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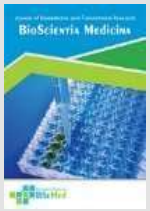

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The Complexities of Colorectal Cancer: A Case Report

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A B S T R A C T

Background: Colorectal cancer (CRC) is a malignancy that originates from the colon tissue (ascending, transverse, descending, sigmoid colon) and rectal tissue. Colorectal cancer is the fourth most common cancer in the world, and the second leading cause of cancer death. In Indonesia (2020), colorectal cancer was ranked sixth of the all malignancy diagnoses with a total of 17,368 new cases (4,4%). **Case presentation:** a case of colon cancer (mucinous adenocarcinoma) in a 70 year old woman. Diagnosis was based on anamnesis of the presence onf intermitten abdominal pain, a mass in the right iliac region of the abdomen, and defecation accompanied by blood. On physical examination, there was tenderness and a mass in the right iliac region, and a positive Carnett's sign. computer tomography (CT) of the urinary tract without contrast was performed and revealed a mass was found in the right abdomen, suspicious for the ascending colon and hepatic flexure of the colon, a cyst with a diameter of ± 3cm in the right kidney. **Conclusion:** Anatomical patology (microscopic) results showed mucinous adenocarcinoma. The treatment for this patient was exploratory laparotomy, right hemicolectomy, and end to end anastomosis.

1. Introduction

Colorectal cancer (CRC) is a malignancy that originates from the colon tissue (ascending, transverse, descending, sigmoid colon) and rectal tissue.[1] Most colon cancers are classified as adenocarcinomas (composed of glandular epithelium) and have the ability to secrete varying amounts of mucus.[1,2] Adenocarcinoma originates from epithelial cells in the colorectal mucosa. Mucinous adenocarcinoma (MAC) is a subtype of adenocarcinoma characterized by >50% of the tumor tissue being extracellular mucin components.[3] Colorectal cancer is one of the most common malignancies in the world and the second leading cause of cancer death in men and women in Europe.[1] Based on the GLOBOCAN 2020 survey, the incidence of CRC worldwide is in fourth place among total cancer diagnoses with a number of 1,880,725 (10%) and is the second leading cause of death due to cancer in the world with a number of 1,071,232 (9.4%). In Indonesia in 2020, colorectal cancer was in fourth place among all cancer diagnoses, with a total of 33,427 (8.4%) new cases.[4] The occurrence of MAC in CRC in Asia is 3.9% and 10%-13.6% in Europe and America. MAC is classified into 2 types: high grade and low grade.[5]

The cause of CRC is still not known for certain, but there are several related risk factors, namely genetics, lifestyle, and non-cancer diseases, such as inflammatory bowel disease (IBD), colon polyps, and diabetes mellitus.[6,7] The diagnosis of CRC can be made based on the history, physical examination, and supporting examinations. In the history and physical

examination, you may find defecation accompanied by blood, changes in defecation and/or diarrhea for at least 6 weeks, bloating, nausea, vomiting, and a palpable mass in the abdomen, and if it continues, it can cause anemia or sudden weight loss. progressive.[2,7] Supporting examinations that can be carried out are blood tests, fecal occult blood, and radiological examinations such as barium enema, CT colonography, abdominal CT scan, and biopsy to help confirm the diagnosis.[2,5] Treatments that can be given to CRC include surgery and adjuvant chemotherapy. Surgery such as total resection of the tumor can be performed if possible, and then a biopsy is carried out to determine the type of cancer and metastases. Studies show that patients with early CRC who receive surgical-based therapy can have improved survival rates. Meanwhile, chemotherapy can improve the quality of life and extend the life span of patients with advanced-stage CRC.[7] Considering the high number of CRC cases and the cause of one of the most deaths due to cancer in the world, here is a case of a patient with colorectal cancer.

