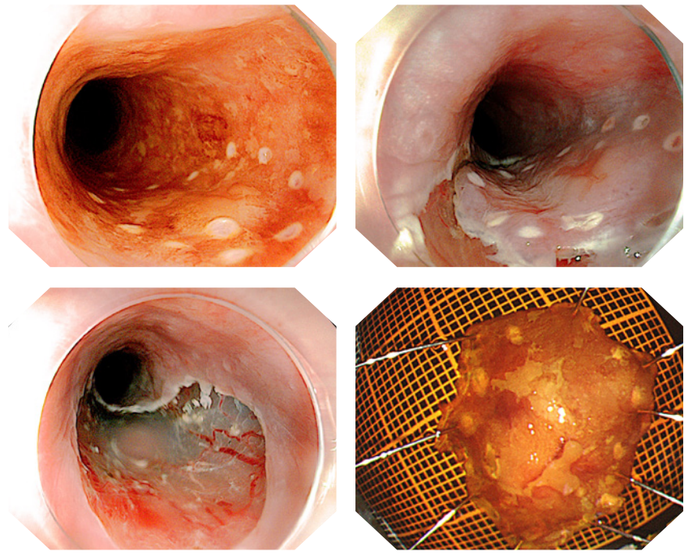


-under closer magnification Observations: dl+, showing b1-type ipcl.

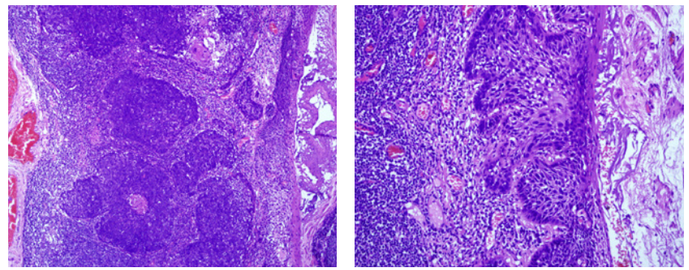


High-grade squamous epithelial dysplasia at esophagus

-emr was performed to remove the lesion.



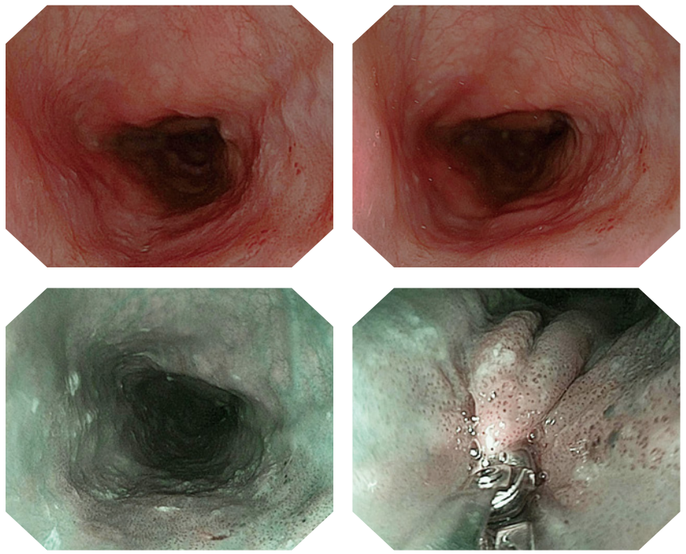
Histopathological results: high-grade squamous epithelial dysplasia/intraepithelial neoplasia with carcinoma in situ, forming superficial infiltrating squamous cell carcinoma in the esophagus.



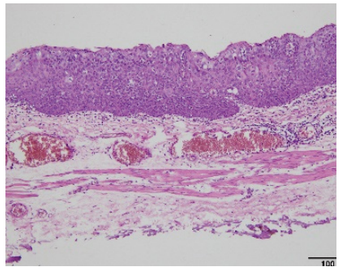
Clinical Case 5: Esophageal Early Cancer Intraepithelial Neoplasia

Dr. Shan Jing, Third People's Hospital of Chengdu City

Patient information: a 66-year-old female experienced recurrent dysphagia in the past 40 years, associated with seasons, emotions and diet, with reflux, heartburn, nausea and abdominal distension etc. Previous multiple endoscopic examinations were unremarkable. 2 months ago was presented with severe symptoms.
Past medical history: cholecystectomy and partial hepatectomy 10+ years ago due to gallbladder stones; no history of hypertension, diabetes, etc.
Endoscopic findings: gastroscopy revealed irregular morphology of the gastric angle. Esophageal iib lesion, mild chronic non-atrophic gastritis.
-under white light observation, a red-toned depressed lesion was seen, slightly yellow, with a granular surface and unclear borders, approximately 0.5 cm in size.
-under CBI observation, the lesion appeared tea-colored, with clearer borders than under white light. Two biopsies were taken. the gastric antrum mucosa was smooth, with speckled differentiation, and normal peristalsis.
-white light observation: gastroscopy revealed localized mucosal roughness and slight redness, 25-27 cm from the incisors.
-CBI observation: under CBI mode, no abnormalities were observed in the pharynx. At 25-27 cm from the incisors, a sheet-like tea-colored change, presenting as type iib, ipcl b1-type vessels, with clear borders, rough surface, and positive tatami sign, was observed, measuring 3 * 2 cm. the remaining segments showed normal morphology and mucosal color.



