

## CLINICAL PRESENTATIONS AND DIAGNOSTIC FEATURES OF OBSTRUCTIVE LEFT-SIDED COLON CANCER

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### ABSTRACT

**Background:** There were 10-25% of the first colon cancer presentation was acute/subacute intestinal obstruction. This is an optional emergency surgery depending on the stage of the disease, the level of obstruction, and the general status of the patient. The early diagnosis and preoperative evaluation play an important role in the management of obstructive left-sided colon cancer.

**Objectives:** This study aimed to characterise clinical presentations and diagnostic features of obstructive left-sided colon cancer. **Materials and methods:** This is a prospective case series report of 72 consecutive obstructive left-sided colon cancers at Nguyen Dinh Chieu hospital from 2015 to 2020. **Results:** The median age was 67.5 and the comorbidity rate was 48.61%, including hypertension, diabetes, COPD, cerebrovascular accident sequelae, anemia (hemoglobin < 110g/L) and hypoalbuminemia (< 35g/L) were 12.50%, 4.17%, 2.78%, 22.22% and 54.17%, respectively. Colic pain, abdominal distension, obstipation were predominant symptoms. Especially, more than half of patients had preceding signs such as constipation, hematochezia, diarrhea before clinical presentation. There were 54.29% of plain X-ray showed typically colonic obstructive images. All patients were exactly diagnosed by computed tomography. The closed-loop obstruction was 21.61%. The tumor location was predominant at the sigmoid colon followed by descending and flexure colon. There were 30.56% of tumors at the T4b stage, the regional lymphatic metastasis rate was 44.44% and the tumor deposit rate was 4.17%. **Conclusions:** The obstructive left-sided colon cancer, which was gradually presentation with preceding by defecation disorders, was elderly and accompanied by more comorbidities. It was exactly diagnosed by computed tomography. It was often in the advanced T stage and regional lymphatic metastases.

**Keywords:** left-sided colon cancer, obstruction

### I. INTRODUCTION

The most common complication of colon cancer is obstruction, there were 10-25% of the first colon cancer presentation was acute/subacute obstruction [13]. Acute obstructive colon cancer presentation is more common in advanced-stage disease and occurs more frequently in elderly patients with more comorbidities that are risk factors of postoperative morbidity and mortality [1]. The management of obstructive left-sided colon cancer is challenging and remains controversial that depends on the tumor stage, the severity of obstruction, and general patient characteristics [1], [6]. Therefore, the early diagnosis and preoperative evaluation is an important role in the management of obstructive left-sided colon cancer. This study aimed to characterise clinical presentations and diagnostic features of obstructive left-sided colon cancer.

### II. MATERIALS AND METHODS

This is a prospective case series report performed at Nguyen Dinh Chieu hospital in Ben Tre province of Viet Nam. Obstructive resectable left-sided colon cancer patients admitted from 2015 to 2020, excluding unstable hemodynamic, septic shock, general peritonitis, perforated or cecal necrosis, peritoneal carcinomatosis, ASA score > IV. The

patient demographic details, obstruction characteristics and intraoperative findings were collected and statistically analyzed. The stage of disease was classified following 8th AJCC's cancer classification. The categorical variables are presented as frequencies and percentages and compared with Pearson's Chi-square test or Fisher's exact test, as appropriate. Continuous variables are presented as median, range and compared with the Mann-Whitney U test. All tests were set with a level of significance at  $p < 0.05$ . Statistical analyses were performed using Stata software (version 13.0, StataCorp LP, 4905 Lakeway Drive College Station, Texas 77845 USA).

### III. RESULTS

#### 3.1. The patient characteristics

The median patient age was 67.5 (interquartile - IQR: 58-80, range 29-90) and the age group  $> 74$  was most frequent. 48.61% had co-morbidities which most commonly were hypertension, followed by diabetes. Hypoalbuminemia and anemia were also more frequent. Almost all patients had an ASA score of 2, followed ASA score of 3, and a few ASA scores of 1. The mean interval time from symptom presentation to admission was  $3.79 \pm 1.86$  days (1-10 days).