2. Case Presentation

A female patient, S, 70 years old, came to the RAA Soewondo Pati Regional General Hospital polyclinic on December 19th, 2022, with the main complaint of lower right abdominal pain. The patient has experienced abdominal pain for the last 1 month. The pain feels like being stabbed and comes and goes. The pain feels worse during activity and gets better when resting. Complaints are accompanied by a lump in the lower right region of the stomach. The lump has been felt for approximately 2 months. Initially, the lump was small, but in the last 1 month, the lump felt like it was getting bigger. Complaints are also accompanied by loose stools mixed with blood, nausea, and body feelings. The patient did not complain of weight loss. The patient underwent treatment for the current complaint at a private hospital about 1 month ago, and there was no improvement. The patient has a history of hypertension. The patient denied a history of diabetes, cholesterol, liver, gout, kidney and lung disease. A history of similar complaints or a history of malignancy in the patient's family members was denied. The patient has a history of consuming foods low in fiber, such as vegetables and fruit, and rarely consumes water. The patient also consumed alcoholic drinks and smoked.

On physical examination, the general condition appeared to be moderately ill with compos mentis consciousness, blood pressure 160/110 mmHg, pulse 85 times per minute regular, adequate content, breathing 20 times per minute, body temperature 36.6°C, and oxygen saturation 99% room water. On examination of the head, it was found that both conjunctivae appeared anemic. On abdominal examination, percussion found tympanic, positive tapping pain in the right iliac region, positive liver dullness, and negative shifting dullness. On palpation, it was soft, with positive tenderness in the right iliac region, a palpable mass in the right iliac region, positive Carnett's sign, and no muscular defansions were found. Rectal toucher examination was found to be within normal limits. In a laboratory examination carried out on December 12th, 2022, the leukocyte count was 41,200/mm^3; hemoglobin 10.4 g/dL; hematocrit 30%; MCV 55.2 fl; MCH 19.2 pg; Platelets 620,000/µL; Potassium 3.57 meq/l; instant blood sugar (GDS) 92 mg/dl. The results of the chest x-ray examination on December 2nd, 2022, were within normal limits. The results of a CT-Scan examination of the urinary tract without contrast on the examination date of November 21st, 2022, showed a mass in the right abdomen, suspicious for the ascending colon and flexura hepatica of the colon, a simple cyst with a diameter of ± 3 cm in the right kidney, no stones were seen, a picture of hydronephrosis in the right kidney and left, signs of obstruction in the right and left ureter, and no visible stones in the urinary bladder.

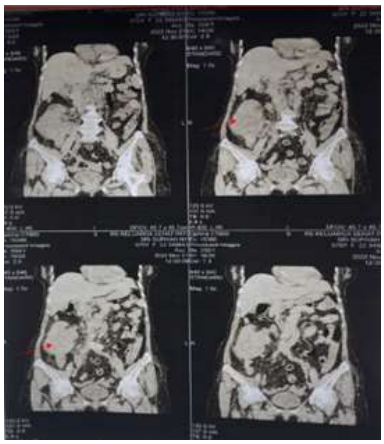

Figure 1. CT scan of the urinary tract without contrast.

Based on the history, physical examination and supporting examinations, a diagnosis of ascending colon tumor was made. The patient was planned for surgical therapy and given pre-operative therapy such as monitoring general condition and vital signs, checking post-transfusion hemoglobin, Ringer's lactate infusion 20 drops per minute, Ezola injection 40 mg, ceftriaxone injection 2 gr.

On December 12 2022, an exploratory laparotomy procedure was carried out as well as a right hemicolectomy and end to end anastomosis. An incision is made on the medial abdominal wall approximately 20 cm deepened until the peritoneum is opened. Then an exploration was carried out with the results of finding a mass with a diameter of 15 cm in the ascending colon and lymph nodes. An omentectomy was performed, then the tumor was removed and a right hemicolectomy and end to end anastomosis were performed. Tumor samples are sent for anatomical pathology examination.

Figure 2. Exploratory laparotomy procedure as well as right hemicolectomy and end to end anastomosis.

Figure 3. Mass with a diameter of 15 cm in the ascending colon and lymph nodes.

The results of the anatomical pathology examination are as follows: microscopically, the tumor mass is lined with a single layer of goblet columnar epithelium. Some are hyperplastic, with increased N/C. The nuclei are round, oval, pleomorphic, hyperchromatic, have coarse chromatin, vesicular, prominent nucleoli, accompanied by mitosis, and arranged villoglandular. Some were cribriform, and some floated among extracellular mucin pools (>50%) and grew invasively to the subserosal layer, so the conclusion was that mucinous adenocarcinoma metastasized 9 out of 11 lymph nodes.