Histopathology results:
Consideration for intraepithelial neoplasia, requiring immunohistochemistry for assistance in diagnosis. Admitted for treatment with the diagnosis of "esophageal mass" from outpatient care.
Size of esd postoperative specimen: 3.8 cm × 2.1 cm × (0.1-0.25) cm
Lesion type: high-grade intraepithelial neoplasia
Lesion size: 2.1 cm × 0.8 cm



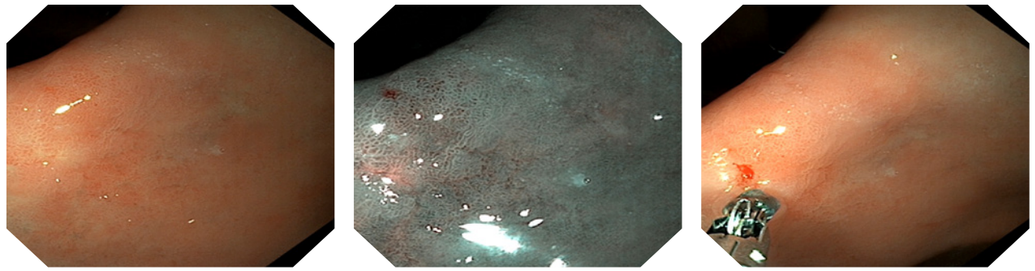
Clinical Case 6: Early Gastric Cancer at Gastric Angle High-grade Intraepithelial Neoplasia of Glandular Epithelium

Dr. Yang Mei, Chengdu Third People's Hospital

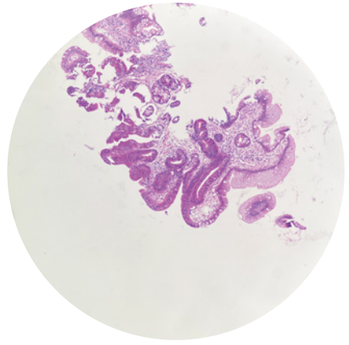
Patient information: a 68-year-old man complained about abdominal pain and constipation

Endoscopic findings: gastroscopy revealed irregular morphology of the gastric angle.

· Under white light observation, a red-toned concave lesion, slightly yellow, with a granular surface and indistinct borders, approximately 0.5 cm in size, was seen.
· Under CBI observation, the lesion appeared tea-colored, with clearer borders than under white light. Two biopsies were taken. The gastric antrum mucosa was smooth, red and white areas were seen, with speckled changes, and normal peristalsis.



Histopathology results:
The biopsy specimen shows an area of tumor-like changes within a background of intestinal metaplasia and atrophy. In this area, alterations in glandular structures and cell morphology are observed. Definitive diagnosis is made of high-grade intraepithelial neoplasia of glandular epithelium (according to who standards) and well-differentiated adenocarcinoma (according to japanese standards).



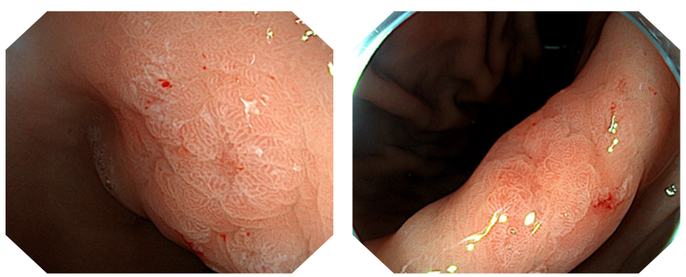
Clinical Case 7: Early Gastric Cancer at Gastric Angle

Dr. Chen Ziyang, Sichuan Provincial People's Hospital

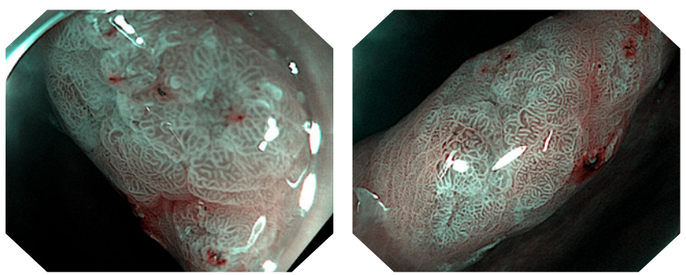
Patient information: a 48-year-old female was presented with complain of abdominal discomfort. Physical investigation was unremarkable. Past medical, personal and family history was inconspicuous.
Gastroscopy revealed irregular morphology of the gastric angle.

Endoscopic findings:

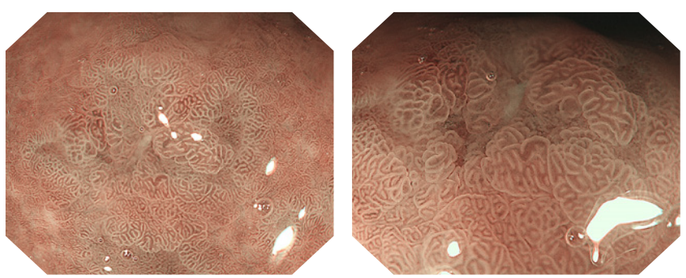
-white light observation: rough mucosa in the gastric angle with a iia lesion, approximately 1.0 cm in diameter.



-CBI observation: suspicious positive borders, local lesions showing slight tea-colored changes, increased glandular density, slightly disordered arrangement, and twisted, thickened microvessels. the patient had undergone an outpatient biopsy, and surface structural changes were considered reparative.

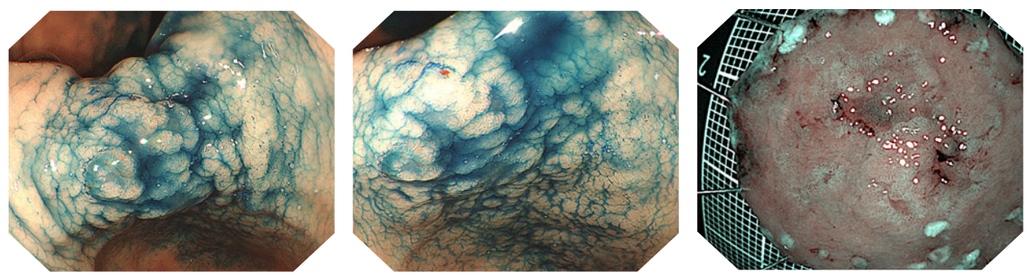


-magnification endoscopy observation: dl (±), imvp (+), imsp (±).

