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IMPORTANCE OF COLONOSCOPY IN THE EVALUATION OF IRON DEFICIENCY ANEMIA: A NON-ESOPHAGEAL MALIGNANCY IN A CASE OF PLUMMER-VINSON SYNDROME.

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Abstract:

Plummer-Vinson syndrome (PVS), often referred to as sideropenic dysphagia, is a medical disorder characterized by the presence of a web-like obstruction in the upper esophagus or hypopharynx, leading to difficulty in swallowing for those with chronic iron deficiency anemia. Dysphagia is significantly influenced by the existence of a web in the cervical esophagus and the irregular movement of the pharynx or esophagus. This illness typically has a pre-cancerous nature in relation to squamous cell carcinoma of the esophagus. However, it is even more uncommon for PVS to be accompanied by transverse colon cancer, which is a rare occurrence. This is a case involving a 67-year-old female patient who has been diagnosed with Plummer-Vinson syndrome. She visited the outpatient department for a follow-up after undergoing bougie dilatation. The patient presented with symptoms of bowel obstruction. She received a diagnosis of colon cancer and subsequently underwent a hemi colectomy to treat the condition.

Keywords: Plummer-Vinson syndrome; Transverse colon carcinoma; Hemicolectomy

INTRODUCTION

PVS is defined by difficulty swallowing caused by a web-like blockage in the upper part of the esophagus or hypopharynx in individuals with long-term iron deficient anemia.[1] Additionally, it is linked to mucosal lesions occurring in the oral cavity or throat. The syndrome has been recognized since the early 1900s. Plummer documented 21 cases at the beginning of 1912, where patients exhibited widespread enlargement of the esophagus and contractions of the upper esophagus, but without any anatomical stenosis.[2] The primary clinical significance of the condition is in its ability to be distinguished from other causes of dysphagia, such as malignant tumors or strictures. This is particularly important when dysphagia is the primary symptom being presented. Plummer-Vinson syndrome is frequently linked to a higher occurrence of hypopharyngeal or cervical esophageal cancer, sometimes it presents with gastric cancer. [11,12] However, the occurrence of Plummer-Vinson syndrome in association with colon cancer is uncommon.

Here we report an old lady who presented to gastroenterology OPD with complaints of vomiting and abdominal distension one month after her cricopharyngeal web dilatation.

Case report:
A 67-year-old female patient with a confirmed diagnosis of PVS presented to the medical gastroenterology opd initially with complaints of swallowing difficulty for the past two years, for solids greater than liquids, and was non-progressive with associated tablet dysphagia[6-7]. While presenting to the hospital patient was not on any medication for Plummer-vinision syndrome or Iron deficiency anemia. The patient complained significantly regarding swallowing difficulty starting with solids followed by semi-solids. A history of significant loss of weight was present. Treatment history was not significant. She was on a semi-solid diet for these complaints. There were no lower GI complaints. She had attained menopause 15 years back. On arrival patient's vitals were normal. Clinical examination revealed signs of anemia.[4] Systemic examination was normal. The patient was admitted to gastroenterology for UGI endoscopy. Routine investigation showed Microcytic hypochromic anemia accompanied by severe iron depletion **(Table 1)**. Urine analysis was normal.

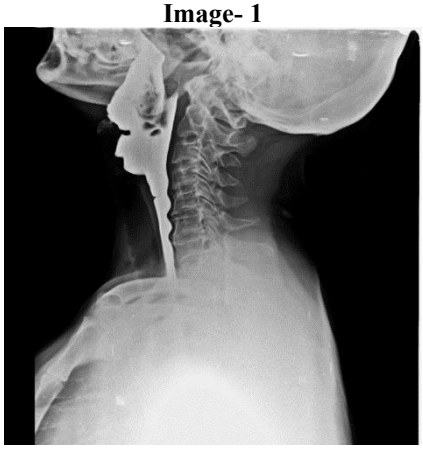
A shelf-like filling deficiency in the upper esophagus was revealed by a gastrointestinal radiography series barium swallow, suggesting the presence of a cervical oesophageal web **image-1**[13]. She was scheduled for bougie dilatation and Ugi scopy. [8,9] Upper GI scope showed a cervical web, scope couldn't be intubated. Guidewire was placed into the stomach under fluoroscopic guidance and over it SG (Savary -Gillard) dilatation was done serially up to 15 mm. Relook scope showed ruptured CP web with normal UGI SCOPY findings up to D2. She was started on a normal diet and she tolerated it. She was started on iron supplementation. After 1 month of the procedure, she came with complaints of vomiting, bowel distension, and constipation for two days. Abdominal X-ray was suggestive of dilated bowel loops. Contrast CT (CECT) abdomen was done. CECT abdomen revealed Short segmental circumferential irregular mural thickening noted involving the proximal transverse colon with upstream proximal dilation of large bowel loops. Features suggested primary neoplastic malignant etiology with no obvious distant metastasis of the proximal transverse colon causing large loop obstruction **Image -2.**