**Table 1.** The patient characteristics

Characteristics		n=72	%
Age	Median (IQR)	68 (58-80)	
	Range	29-90	
	< 61	22	30.56
	61-74	24	33.33
	> 74	26	36.11
Sex			
	Female	39	54.17
	Male	33	45.83
Co-morbidities		35	48.61
	Hypertension	18	25
	Diabetes	9	12.50
	COPD	3	4.17
	Cerebrovascular accident sequelae	2	2.78
	Anemia (Hemoglobin < 110g/L)	16	22.22
	Hypoalbuminemia (< 35g/L)	39	54.17
ASA			
	I	4	5.56
	II	54	75
	III	14	19.44

#### 3.2. Clinical presentation and diagnostic images

The colic abdominal pain, distension, obstipation were predominant symptoms, especially, 58.46% of the patients had preceding signs such as constipation, bloody stools, diarrhea before clinical presentation. There were 54.29% of plain X-ray showed the typically colonic obstructive image, however, 45.71% of others were atypically imaging for obstructive diagnosis. All patients showed colonic obstruction images on CT with proximal colon dilatation and tumor images.

**Table 2.** Clinical presentation and diagnostic images

Clinical presentation and diagnostic images	n = 72	%
<i>Preceding admission signs</i>		
Constipation	33	45.83
Normal	29	40.28
Bloody stools	5	6.94
Diarrhea	5	6.94
<i>Admission symptoms</i>		
Obstipation	71	98.61
Distension	71	98.61
Colic abdominal pain	70	97.22
Waved moving loops	50	69.44
Nausea and vomiting	29	40.28
Abdominal bloating	16	22.22
Local tenderness	3	4.19
Cramping abdominal pain	2	2.78
<i>Abdominal plain X-ray images</i>		
Colonic air dilatation	32	45.71
Air-fluid level in the colon and small bowel	21	29.17
Air-fluid level in the colon	19	26.39
<i>Computed tomography images (CT)</i>		
Colonic dilatation with air-fluid level and tumor	31	43.06
Colonic air dilatation and tumor	31	43.06
Colonic fecal dilatation and tumor	8	11.11
Colonic fluid dilatation and tumor	2	2.78
<i>Abdominal echography images</i>		
Dilated bowels	48	66.67
Colon tumor	9	12.50
Normal image	2	2.78
Do not perform	13	18.06

**3.3. Intraoperative findings and pathological characteristics**

Closed-loop obstruction, which was completely colon obstruction, and the ileocecal valve was competent, intraoperative found in 23.61%. It was a risk factor of the serosal tear (OR = 8.92; 95%CI: 1.79 - 47.94; p<0.01). Proximal colonic lesions due to excessive dilatation were 15.28%, including the serosal tear, ischemic necrosis in 13.89%, 1.39%, respectively. The tumor invasion was most in cT4a, followed by T4b that invaded neighboring structures such as the abdominal wall, stomach, jejunum, ileum, ovary, fallopian tube, uterus, cystic bladder... (Table 3).

**Table 3.** Intraoperative findings and pathological characteristics

Intraoperative findings and pathological characteristics	n=72	%
<i>Tumor location</i>		
Sigmoid	44	61.11
Descending	18	25.00
Splenic flexure	10	13.89
<i>Obstructive types:</i>		
Closed-loop	17	23.61
Non closed-loop	55	46.19

<b>Intraoperative findings and pathological characteristics</b>		<b>n=72</b>	<b>%</b>
<i>Proximal colonic lesions</i>		11	14.28
Serosal tear		10	13.89
Ischemic dilated colon		1	1.39
<i>Invaded neighbor structures</i>			
Bilateral ovary-fallopian tube and bladder		1	1.39
Bladder		1	1.39
Ovary		2	2.78
Stomach		1	1.39
Ileum		1	1.39
Jejunum		1	1.39
Abdominal wall		13	18.05
Uterus and bilateral fallopian		2	2.78
<i>Metastasis</i>			
Liver		2	2.78
Histological types:			
Adenocarcinoma		66	91.67
Mucinous adenocarcinoma		6	8.33
Differentiation types:			
Well-differentiated		10	13.89
Moderate differentiated		56	77.78
Poorly differentiated		6	8.33
<i>Tumor invasion</i>			
pT3		4	5.56
pT4a		46	63.89
pT4b		22	30.56
<i>Lymph node metastasis</i>			
1	(N1a)	8	11.11
2-3	(N1b)	15	20.83
Tumor deposit	(N1c)	3	4.17
4-6	(N2a)	7	9.72
≥7	(N2b)	2	2.78
<i>Stage</i>			
IIA		4	5.56
IIB		19	26.39
IIC		14	19.44
IIIB		18	26.39
IIIC		15	23.83
IVA		2	2.78