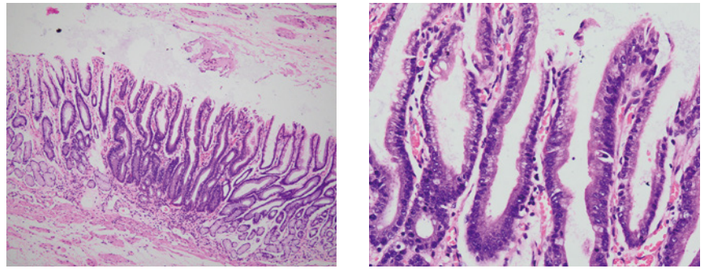


Low-grade Intraepithelial Neoplasia of Glandular Epithelium

-Lugol's iodine observation: dl (±), focal redness.



Histopathology results:
Tumor cells: muc2 (positive/cup cells), muc5ac (negative), muc6 (positive/60%), cd10 (positive/40%), ki-67 (approximately 30%), ck (positive). Submucosal muscularis: desmin (positive). No tumor infiltration. Vascular endothelium: d2-40 (positive), cd34 (positive). Tumor involvement observed. Low-grade intraepithelial neoplasia of the gastric angle.



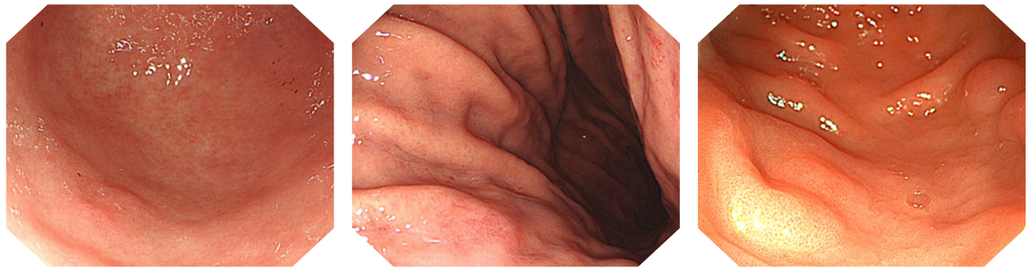
Clinical Case 8: Gastric Fundus Adenocarcinoma

Dr. Chen Ziyang, Sichuan Provincial People's Hospital

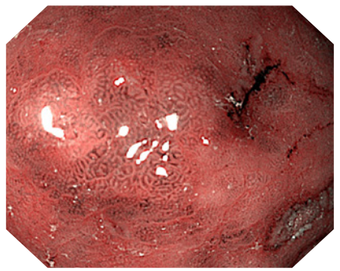
Patient information: a 76-year-old female underwent physical examination and revealed an elevated lesion at gastric fundus. Surgical history includes ectopic pregnancy, cesarean section 40+ years ago, cholecystectomy 10+ years ago, and colon cancer surgery 1+ year ago with 1 year of postoperative chemotherapy, which has now concluded.

Endoscopic findings:

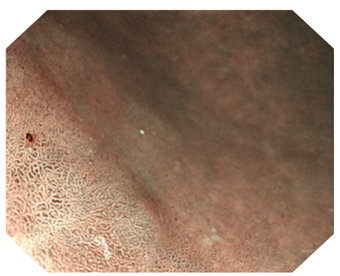
-white light observation: a iia lesion approximately 0.6 cm in diameter, with a slightly faded color change on the surface.



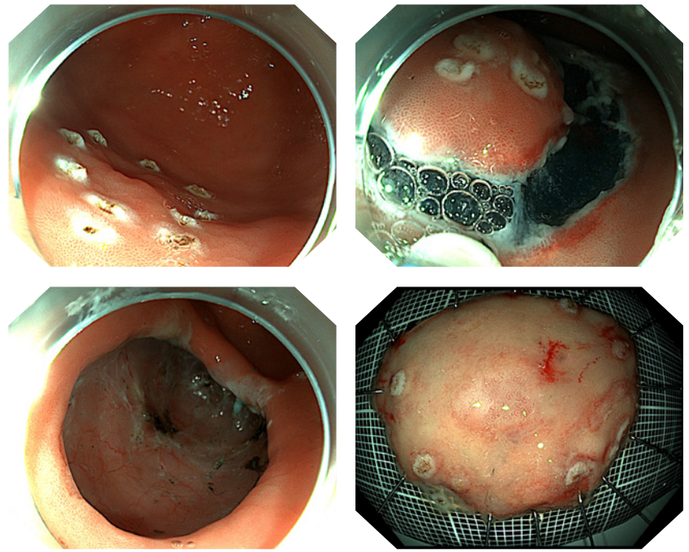
-CBI (under crystal violet staining) observation: curved and thickened microvessel shadows with clear borders.



-magnification endoscopy observation: the lesion showed no significant differences under magnification compared to routine gastroscopy.

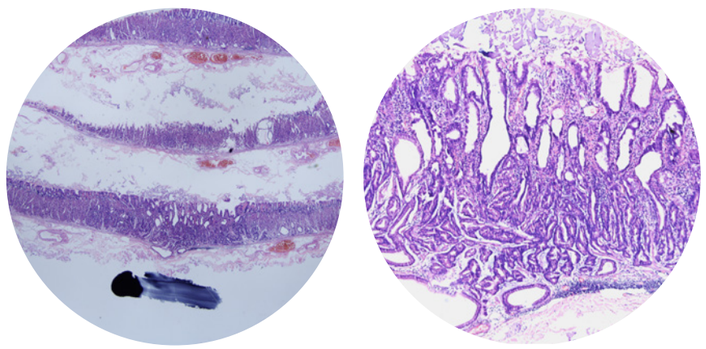


-esd was given to remove the lesion.



