



# **“Unexpected Outcome”**

**GIT Block, PBL; Case 2**

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## GIT Block, PBL; Case 2

### "Unexpected Outcome"

#### Color Guide:

- **Red:** Relatively important & mentioned in case tutorials.
- **Black:** Questions.
- **Blue:** Answers (mentioned in case tutorials).
- **Green:** Additional answers/notes.
- **Orange:** Explanation.

#### **Learning issues:**

- 1) Link the anatomy and histology of the large bowel with physiologic functions.
- 2) Discuss the pathology of colonic polyps, and colorectal cancer.
- 3) Construct a mechanism showing how a colon cancer occupying the sigmoid region resulted in patient's symptoms, signs and laboratory results.
- 4) Discuss mechanism of blood loss and investigations needed for patient with blood loss anemia.
- 5) Discuss the process of iron absorption, metabolism, and common causes of iron deficiency anemia.
- 6) Construct a brief management plan showing management goals, and management options for a patient with colon cancer.
- 7) Discuss the importance of public awareness about early detection of colon cancer.

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### New terms

<b>Bowel habits</b>	Frequency of Bowel Movements
<b>Diarrhea</b>	A condition that involves the frequent passing of loose or watery stools
<b>Constipation</b>	A condition characterized by inability to pass stools that become hard and more difficult to pass
<b>Colonoscopy</b>	Is the endoscopic examination of the large bowel and the distal part of the small bowel with a CCD camera or a fiber optic camera on a flexible tube passed through the anus.
<b>Mucous</b>	A slippery secretion produced by, and covering, mucous membranes. Mucous fluid is typically produced from cells found in mucous glands.
<b>Irritable bowel syndrom</b>	A symptom-based diagnosis characterized by chronic abdominal pain, discomfort, bloating, and alteration of bowel habits.
<b>Colonic polyps</b>	A polyp (fleshy growth) occurring on the lining of the colon or rectum
<b>Palpable lymph node</b>	enlarged lymph nodes
<b>Anal fissure</b>	Break or tear in the skin of the anal canal
<b>Shifting dullness on percussion</b>	Shifting dullness refers to a sign, elicited on physical examination, for ascites (fluid in the peritoneal cavity)
<b>Hypochromic microcytic anemia</b>	<p>Hypochromic anemia is a generic term for any type of anemia in which the red blood cells (erythrocytes) are paler than normal. (Hypo- refers to less, and chromic means color.) A normal red blood cell will have an area of pallor in the center of it; in hypochromic cells, this area of central pallor is increased. This decrease in redness is due to a disproportionate reduction of red cell hemoglobin (the pigment that imparts the red color) in proportion to the volume of the cell. In many cases, the red blood cells will also be small (microcytic), leading to substantial overlap with the category of microcytic anemia. The most common causes of this kind of anemia are iron deficiency and thalassemia.</p> <p>Hypochromic anemia was historically known as chlorosis or green sickness for the distinct skin tinge sometimes present in patients, in addition to more general symptoms such as a lack of energy, shortness of breath, dyspepsia, headaches, a capricious or scanty appetite and amenorrhea.</p>



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### Case Scenario

#### Key Information:

- 1) 54 year old.
- 2) Male.

#### Presenting Problems

- 1) Per-rectal bleeding.
- 2) Weight loss.
- 3) Changes in his bowel habits.

#### History:

- 1) Feels tired and has no energy to do his usual daily work.
- 2) Constipation for 2-3 days followed by diarrhea for another 2-3 days.

Past medical history: Irritable bowel syndrome for 10 years.

Family history: **His brother has colonic polyp.**

Alcohol and smoking: He smokes 20 cigarettes a day for the last 20 years.

#### Examination:

1. **Body mass index** = 31Kg/m<sup>2</sup> (**normal range: 18.5 – 24.9 so he's slightly obese**)
2. **Vitals signs:** Normal.
3. **Digital per-rectum examination:** Fresh blood on the gloved examining.

#### Investigation:

1. **CBC & Blood film:** **Microcytic hypochromic anemia.**
2. **Liver function tests:** Normal.
3. **Colonoscopy:** A mass is seen in sigmoid region, its surface is irregular and shows multiple ulcers, necrosis and bleeding area.
4. **Histopathology:** Adenocarcinoma.
5. **C.T. scan:** A tumor mass and multiple metastatic masses in the abdominal lymph nodes.

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### Questions

Before answering the questions below, please read tutorials 1 and 2.

**Q1: What's the most likely diagnosis of this case?**

Colonorectal cancer.

