

## Colonic adenocarcinoma, mucosa associated lymphoid tissue lymphoma and tuberculosis in a segment of colon: A case report

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### Abstract

Synchronous occurrence of adenocarcinoma and mucosa associated lymphoid tissue (MALT) lymphoma of colon is rare, and its presence with coexisting tuberculosis is still rarer. To our knowledge, this may be the first case report. In the present report, we describe a 43-year-old female who presented with a history of abdominal pain, fever, loss of weight and loss of appetite. Colonoscopy showed a large ulceroproliferative mass arising from the caecum, biopsy of which showed it to be adenocarcinoma of the colon. A right hemicolectomy was performed and microscopic study of the colon revealed tuberculosis and synchronous adenocarcinoma with lymphoma. Eight of sixteen lymph nodes showed tuberculosis and three of sixteen pericolic lymph nodes showed metastatic deposits. Immunostains further confirmed the tumour to be adenocarcinoma with MALT lymphoma. We would like to highlight the diagnostic challenges arising from the multi-faceted presentations

of these three conditions.

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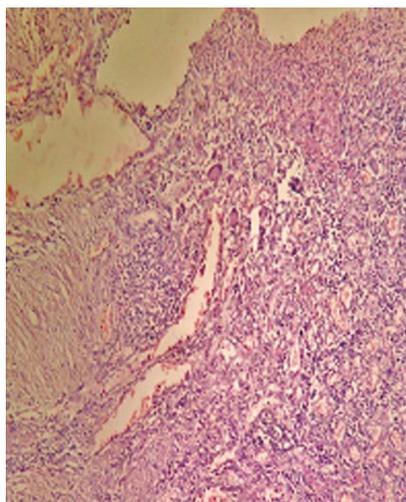
**Key words:** Adenocarcinoma; Mucosa associated lymphoid tissue lymphoma; Tuberculosis

**Core tip:** We report a first case report of synchronous adenocarcinoma, mucosa associated lymphoid tissue (MALT) lymphoma and tuberculosis in the same segment of colon in 43-year-old immunocompetent female patient. There are around 4 case reports of synchronous adenocarcinoma and MALT lymphoma to date in the literature. What we describe is the first such case in the literature.

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### INTRODUCTION

Mucosa-associated lymphoid tissue (MALT) tumors are a distinct subtype of non-Hodgkin's lymphoma associated with predisposing infectious or autoimmune processes, resulting in chronic lymphoid proliferation. Though the stomach is the most common site, MALT tumor has been reported in non-gastric sites like salivary gland, lung, ocular adnexa and skin<sup>[1]</sup>. The colon is a rare location for MALT lymphoma<sup>[2]</sup>. Synchronous colonic adenocarcinoma and malignant lymphoma in the same patient is rare with an estimated incidence of around 0.0002%<sup>[3]</sup>. Only a few cases have been reported in literature. Adenocarcino-



**Figure 1** Histology showed extensive mucosal necrosis surrounded by lymphocytes and langhans giant cells.

ma and tuberculosis occurring at the same site is exceedingly rare. Chronic inflammatory mucosal damage initiating a sequence of metaplasia and dysplasia could result in neoplastic changes<sup>[4]</sup>. We describe a case report never reported in literature before, synchronous adenocarcinoma and lymphoma with tuberculosis of the colon which poses a diagnostic and therapeutic challenge especially when the patient can present with equivocal symptoms.

## CASE REPORT

A 43-year-old female was referred with a history of abdominal pain, fever, loss of weight and loss of appetite for 6 mo. Hematological investigations showed normocytic normochromic anemia with a raised erythrocyte sedimentation rate. Chest roentgenogram was normal. Human immunodeficiency virus antibodies were negative. Colonoscopy revealed an ulcero-proliferative mass arising from the caecum. Ultrasonography revealed a thickened caecal wall with mesenteric lymphadenopathy. A biopsy diagnosed it as adenocarcinoma. A right hemicolectomy was performed. The gross pathological examination of the lesion showed a 4 cm × 3.5 cm × 3 cm ulcero-proliferative tumour present on the mucosal surface. The entire mucosal surface appeared normal without any abnormality or polypoidal lesion. Sixteen pericolic lymph nodes varying in size from 0.5 to 3 cm were isolated from pericolic fat. Sections from ulcero-proliferative growth revealed extensive mucosal necrosis with ill defined granuloma, langhans giant cells (Figure 1) and moderately differentiated adenocarcinoma that extended through the muscularis propria into the subserosal adipose tissue (Figure 2A). Dense lymphocytic infiltration was seen in the submucosa. These lymphoid cells were small to medium sized cells with mildly irregular nuclear contours and moderate pale cytoplasm (Figure 2B). Thus, microscopic study revealed tuberculosis with tumour and the tumour type to be synchronous adenocarcinoma with lymphoma.