Histopathology results:

Gastric fundus tumor tissue cdx2 (negative); ki-67 (approximately 5-10%); cd31, cd34 (no intravascular tumor thrombus); d2-40 (no lymphatic vessel invasion); desmin (tumor involves submucosal muscle); muc2 (negative); muc6 (positive); p53 (wild-type); pepsinogen (partially positive); ck (positive), muc5ac (surface pit epithelium positive). Gastric fundus adenocarcinoma.



Clinical Case 9: Early Gastric Cancer

Dr. Zhao Ming, Third People's Hospital of Chengdu

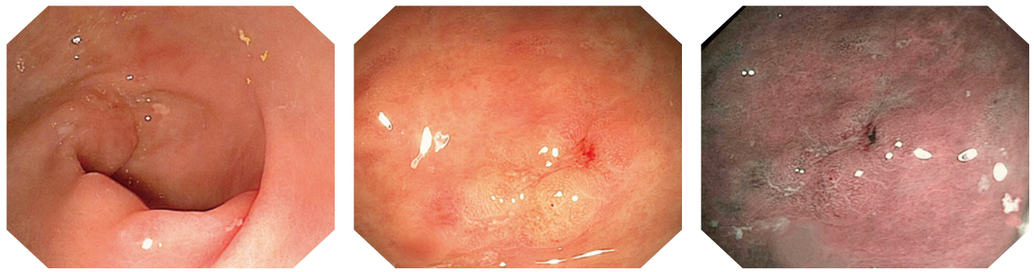
Patient information: a 71-year-old man presents with 4+ months history of bowel habit change.

Past medical history: hypertension diagnosed 2+ years ago, irregular blood pressure monitoring, and no medication. History of resection of intestinal mass (details unknown). Denies diabetes, coronary heart disease, or other significant medical history. Physical investigation was unremarkable.

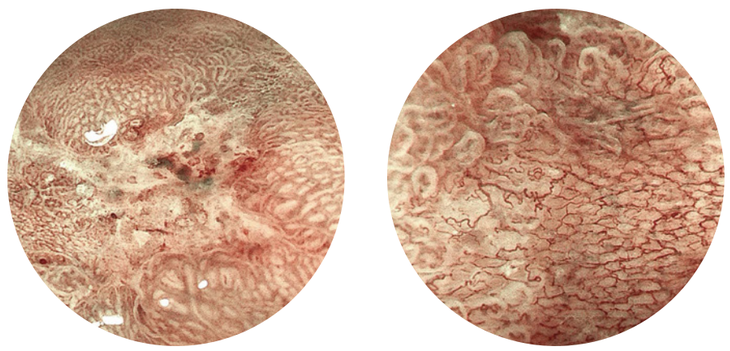
Family history: denies a history of tumors or hereditary diseases.

Endoscopic findings: gastroscopy revealed thin and rough mucosa in the gastric antrum, with a variegated appearance of red and white(mainly), extending to the upper part of the lesser curvature of the gastric body. Multiple red and depressed lesions were observed in the lesser curvature of the gastric body, gastric angle, and gastric antrum.

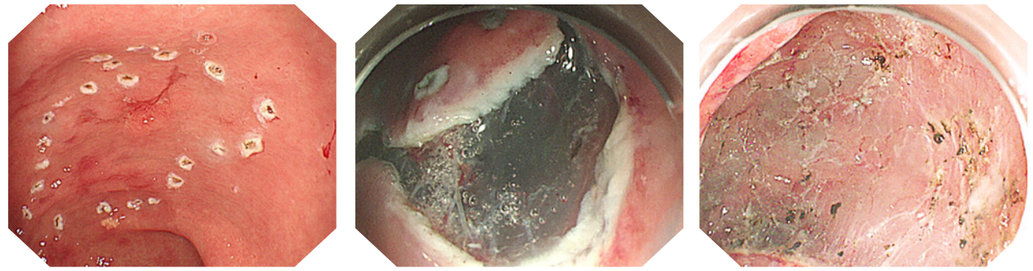
-CBI showed clear boundaries, and two biopsies were taken from the gastric body and gastric antrum, respectively.



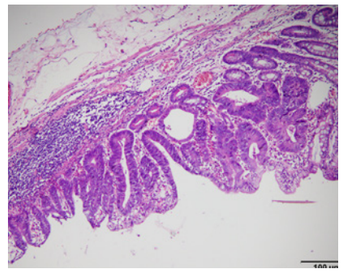
-magnification-CBI observation: in the lesser curvature of the gastric antrum, there was a iic lesion with a size of approximately 1.0 cm. white deposits were observed on the surface, and magnifying chromoendoscopy revealed irregularities in glandular structures and blood vessels within the lesion.



Superficial Infiltrating Squamous Cell Carcinoma



Histopathology results:
Squamous epithelial dysplasia/high-grade intraepithelial neoplasia with carcinoma formation, superficial infiltrating squamous cell carcinoma.



Clinical Case 10: Early Gastric Cancer at Gastric Lesser Curvature

Dr. Zhang Yingjie, Second Hospital of Chengdu

Patient information: female, age: 69, admitted with abdominal distension for 1+ month.

Past medical history: hypertension for more than 10 years, managed with medication, with controlled blood pressure.

Personal history: unremarkable.