3. Discussion

Colorectal cancer (CRC) is a malignancy that originates from the colon tissue (ascending, transverse, descending, sigmoid colon) and rectal tissue.[1] Most colon cancers are classified as adenocarcinomas (composed of glandular epithelium) and have the ability to secrete varying amounts of mucus.[1,2] Adenocarcinoma originates from epithelial cells in the colorectal mucosa. Mucinous adenocarcinoma (MAC) is a subtype of adenocarcinoma characterized by >50% of the tumor tissue being extracellular mucin components.[3] Colorectal cancer is one of the most common malignancies in the world and the second leading cause of cancer death in men and women in Europe and America.[1,8] Based on the GLOBOCAN 2020 survey, the incidence of CRC worldwide is in fourth place among total cancer diagnoses with a number of 1,880,725 (10%), and is the second leading cause of death due to cancer in the world with a number of 1,071,232 (9.4%). In Indonesia in 2020, colorectal cancer was in fourth place among all cancer diagnoses, with a total of 33,427 (8.4%) new cases.[4] The occurrence of MAC in CRC in Asia is 3.9% and 10%-13.6% in Europe and America. MAC occurs mostly in the right hemicolon; This disease is diagnosed at an advanced stage and is more common in women. In addition, research in Germany observed that there was no difference in age in patients with MAC and NMAC, while research in America observed that the proportion of MAC occurred more in patients aged >65 years.[5,9] In this case, the patient was a 65-year-old woman and was diagnosed with MAC based on the results of anatomical pathology.

The cause of CRC is still not known for certain, but there are several related risk factors, namely genetics, lifestyle, and non-cancer diseases, such as inflammatory bowel disease (IBD), colon polyps, and diabetes mellitus.[6,7] It is estimated that 2-8% of CRC cases develop from genetic factors such as familial adenomatous polyposis (FAP) and hereditary nonpolyposis colorectal cancer (HNPCC) such as Lynch syndrome; Non-cancer diseases such as IBD (Crohn's disease and ulcerative colitis) are in third place as the highest risk factor for the development of CRC. Individuals with IBD have a 2-6 times higher risk of developing CRC compared with healthy individuals. The risk of developing CRC due to IBD is related to the duration and severity of the disease; Adenomatous polyps have the potential to become malignant, and it takes around 5-15 years. It is estimated that approximately 95% of colorectal cancers develop from adenomatous polyps. Individuals with diabetes mellitus have a 2-3 times higher risk of developing CRC compared to healthy individuals; consumption of every 100 grams of meat can increase the risk of CRC by 17%, and consumption of processed meat every 50 grams per day can increase the risk by 18%; low fiber consumption (vegetables and fruit) is associated with a high incidence of CRC; Overweight and obese men and women have a 50% and 20% higher risk, respectively, of developing CRC compared with normal weight individuals; Individuals who smoke have a 2-3 times higher risk of developing CRC compared to individuals who do not smoke depending on the amount and duration of exposure; It is estimated that consuming alcohol 2-3 times per day can increase the risk of CRC by around 20%; There are 90% of CRC cases that often occur in individuals aged >50 years. It is estimated that individuals aged >65 years have a 3 times higher risk of developing CRC. According to the American Cancer Society, men have a 30% higher risk of developing CRC compared to women. In this case, it

was found that the patient had risk factors in the form of low consumption of vegetables and fruit, and the patient also consumed alcohol and smoked.[10]

Clinical symptoms of CRC depend on tumor localization. Controlling symptoms early can help prevent complications and especially minimize loss of quality of life.[11] Clinical symptoms that usually occur are defecating with blood, changes in defecation habits, intestinal obstruction such as abdominal pain, abdominal distension, nausea, vomiting, abdominal mass, unexplained weight loss, and iron deficiency anemia.[10,12] Because there are differences in the anatomy and physiological functions of the colon and rectum, the clinical manifestations that arise are also different. In general, abdominal masses and systemic symptoms such as anemia, weakness, and anorexia in advanced stages most often occur on the right side of the colon. Defecation accompanied by blood and symptoms of obstruction occur more often in the left side of the colon. Meanwhile, changes in bowel habits or defecation often occur in rectal cancer.[7,13] In this case, there were complaints of abdominal pain in the lower right region, loose stools accompanied by blood, a mass in the abdomen, nausea, the body felt weak, and both conjunctivae were found to be anemic.