#### IV. DISCUSSION

Obstructive left-sided colon cancers were frequent at the age of 60-70 period, predominant in male sex and comorbidity rate was 70-80%, most in cardiovascular disease [2], [5], [12]. In our study, the patient ages were ranged from 27-90 and the age group of > 74 years was most counted. The comorbidity rate was 48.61% including hypertension, anemia, diabetes, COPD, and cerebrovascular accident sequelae was 25%, 22.22%, 12.50%, 4.17 and 1.39 respectively, especially hypoalbuminemia was 55.17%. Recent reports of obstructive left-sided colon cancer in Viet Nam also revealed patient age ranged 20-90, more

in the age group of >70 and comorbidity ranged 31-47% [6], [7], [8].

The presentation of obstruction from colon cancer is typically delayed by a gradual onset of symptoms, especially on the left-sided colon. Clinical symptom presentations including colic pain, distention, obstipation were usually followed by defecation disorders such as constipation, bloody stool, diarrhea [3]. A retrospective report of obstructive colon cancer performed at Cho Ray hospital, Vietnam, showed that the abdominal pain, distension, obstipation, waved moving loops, and local tenderness 100%, 90-95%, 85-95%, 32.3%, 3%, respectively. Pre-admitted disorders including bloody stool, diarrhea, constipation were 18.9%, 15.8%, 16.8%, respectively [10]. In our study showed clinical symptom presentation such as colic abdominal pain, obstipation, nausea or vomiting, distension, waved moving loops were 97.22%, 98.61%, 40.28%, 98.61%, 69.44%, respectively. Most patients gradually presented symptoms and slowly progressed, the mean interval time between symptom presentation and admission was  $3.79 \pm 1.86$  days (1-10 days). There were 59.72% had defecation disorders including 45.83% of constipation, 6.94% of diarrhea and 6.94% of bloody stool before appearing symptoms. The data from previous studies also figured out the onset of obstructive left-sided colon cancer was slowly and preceded by the disorder of defecation [3],[13].

The plain abdominal X-ray was able to diagnose colonic obstruction with the sensitivity and specificity was 84% and 72%, respectively. The typical image of colon obstruction is proximal dilatation with or without air-fluid level and little or gasless in the distal colon [4]. Contrast-enhanced computed tomography (CECT) is the most chosen diagnostic modality for obstructive colon cancer with sensitivity and specificity of 96% and 93%, respectively. It also offers additional benefits of preoperative evaluation for resectability [3], [4], [11].

In our study, the typical image of air-fluid level on plain X-ray saw in 54.29% while atypical image saw in 45.71%, and CECT diagnosed exactly all cases with proximal colon dilatation and the colon tumor appeared as asymmetric colonic wall thickening narrowing the colonic lumen. Especially in some cases, the plain x-ray appeared atypical colon obstruction images, but the CECT images confirmed diagnosis. There were some reasons for the explanation about an uncertain diagnosis of the plain film: in the early colonic obstruction stage the proximal colon contained mostly feces or gas, the air-fluid level did not appear, so the typical image of colon obstruction could not confirm. In contrast, in the lately colonic obstruction stage the proximal colon contained mostly fluid, so we could not find the dilated colon or air-fluid level on plain film.