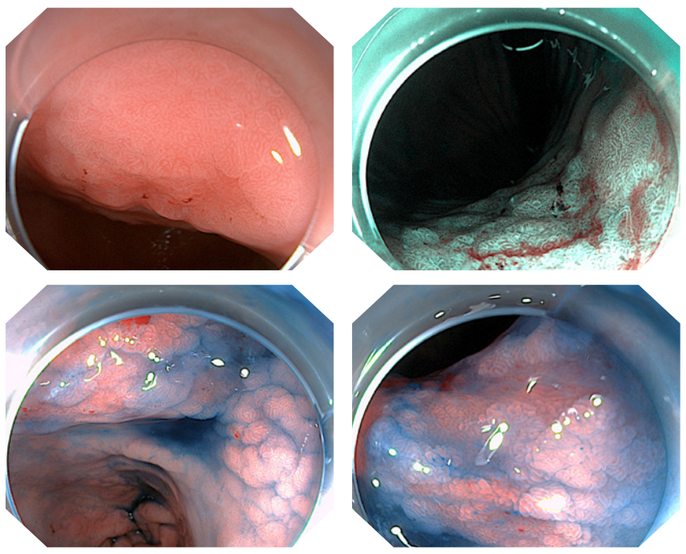
Family history: no significant family history.

Admission examination: the skin and mucosa were not pale. Superficial lymph nodes in bilateral neck, supraclavicular, axillary, and inguinal regions were not palpably enlarged. The abdomen was soft, with no tenderness, rebound tenderness, or muscle tension. no palpable masses were detected in the liver or spleen areas.

Admission diagnosis: 1. abdominal distension to be diagnosed. 2. hhypertension.

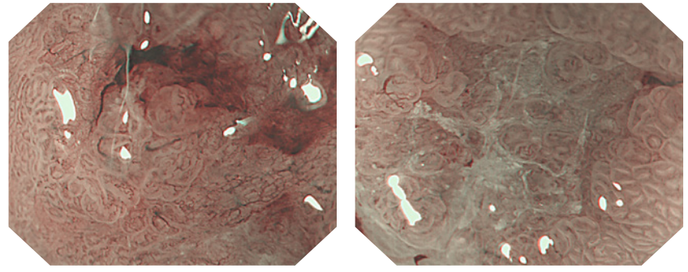
Endoscopic findings:

-white light endoscopy observation: in the lower part of the gastric body, near the gastric angle, there was local mucosal roughness, depression, and redness. the lesion exhibited local unevenness, and under cbi staining, the mucosa appeared rough with a brownish color change, and the boundary was relatively clear.
-under cbi observation: in the lower part of the gastric body, near the gastric angle, a lesion with a diameter of approximately iic+iib was observed. the boundary was relatively clear, and the local mucosa showed redness with erosion. after indigo carmine staining, the boundary of the lesion was relatively clear, but the staining agent did not adhere well to the local lesion.

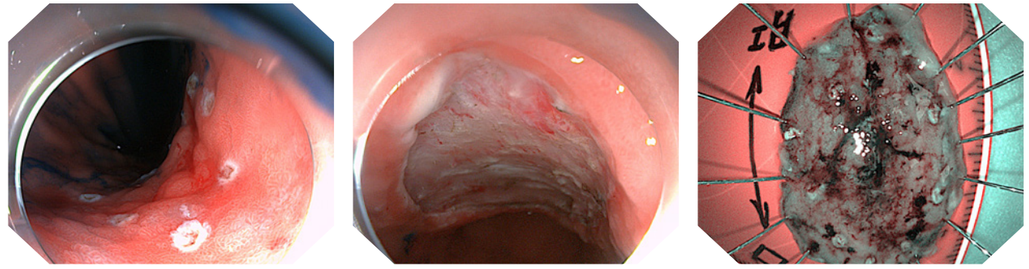


Gastric Angular Mucosal Adenocarcinoma

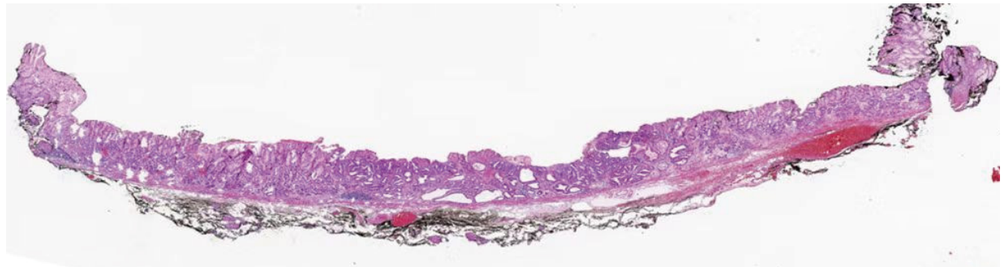
-magnification endoscopy observation: the boundary of the lesion was relatively clear, showing a "brownish" change with a "star-shaped" depressed edge. local erosion was visible, and the exposed part of the glandular structure was slightly blurred. The microvessels exhibited a "mesh pattern" change, and the edge of the lesion showed the formation of "wga."



-ESD (endoscopic submucosal dissection) procedure images: the boundary of the lesion was relatively clear. After Submucosal injection, the local elevation was feasible. The procedure included incision, dissection, and hemostasis along the marked point's outer edge by 0.5 cm.



Histopathology result:
Gastric angular mucosal adenocarcinoma (tube1 > tube2).



Clinical Case 11: Early Gastric Cancer at Gastric Lesser Curvature

Dr. Chen Ziyang, Sichuan Provincial People's Hospital

Patient information: a 66-year-old man, admitted due to elevated mucosa in the lesser curvature of the gastric body found during routine physical examination.

Past medical history: generally in good health with a history of hypertension treated with oral antihypertensive medication, claiming well-controlled blood pressure.