The adenocarcinoma component was moderately differentiated while the lymphoma component was of low grade MALT lymphoma. The surgical cut margins were free of tumor. Eight of sixteen lymph nodes showed features of tuberculosis with acid fast bacilli in two of the lymph nodes and three of sixteen pericolic lymph nodes showed metastatic deposits (Figure 3B). A tissue section from mucosa did not reveal acid fast bacilli. Immunohistochemical analysis was performed on representative sections from the colon and lymph node to characterize the lymphoid cells and to confirm adenocarcinoma. CD 20 (Dako preparation) was diffusely positive (Figure 4A) and CD5 was negative in neoplastic lymphocytes. Cytokeratin and epithelial membrane antigen (Figure 3A and Figure 4B) was positive in sections from colon, pericolic tumor and metastatic deposits in lymph nodes.

After surgery, the patient was put on anti-tubercular treatment. No other adjuvant therapy was started as the patient was not willing; the patient is alive and well after 6 mo post-operatively.

## DISCUSSION

Our case, to the best of our knowledge, is the first ever reported case of synchronous adenocarcinoma and lymphoma with tuberculosis. An association of TB and malignancy has been noted by several authors in different organs<sup>[4]</sup>. Some authors have proposed that the association of carcinoma and tuberculosis is coincidental<sup>[5]</sup>. In our case both occurred at the same segment of colon and it is justified to think that the inflammatory condition has facilitated malignancy and the impaired immune mechanism has further facilitated the development of second malignancy. In 1987, Tanaka *et al*<sup>[6]</sup> analysed 26 TB and adenocarcinoma cases reported in Japan and supported the possibility of cancer originating from a tuberculous lesion. Chronic inflammatory mucosal damage initiating a sequence of metaplasia and dysplasia may result in neoplastic change. On the other hand an impaired host immune response due to malignancy would have reactivated the dormant tubercular lesion. However, it is still a matter of debate and further research is required to determine if a tuberculous infection, being similar to other chronic infections and inflammatory conditions, may facilitate carcinogenesis or the malignancy which reactivates the infection<sup>[7]</sup>. Devi *et al*<sup>[8]</sup> and Argyropoulos *et al*<sup>[9]</sup> first reported a case of synchronous adenocarcinoma and MALT lymphoma in the same segment of colon followed by a series of three cases by Argyropoulos in 2012. Occurrence of secondary MALT-type lymphoma in a patient with prior colon adenocarcinoma after colectomy has been reported in the literature<sup>[10]</sup>. It is extremely difficult to diagnose synchronous tumours in the same segment. In our case, a dense lymphocytic infiltration noted in the vicinity of adenocarcinoma alerted us to thoroughly sample the specimen and to assess the immunophenotype by immunohistochemistry which was of great help

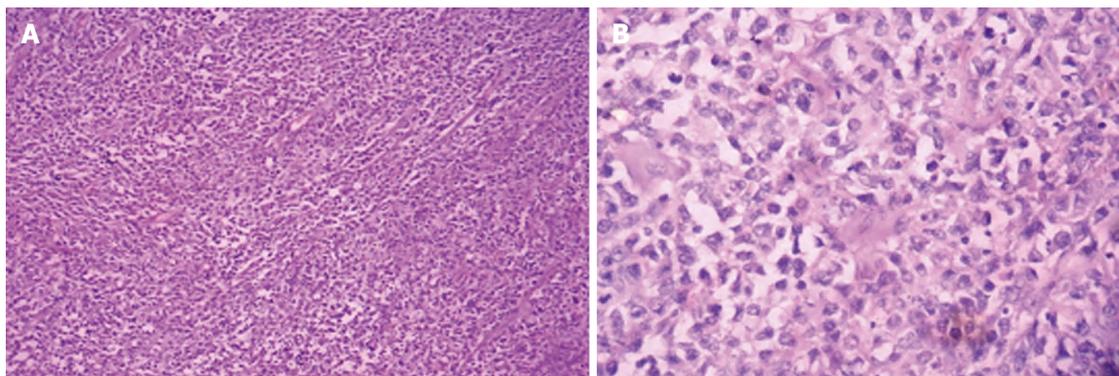


Figure 2 Histology showed moderately differentiated adenocarcinoma infiltrating the submucosa and serosa (A: HE, × 10) with mitotic figures and surrounded by neoplastic lymphocytes (B: HE, × 40).