Based on CECT abdomen findings patient was planned for Laparotomy -Right extended Hemi colectomy. All pre-operative measurements were taken. Two pints of Packed Red blood cells (PRBC) transfusion were done. Post-transfusion no transfusion reactions were observed. Before surgery, the complete blood count showed Hb:8.1mg/dl, patient underwent an open extended right hemicolectomy. Site of tumor obtained in the transverse colon, extent resection done in 15cm proximal extent and 10cm distal colon**(image-4)**. Histopathological specimens were collected from the resected site and sent to the pathology lab under a sterile condition. Post-operatively patient started on third-generation IV cephalosporins and other supportive measurements were done. Histopathology report confirmed as Adenocarcinoma, G2, moderately differentiated. pT3 pN1b. **(Image-5)**. The POD-6 patient was started on IV iron supplements. The patient is planned to be started on adjuvant chemotherapy after consultation with medical oncology.

Table-1

Parameter	Value
Hemoglobin (Hb)	5.5g/dL
Ferritin	3.96ng/mL
Mean “Corpuscular Volume (MCV)	60.9fL
Mean Corpuscular Hemoglobin (MCH)	16.3pg
Serum Iron	11mcg/dL
Mean Corpuscular Hemoglobin Concentration (MCHC)	26.7g/dL
Total Iron Binding” Capacity (TIBC)	519mcg/dL
Red Cell Distribution Width (RCDW)	17.6%

Image- 1



A barium swallow picture showing an esophageal web.

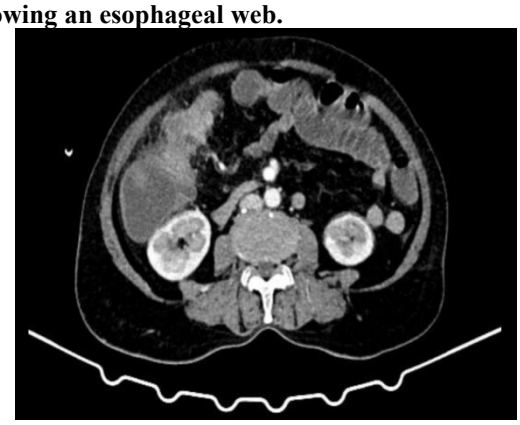


Image -2

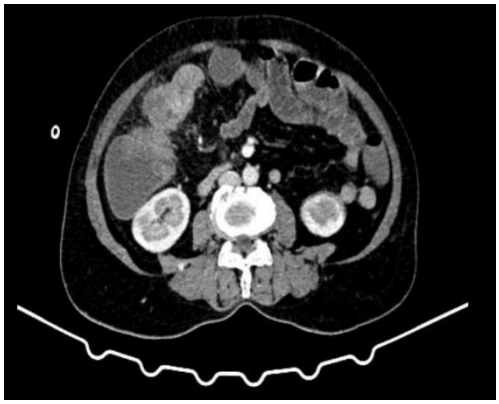


Image-3

CECT abdomen images showing circumferential irregular mural thickening noted involving the proximal transverse colon with upstream proximal dilation of large bowel loops.

Image-4
Image 4shows a Post-operative gross image of a resected right hemicolectomy.

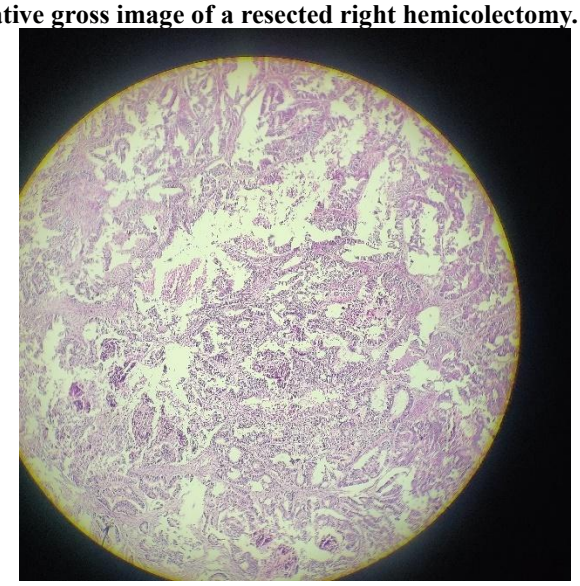


Image-5
Histopathology image showing adenocarcinoma features with moderately differentiated.(Image-5)