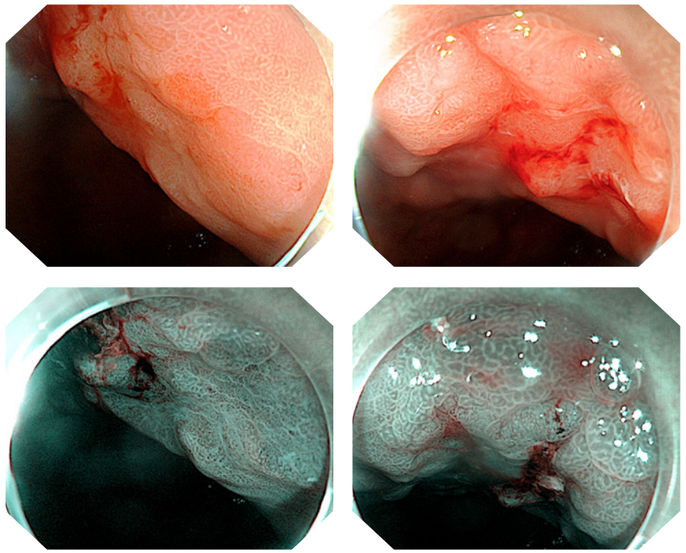
Personal history: born and raised in Aba Tibetan Autonomous Prefecture, Sichuan Province, with good lifestyle habits.

Family history: no history of similar diseases in the family.

Admission examination: the patient was conscious, with normal skin color, no rash, no subcutaneous bleeding or nodules, and no edema. Superficial lymph nodes were not palpable.

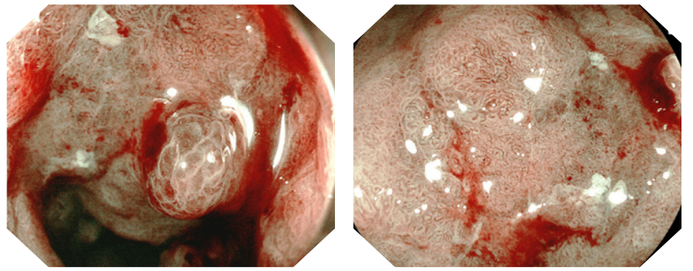
Endoscopic findings: gastroscopy revealed elevated mucosa in the lesser curvature of the gastric body (undetermined nature) and a polyp in the gastric antrum.

-white light endoscopy showed a IIc+IIa lesion on the lesser curvature of the gastric body, approximately 4.0x3.0 cm in size.
-CBI observation: the border was relatively clear, and the local lesion exhibited a brownish color change. increased vascular density, irregular distribution, and uneven blood vessel shapes were noted.

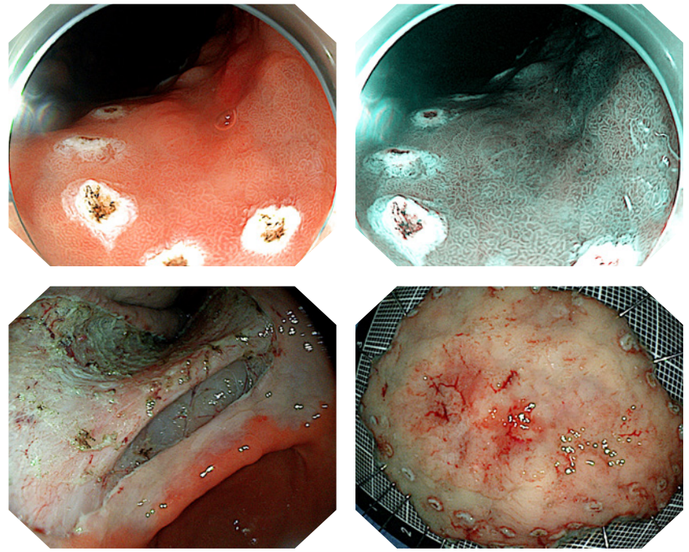


Epithelial Neoplasia with Moderately- to Well-differentiated Tubular Adenocarcinoma

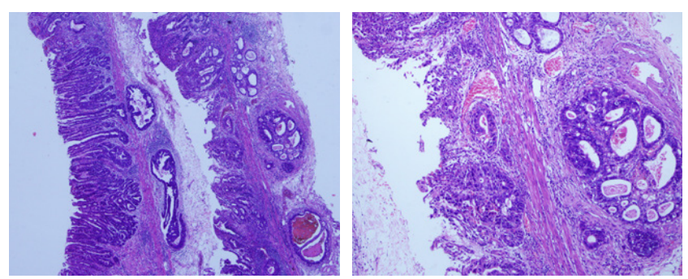
-magnifying endoscopy observation: dl (+), imvp (+), fnp (+)



-ESD was performed to remove the lesion



Histopathology result:
High-grade epithelial neoplasia with moderately to well-differentiated tubular adenocarcinoma.



Clinical Case 12: Colorectal carcinoma

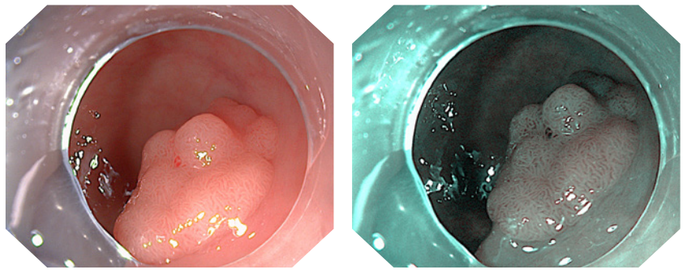
Dr. Zhang Yingjie, Second Hospital of Chengdu

Patient information: Male, Age 62, admitted for changes in bowel habits for 2+ months. Past medical, personal and family history were unremarkable.