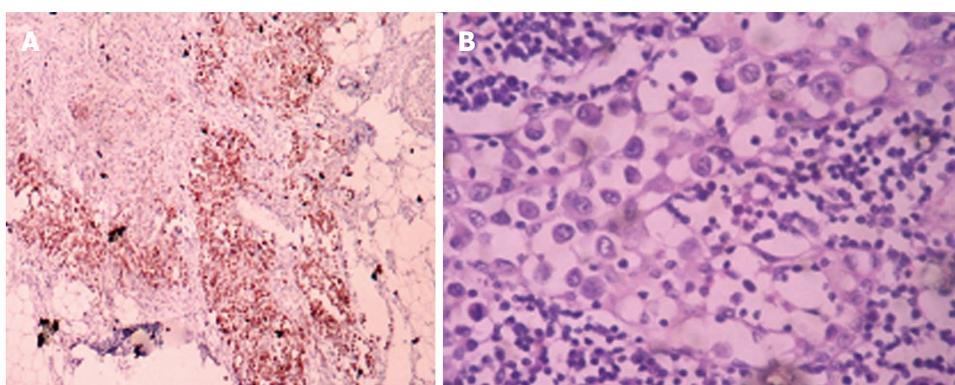


Figure 3 Pericolonic fat infiltrated by adenocarcinoma showing cyokeratin positivity (A: IHC, × 10), histology of lymph node showing metastatic deposits of adenocarcinoma (B: HE, × 40).

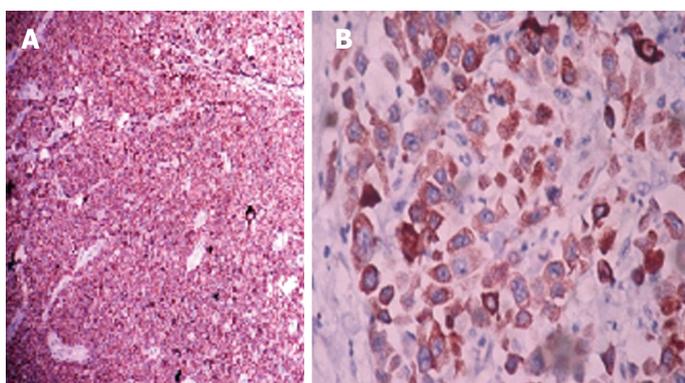


Figure 4 Mucosa associated lymphoid tissue lymphoma showing CD20 positivity(A: IHC, × 4) and diffuse cytoplasmic positivity of cyokeratin in pericolonic tissue suggestive of adenocarcinoma(B: IHC, × 40).

in confirming the diagnosis.

## COMMENTS

### Case characteristics

A 43-year-old female referred with history of abdominal pain, fever, loss of weight and loss of appetite for 6 mo.

### Clinical diagnosis

Colonoscopy revealed ulcero-proliferative mass arising from the caecum.

### Differential diagnosis

Tuberculosis, adenocarcinoma of the colon.

### Laboratory diagnosis

Normocytic normochromic anaemia, raised erythrocyte sedimentation rate, human immunodeficiency virus antibodies negative.

### Imaging diagnosis

Ultrasonography revealed thickened caecal wall and Mesenteric lymphadenopathy.

### Pathological diagnosis

Synchronous adenocarcinoma, mucosa associated lymphoid tissue lymphoma and tuberculosis of a segment of colon.

### Treatment

Right hemicolectomy.

### Related reports

On immunohistochemical stain, CD20, cyokeratin and epithelial membrane antigen were positive.

### Experiences and lessons

Impaired host immune response due to malignancy can reactivate the dormant tubercular lesion. It is extremely difficult to diagnose synchronous tumours in the same segment. In this case, a dense lymphocytic infiltrate noted in the vicinity of adenocarcinoma alerted the authors to thoroughly sample the specimen

and to assess the immunophenotype by immunohistochemistry which was of great help in confirming the diagnosis.

### Peer review

This paper is the first report of synchronous adenocarcinoma and lymphoma with tuberculosis. This is an interesting case report.

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