DISCUSSION

Iron deficiency anemia, mucosal lesions of the oral cavity or throat, and dysphagia are the characteristics of PVS, also known as sideropenic dysphagia. There has been much discussion about the syndrome eponym. The condition known by its most common name, PVS, is named for two 19th-century Mayo Clinic physicians: Porter Paisley Vinson and Henry Stanley Plummer. A group of individuals with chronic iron deficiency anemia, dysphagia, and upper esophageal spasms without anatomic stenosis were recorded by Plummer in 1912, and they were labeled as hysterical.Vinson reported another case of "angulation" of the esophagus in 1919 and attributed Plummer's previous account with the initial description of this entity. Subsequently, he published a number of casesmostly of womenof dysphagia patients who were effectively treated with bougies.

PVS has been less common in recent years due to advancements in nutrition, medical technology, fewer pregnancies, and better prenatal care initiatives.The majority of patients are females over the age of 40, constituting 75% of the total.While the condition usually does not show any symptoms, individuals may occasionally experience weakness, difficulty swallowing, and a decrease in body weight. In addition, there may be visual problems, cheilosis, atrophic glossitis, early tooth loss, conjunctivitis, dermatitis seborrhea, hyperkeratosis, keratitis, blepharitis, and in 30% of instances, splenomegaly. Endoscopy or radiologic techniques

are employed to validate the medical condition of the upper esophageal web. However, the radiologic approach is more appropriate because endoscopy frequently fails to detect benign strictures and cannot confirm the majority of motility abnormalities. Using esophagography, the web is typically seen as a thin membrane that spans the esophagus at the upper esophageal below the cricoid.

Iron deficiency in Plummer-Vinson syndrome isa common presentation where patients present with anemia features like easy fatigability, loss of weight pallor, breathlessness other factors. But when comes to patients with PVS patients present with dysphagia, esophageal webs, esophageal motility disturbances, and post-cricoid webs. [14,15] Many reports showed that in correcting iron deficiency,patient improvement was seen in the disappearance of esophageal motility disturbances and dysphagia. [7,10]

PVS is known to be linked to an elevated risk of upper gastrointestinal tract cancers; 3–15% of cases of upper esophageal carcinoma occur in patients with PVS.[11] It is uncommon, nevertheless, for Plummer-vision syndrome to appear in this peculiar way in combination with colon cancer. There have only been a handful of documented cases thus far.As stated in the American Journal of Case Reports.[17]

Ref number	Age &Gender	Gastrointestinal symptoms	Other findings	Final Diagnosis
18	66yrs/Female	Dysphagia to solid foods	Pallor, weight loss, and glossitis	Plummer-Vinson syndrome with Adenocarcinoma of the colon.

In the United States, colon cancer ranks as the 3rd mostfrequent cancer to be diagnosed in both men as well as women. Older age, inflammatory bowel diseases, hereditary disorders, “a family history of colorectal cancer or polyps, a high-fat, low-fiber diet, a sedentary lifestyle, diabetes, obesity, smoking, alcohol usage, and radiation therapy for cancer are risk factors. Consistent changes in bowel habits, rectal bleeding or blood in the stool, ongoing discomfort in the” abdomen, a sensation that the gut never empties, exhaustion, or weakness, and unexplained weight loss are all possible signs of colon cancer.

The ACG guidelines' recommendation that transverse colon cancer be discovered incidentally in a patient with PVS highlights how important they are. In cases of iron-deficiency anemia in men and women going through menopause without symptoms, bidirectional endoscopy is preferred over no endoscopy. Strong recommendation, moderate-quality evidenceof thorough diagnostic evaluation in patients presenting with iron deficiency anemia, especially those with known risk factors for malignancy. Probably an early diagnosis of colon carcinoma by diagnostic colonoscopy at the time of dilatation would have prevented the patient from landing with intestinal obstruction ultimately requiring emergency hemicolectomy and the associated morbidity of an emergency procedure. [5] There were one -two cases reported in 2018 which was discussed in The American Journal of Medicine.[18] The patient's case highlights the rare but possible relationship between PVS and colorectal carcinoma, necessitating awareness and careful screening for potential malignancies in such patients.

CONCLUSION

PVS is an uncommon condition that has important medical consequences, especially because it is linked to tumors in the upper digestive system. The incidental finding of transverse colon carcinoma in a patient with PVS is exceptionally rare, emphasizing the importance of comprehensive diagnostic evaluation in these patients. Early identification and treatment of malignancies in PVS patients are crucial for improving outcomes. This example emphasizes the importance of doctors being alert for gastrointestinal cancers in patients who have PVS and iron deficiency anemia. It also underscores the need for clinicians to perform bidirectional endoscopy, even if the main symptoms are connected to the upper digestive system.

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