Another characteristic of obstructive left-sided colon cancer is a closed-loop obstruction which was created by a competent ileocecal valve. This phenomenon increased rapidly intraluminal pressure causing lesions on the colon wall. In our study, the closed-loop obstruction was a risk factor for proximal colon injury (OR = 8.92; 95%CI: 1.79 - 47.94; p=0,00) found 23.61%. Orbion et al. reported the prevalence of closed-loop obstruction was 36.36% and they concluded that ileocecal valve continence was statistically correlated with cecum distension and the presence of CT signs of severity in patients with obstructive colonic cancer [9].

The obstructive complication is usually in the advanced stage of colon cancer. Our result study showed tumor at T4a and T4b was 62.89% and 30.56%, respectively, lymph node metastases rate 44.44% and distal metastases was 2.78%. These results are comparable to others [1],[5],[12].

## V. CONCLUSIONS

Obstructive left-sided colon cancer patients accompanied by more comorbidities were elderly and often in the advanced stage with a high rate of tumor invasion, regional lymphatic metastases, and distal metastases. The obstruction was gradually presentation with defecation disorder in days before. Colic pain, distention, obstipation were predominant clinical features. The plain abdominal X-ray may cause missed diagnosis in some cases. In contrast, the computed tomography was a reliable diagnostic modality.

## REFERENCES

1. Askari A, Malietzis G, Nachiappan S *et al.* (2015), "Defining characteristics of patients with colorectal cancer requiring emergency surgery", *International journal of colorectal disease*, 30(10), pp. 1329-1336.
2. Aslar A K, Ozdemir S, Mahmoudi H *et al.* (2011), "Analysis of 230 cases of emergent surgery for obstructing colon cancer-lessons learned", *J Gastrointest Surg*, 15(1), pp. 110-119.
3. Baer C, Menon R, Bastawrous S *et al.* (2017), "Emergency presentations of colorectal cancer", *Surgical Clinics*, 97(3), pp. 529-545.
4. Jaffe T, Thompson W M (2015), "Large-bowel obstruction in the adult: classic radiographic and CT findings, etiology, and mimics", *Radiology*, 275(3), pp. 651-663.
5. Mege D, Manceau G, Bridoux V *et al.* (2019), "Surgical management of obstructive left colon cancer at a national level: Results of a multi-centre study of the French Surgical Association in 1500 patients", *Journal of Visceral Surgery*, 156(3), pp. 197-208.
6. Nguyen D A, Mai-Phan T-A, Do P T T *et al.* (2020), "Emergency surgery for obstructed colorectal cancer in Vietnam", *Asian journal of surgery*, 43(6), pp. 683-689.
7. Nguyen H V, Le L H , Do P T (2020), "One-stage operation without intraoperative colonic irrigation for left-sided colonic obstruction: Case series study", *International Journal of Surgery Open*.
8. Nguyen Van Hai, Vo Duy Long (2007), "Results of one-stage vs multi-stage operation in treatment of obstructed colon carcinoma", *Y Hoc TP. Ho Chi Minh*, 11 (Supplement 1), pp. 104-110.
9. Orbion A, Mouman A, Behr J *et al.* (2019), "Correlation between a continent ileocecal valve and CT signs of severity in patients presenting with obstructive colonic cancer", *Emergency radiology*, 26(3), pp. 277-282.
10. Pham Van Tan, Vo Tan Long, Bui Van Ninh *et al.* (2005), "Surgical treatment for intestinal obstruction caused by colon cancer", *Y Hoc TP. Ho Chi Minh*, Vol. 9, Supplement of No 1, 2005, pp: 99 – 105.
11. Pisano M, Zorcolo L, Merli C, *et al.* (2018), "2017 WSES guidelines on colon and rectal cancer emergencies: obstruction and perforation", *World Journal of Emergency Surgery*, 13(1), pp. 36.
12. Tanis PJ, Paulino Pereira NR, van Hooft JE *et al.* (2015), "Resection of Obstructive Left-Sided Colon Cancer at a National Level: A Prospective Analysis of Short-Term Outcomes in 1,816 Patients", *Dig Surg*, 32(5), pp. 317-324.
13. Yeo HL, Lee SW (2013), "Colorectal emergencies: review and controversies in the management of large bowel obstruction", *J Gastrointest Surg*, 17(11), pp. 2007-2012.

(Received: 19/3/2021 – Accepted: 4/8/2021)

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