Supporting examinations that can be carried out are blood tests, fecal occult blood, and radiological examinations such as barium enema, CT colonography, abdominal CT scan, and biopsy to help confirm the diagnosis. Colonoscopy is diagnostically useful in approximately 70% of CRC patients. CT examination contributed to the diagnosis in 31% of CRC patients.[5,14] Blood laboratory examination was used to determine whether there was anemia. Hemoglobin guidelines in CRC use a cut-off of below 12 g/dL for women, and below 13 g/dL for men.[2] Colonoscopy has a high sensitivity of around 94.7%, mostly occurring on the right side, depending on the quality of preparation and experience of the hand. Abdominal and pelvic CT scans provide initial assessment with moderate power to accurately determine T (50%) and N (73%) stages but provide higher sensitivity for distant metastases (87%).[6] MAC is a subtype of adenocarcinoma characterized by >50% of the tumor tissue being extracellular mucin components.[3] To differentiate between MAC and NMAC, an examination must be carried out under a microscope, namely a biopsy.[15] In 2018, the American Cancer Society, followed by other health organizations, began recommending lowering the screening age from age 50 to age 45.[16] Most tumor stratification systems are divided into 4, namely: grade 1, well-differentiated; grade 2, moderately differentiated; grade 3, poorly differentiated; and grade 4, undifferentiated.[17] In this case, the patient was found to be anemic with a Hb level of 10.4 g/dL; CT urinary tract found a mass in the right abdomen, suspicious for the ascending colon and hepatic flexura of the colon, simple cyst with a diameter of ± 3 cm in the right kidney; Post-operative biopsy obtained microscopically showed a tumor mass lined with a single layer of goblet columnar epithelium, some floating among extracellular mucin pools (>50%) growing invasively to the subserosal layer, so it was concluded that mucinous adenocarcinoma metastasized 9 of 11 lymph nodes; based on tumor stratification, this case was classified as T4N1M0.

Treatments that can be given to CRC include surgery and adjuvant chemotherapy. Surgery such as total resection of the tumor can be performed if possible, and then a biopsy is carried out to determine the type of cancer and metastases. Studies show that patients with early CRC who receive surgical-based therapy can have improved survival rates. Meanwhile, chemotherapy can improve the quality of life and extend the life span of patients with advanced-stage CRC.[2,7] Lymph node dissection, performed during surgical resection for CRC, is used to determine staging and has an important impact on patient prognosis.[18,19] After surgery, review serum CEA levels at least every six months for three years and have at least two CT scans of the chest, abdomen, and pelvis in the first three years to detect recurrence.[20] In this case, surgery was performed. Namely, exploratory laparotomy and right hemicolectomy, and a mass with a diameter of 15 cm was found in the ascending colon and lymph nodes. Then, proceed with the end-to-end

anastomosis procedure.

4. Conclusion

A case of colon cancer (adenocarcinoma) has been reported in a 70-year-old woman. The diagnosis is made based on anamnesis, physical examination, and supporting examinations. In the anamnesis, there were complaints of abdominal pain in the lower right region, pain like being stabbed and intermittent, loose stools accompanied by blood, a mass in the abdomen, nausea, and the body felt weak. On physical examination, both conjunctivae were anemic. On abdominal examination, knocking pain and tenderness were found in the lower right region, and an abdominal mass was palpable in the lower right region. During the supporting examination, blood tests were carried out. It was found that the patient was anemic with Hb 10.4 g/dL. On CT-scan examination of the urinary tract without contrast, a mass was found in the right abdomen, suspicious for the ascending colon and flexura hepatica of the colon, a simple cyst with a diameter of ± 3 cm in the right kidney. Post-operative anatomical pathology results showed that adenocarcinoma was characterized by >50% of the tumor tissue being extracellular mucin components, with the conclusion being mucinous adenocarcinoma. The treatment given is surgery in the form of an exploratory laparotomy accompanied by a right hemicolectomy and end-to-end anastomosis.

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