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## Case Report

# Lymphangitis carcinomatosa: A rare presentation in right sided colonic adenocarcinoma

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### ABSTRACT

Lymphangitis carcinomatosa is the malignant infiltration of lymphatic vessels because of the spread of cancer from a primary site. We present a case of a 40-year-old female with right upper abdominal pain for 2 months. Computed tomography revealed diffuse wall thickening of the colon, caecum, and terminal ileum with multiple enlarged lymph nodes. Biopsy of the ascending colon showed high grade dysplasia of colonic mucosa. Hence, proceeded with a right hemicolectomy. Histopathology showed moderately differentiated adenoma like adenocarcinoma with large areas of lymphangitis carcinomatosa like pattern.

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## 1. Introduction

Lymphangitis carcinomatosa is the diffuse infiltration of the lymphatic channels by metastatic malignant cells. Although any metastatic neoplasm may cause lymphangitis carcinomatosa, 80% are adenocarcinomas, and the commonest primaries include breast (33%), stomach (29%), and lung cancers (17%).<sup>1,2</sup> It is mostly seen in the age group of 40-49 years.<sup>3</sup> Our case is a rare presentation of lymphangitis carcinomatosa in colonic adenocarcinoma which has extremely poor prognosis.

## 2. Case Presentation

A 40-year-old female presented to the surgical gastroenterology department with right upper abdominal pain for 2 months associated with vomiting, loss of weight, and loss of appetite. On examination, the abdomen was soft, bowel sounds were heard, and a mass of size 7x7 cm was felt at the right hypochondrium, which was tender

on palpation. On colonoscopy, ulcero-proliferative growth was identified at the proximal ascending colon, causing obstruction. Computed tomography showed long-segment diffuse circumferential wall thickening in the hepatic flexure of the colon, ascending colon, caecum, ileocecal region, and terminal ileum with a maximum thickness of approximately 1.8 cm, causing significant luminal narrowing. Multiple enlarged lymph nodes were seen medial to the ascending colon and ileocecal growth, and the largest lymph node measures 2.7x2.2cm. Some of the lymph nodes showed necrosis. Right extended radical hemicolectomy with complete mesocolic excision and central vascular ligation with end ileostomy was performed, and the specimen was sent to the histopathology department for detailed examination. On gross examination, ulcero-proliferative growth was noted in the caecum and proximal ascending colon, measuring 6.5 cm, and involving the entire circumference. (Figure 1) 41 lymph nodes were identified, the largest measuring 2cm in diameter.

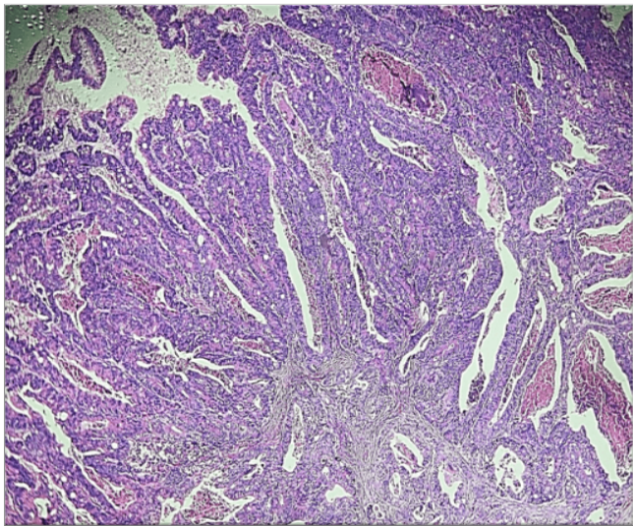
Histopathological examination of the sections taken from the colon showed moderately differentiated adenoma-like