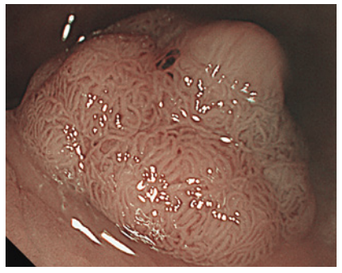
Admission examination: the abdomen was soft, without palpable masses, tenderness, rebound tenderness, or muscle tension. The liver and spleen were not palpable, and there was no tenderness upon percussion in the liver and kidney areas. No shifting dullness was observed. Digital rectal examination revealed a hard mass about 6 cm from the anal verge on the right lateral wall, with no local tenderness and acceptable mobility. No evident blood was observed upon withdrawing the gloved finger.

Endoscopic findings:

-white light endoscopy observation: in the rectum, approximately 6 cm from the anal verge, a laterally spreading tumor (lst) of about 1.5 cm in diameter was observed. the surface exhibited uneven nodular changes, with smooth mucosa and no apparent erosion or bleeding. in the mid-segment of the submucosal vascular network, after full inspiration and insufflation, the local mucosa was soft and exhibited good extensibility.
-CBI observation: after CBI staining, the lesion showed a brownish color change with a clear boundary. iiil and ivb glandular structures were visible.

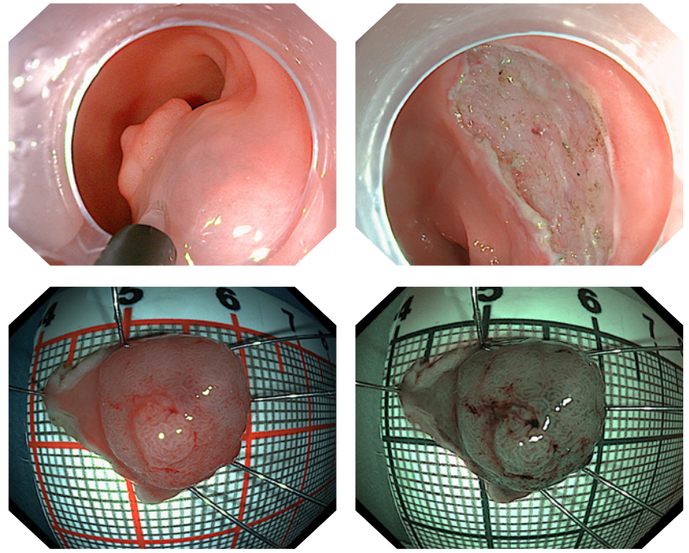


-magnification endoscopy observation: the glandular structures showed elongation, twisting, and fusion, classified as pp type iiil and ivb, and jnet type 2a.

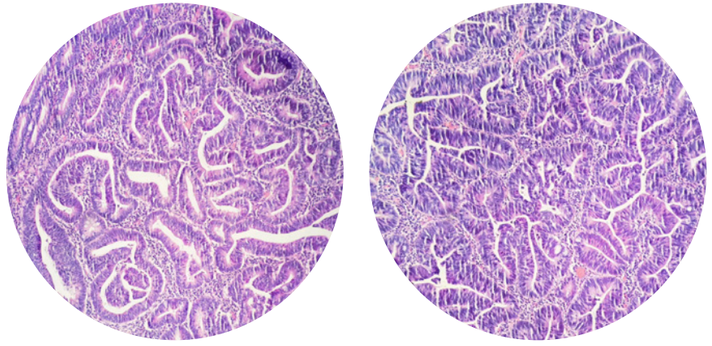


Rectal Villous Tubulovillous Adenoma

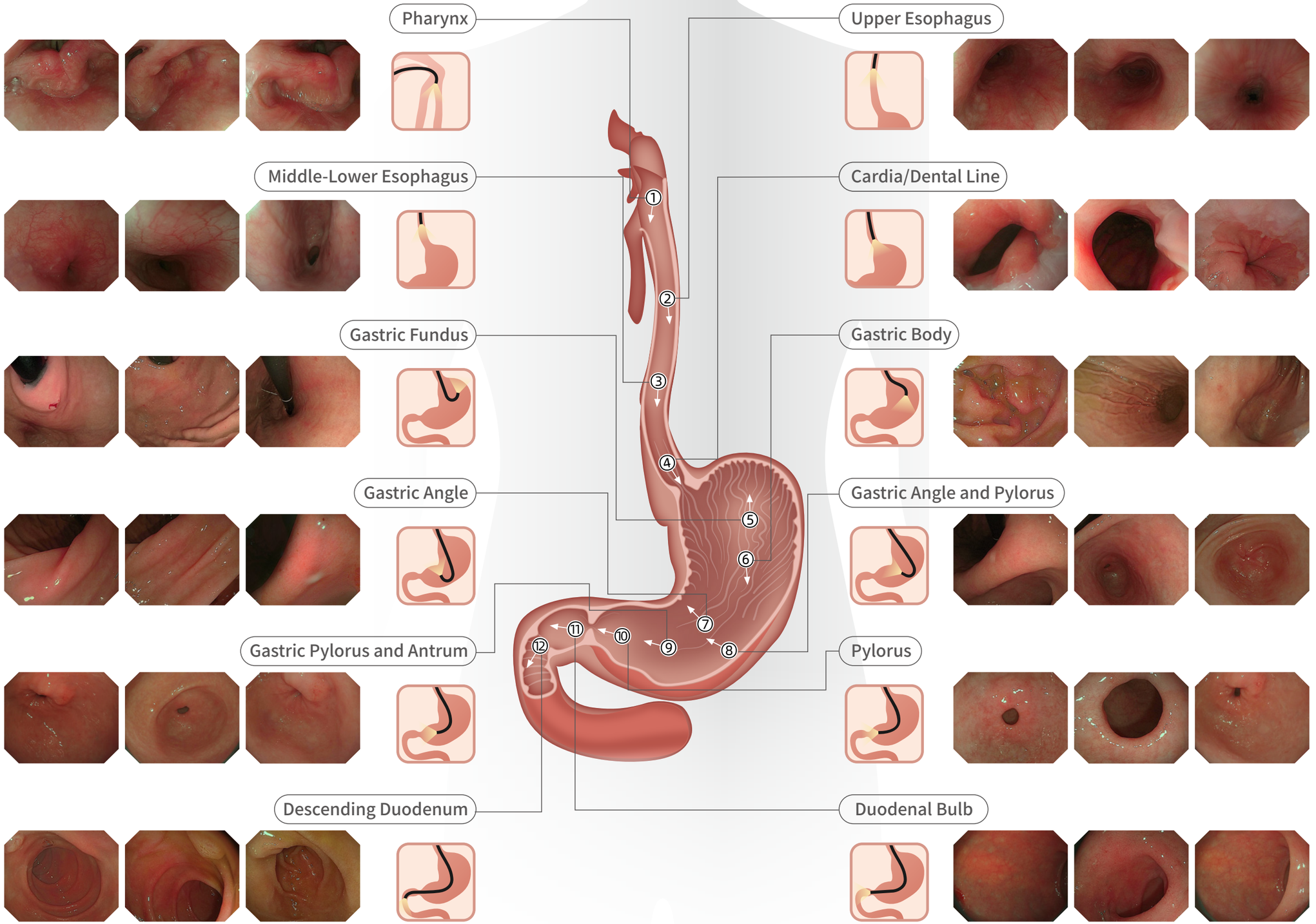
-interventional procedure: the endoscope's front end was fitted with a transparent cap. after submucosal injection, the lesion was circumferentially incised, followed by thorough submucosal dissection and hemostasis.