**Q2: What are some physiological factors that could affect normal bowel habits?**

- 1) Travel.
- 2) Change in food type.
- 3) Stress.
- 4) Exercise.

**Q3: How is the body weight maintained?**

By keeping the balance between energy gain and loss.

**Q4: How does cancer cause bleeding?**

Could be due to invasion of blood vessels or due to formation of new vascularization and rupture.

**Q5: What kind of anemia does this patient have?**

Blood loss anemia. (by cancer)

**Q6: What is the significance of pallor of conjunctivae and mucous membranes?**

It may be evident in:

- 1) Shock.
- 2) Hypotension.
- 3) Anemia.

**Q7: What are some possible causes of this patient's iron-deficiency anemia?**

Blood contains iron within red blood cells. So if a person loses blood, he or she **will lose some iron as well.**

**Q8: Could anemia be hereditary? Yes, an example of this is "Thalassaemia".**

**Q9: Why do we ask for CBC?**

- 1) To confirm anemia.
- 2) Differentiate types of anemia.
- 3) Information about presence/absence of other types of blood cells.

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**Q10: What is the significance of mean cell volume (MCV)?**

Low (small) → seen in: Iron deficiency anemia or thalassaemia.

High (large) → seen in: Vit B12 deficiency or folate deficiency.

**Q11: How is the blood film useful?**

**Microcytic hypochromic** changes indicate Iron deficiency anemia & thalassaemia.

**Macrocytosis with hypersegmented neutrophils** indicates Vit B12 & folate deficiency.

**Q12: What are some possible causes of this patient's tiredness?**

Cancer & anemia.

**Q13: What are the risk factors of developing colorectal cancer?**

Obesity, smoking, alcoholism, being inactive physically, type 2 diabetes, elderly, **family history of colorectal cancer or adenomatous polyps**, personal history of inflammatory bowel disease, or colorectal polyps or colorectal cancer.

**Q14: What is the significance of liver function test results?**

They are used to determine if the liver is functioning normally or if it's diseased/injured.

**Q15: What was the investigation requested by the doctor to confirm the diagnosis?**

**Polyp biopsy.**

**Q16: What kind of diet that may increase the risk of developing colorectal cancer?**

A diet that is rich in fat, red meat & low in fibers.

**Q17: What was the name of the method that the doctor requested to detect the lining of the colon as well as taking the biopsy from these regions?**

Colonoscopy.

**Q18: What are the abnormalities seen in colonoscopy of this case?**

A mass is seen in sigmoid region, its surface is irregular and shows multiple ulcers, necrosis and bleeding area.

**Q19: How can we manage this patient's condition?**

Surgical resection of the malignant areas of colon (**colectomy**) and because of the spread of the cancer cells to the lymph nodes, **chemotherapy** is needed.

**Q20: What is meant by "stoma formation"?**

A temporary opening of the terminal end of the intestine into the anterior abdominal surface.

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**Q21: What was the name of the chemotherapy drug in this case?**

**5- Flurouracil.** (for 6 months)

**Q22: What do we supply in order to reduce 5- flurouracil toxicity?**

**Folinic acid.**

**Q23: What's the significance of the tumor marker "carcino-embryonic antigen" (CEA)?**

It is typically associated with certain tumors and the developing fetus.

**Q24: What conditions can cause an elevated CEA?**

Both benign and malignant (harmless and cancerous) conditions can increase the CEA level. The most frequent cancer which causes an increased CEA is **cancer of the colon and rectum**. Others include cancers of the pancreas, stomach, breast, lung, and certain types of thyroid and ovarian cancer. Benign conditions which can elevate CEA include smoking, infections, inflammatory bowel disease, pancreatitis, **cirrhosis of the liver**, and some benign tumors in the same organs in which an elevated CEA indicates cancer.

**Chemotherapy and radiation therapy** can cause a temporary rise in CEA due to the death of tumor cells and release of CEA into the blood stream.

**Q25: What methods are used to screen people for colorectal cancer?**

- **Colonoscopy.**
- **Genetic screening.**
- Fecal occult blood test. (FOBT)
- Sigmoidoscopy.
- Double contrast barium enema (DCBE)

## General Notes

- 70% of colorectal carcinomas are found in rectum, rectosigmoid and sigmoid colon.
- Mucinous adenocarcinoma secrete abundant mucin that may dissect through cleavage planes in the wall.
- **Left-sided** carcinomas tend to be annular, encircling lesions with early symptoms of obstruction. While **right-sided** carcinomas tend to grow as polypoid, fungating masses, and are associated with anemia.