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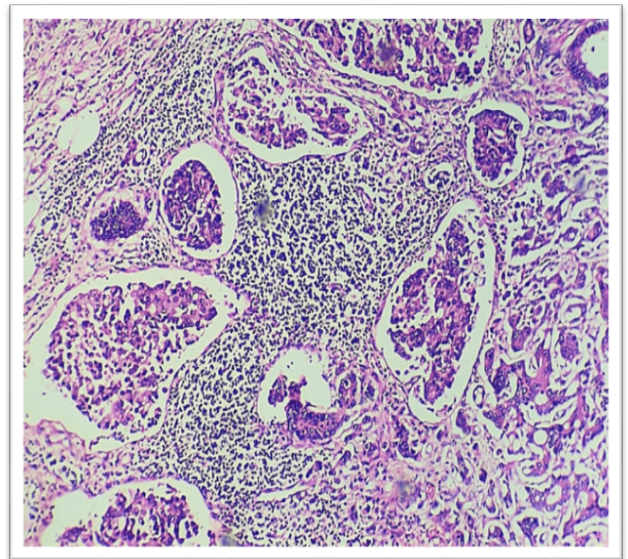
**Figure 1:** Photomicrograph showing gross image of resected specimen with ulcero-proliferative growth in the colon



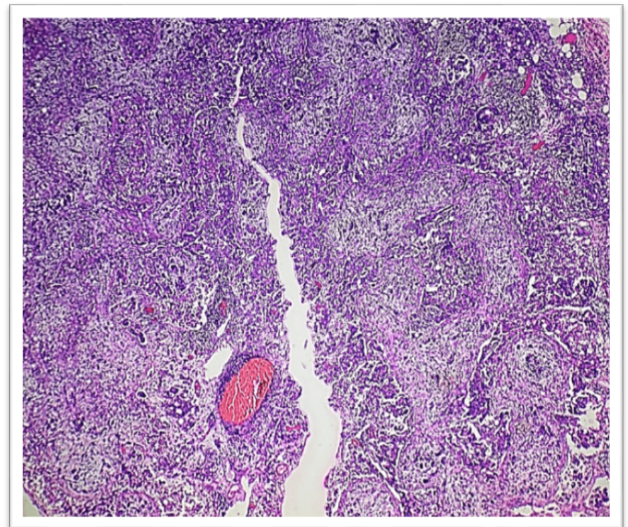
**Figure 2:** Photomicrograph of primary tumor showing adenoma like adenocarcinoma (H&E, 10X)

adenocarcinoma (Figure 2) with large areas of lymphangitis carcinomatosa-like pattern (70%) (Figure 3) and necrosis (10%) with the tumour invading the visceral peritoneum. Extensive, small-vessel lymphangitis carcinomatosa-like lymphovascular invasion is also seen. (Figure 4) Perineural invasion was present (Figure 5), with adjacent mucosa showing sessile-serrated lesion (Figure 6) with high-grade dysplasia. All 41 lymph nodes submitted were involved. The appendix showed extensive lymphatic dissemination of tumour in the wall with tumour deposits. Based on the above findings, the final impression was given as pT4aN2bM1c

moderately differentiated adenoma-like adenocarcinoma with large areas of lymphangitis carcinomatosa-like pattern (70%) according to College of American Pathologists protocol (Version: colon 4.1.0.0). Post-surgery computed tomography chest showed pleural effusion with underlying collapse consolidation on the left side, atelectatic bands in bilateral lower lobes, and a tiny pleural based nodule or thickening along the lateral basal segment of the right lower lobe.