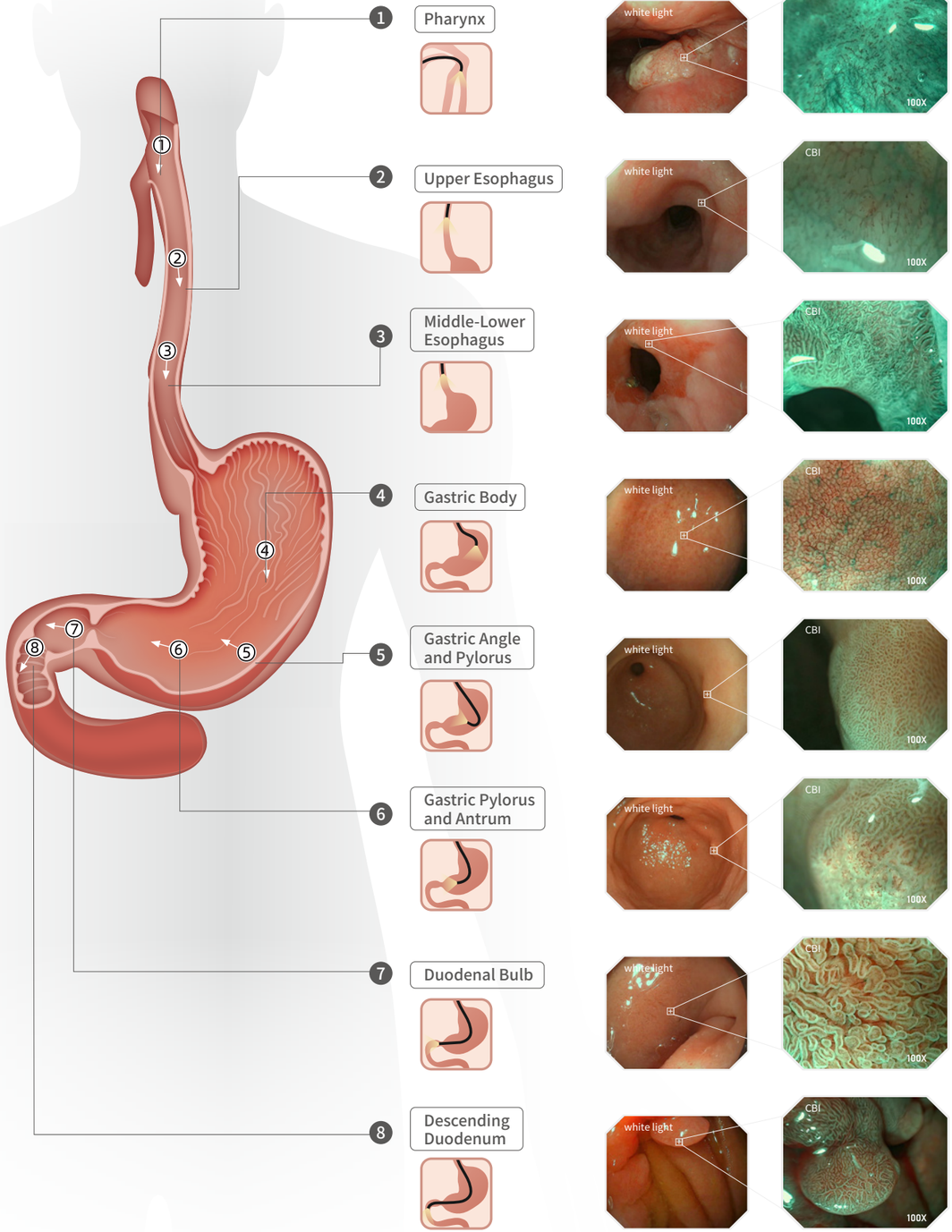
Histopathology result:
Rectal villous tubulovillous adenoma with high-grade intraepithelial neoplasia (hgin) and carcinoma transformation. The cancerous area measured approximately 0.2x0.22 cm, confined to the mucosal lamina propria, with no residual cancer observed in vertical and horizontal margins.



Upper GI Examination Standard Chart



100x Optical Magnification Examination Standard Chart



Lower GI Examination Standard Chart