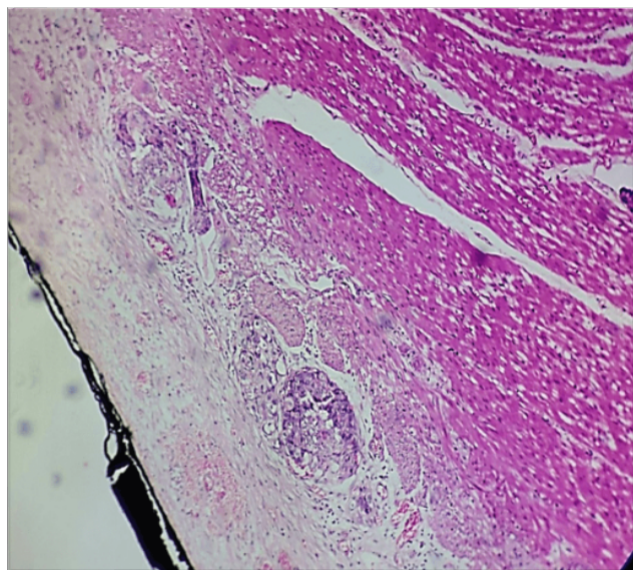


**Figure 3:** Photomicrograph of lymphatic emboli showing lymphangitis carcinomatosa like pattern (H&E, 40X).

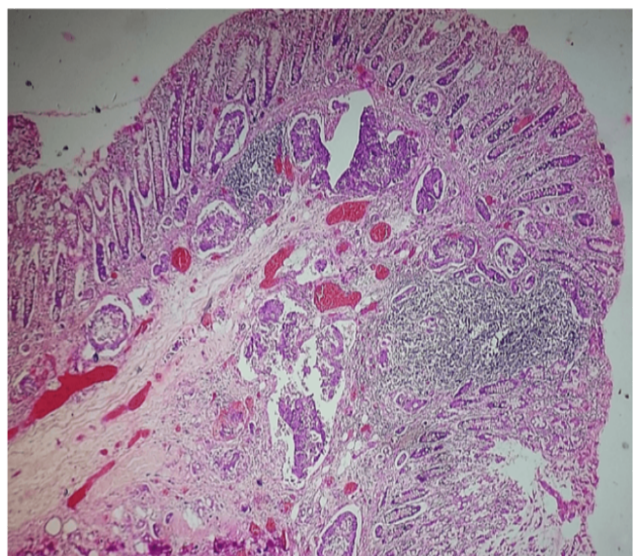


**Figure 4:** Photomicrograph of lymphatic emboli showing lymphangitis carcinomatosa like pattern (H&E, 40X)





**Figure 5:** Photomicrograph showing perineural invasion (H&E, 40X)



**Figure 6:** Photomicrograph showing sessile serrated lesion with extensive lymphatic emboli (H&E, 10X).

### 3. Discussion

Adenoma-like adenocarcinoma is a newly recognised entity by the WHO classification of tumours (Digestive System), 5th edition.<sup>4</sup> Adenoma progression to adenocarcinoma is linked to changes in a small number of driver genes (mainly APC, KRAS, SMAD4, and TP53).<sup>5</sup> According to the WHO, cases of adenoma-like adenocarcinoma are currently described as "invasive adenocarcinoma in which 50% of the invasive areas have an adenoma-like aspect with villous structures, with a low-grade aspect." Additionally,

the tumour is linked to a pushing boundary and a weak desmoplastic reaction.<sup>4</sup>

Carcinomatosis is a term used to describe cancer that has migrated to various sections of the body from its original location. When primary cancer spreads, several tumours are dispersed throughout a large area of the body, and a condition known as carcinomatosis results. Lymphangitis carcinomatosa is defined as the malignant infiltration and inflammation of lymphatic vessels because of the spread of cancer from a primary site. The commonest primaries include carcinoma of the breast, lung, stomach, colon, prostate, pancreas, cervix, uterus, thyroid, and larynx.<sup>6</sup> It seems to occur in the age group of 40-49 years.<sup>3</sup>

The etiology of lymphangitis carcinomatosa is unknown; however, two potential processes have been proposed. One possibility is that hematogenous tumour emboli produce endarteritis obliterans first, followed by tumour cell egress through the arterial walls into the perivascular lymphatics. Another theory proposes diffuse retrograde lymphatic permeation and malignant cell embolization.<sup>1</sup> 6-8% of lung metastases have the diffusely infiltrating form of metastasis that is found in pulmonary lymphangitic carcinomatosis.<sup>7</sup>

Any gastrointestinal tract-related malignant mass lesion can be identified by imaging signs such as diffuse or focal thickening of the affected bowel loop's wall, loss of mural stratification, mural hyperenhancement, stranding of periserosal fat, and adjacent lymphadenopathy.<sup>1</sup> The imaging findings in our patient with involvement of the colon also showed a similar picture.

In our patient, given the presence of ulcero-proliferative growth in the proximal ascending colon and diffuse circumferential long-segment wall thickening in the hepatic flexure of the colon, ascending colon, cecum, ileocecal region, and terminal ileum with adjacent lymphadenopathy, we considered a diagnosis of synchronous malignancies.

### 4. Conclusion

With a mortality rate of almost 50% within three months of diagnosis, lymphangitic carcinomatosis has an extremely poor prognosis.<sup>8</sup> Imaging and histopathological findings play an important role in diagnosis and aid in further management of the patient by preventing its complications. Our case is a very rare presentation of colonic adenocarcinoma showing lymphangitis carcinomatosa like pattern and has only few references till date.

### 5. Source of Funding

None.

### 6. Conflict of Interest


None.


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