Intussusception Caused by Intestinal Metastasis from Lung Pleomorphic Carcinoma

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Intussusception is the second most common abdominal emergency in children. On the contrary, it is rare in adults. Most of adult intussusceptions are caused by definable structural lesions, and about half of these lesions are malignant. However, intussusception caused by gastrointestinal metastasis from lung pleomorphic carcinoma is extremely rare, and only a few case reports have been published thus far. We present a rare case of gastrointestinal metastasis from lung pleomorphic carcinoma causing jejuno-jejunal and colon-colonic intussusceptions, and review the previously 3 published cases. Intussusceptions caused by gastrointestinal metastases should always be considered in the differential diagnosis of patients with lung pleomorphic carcinoma presenting with gastrointestinal symptoms. Metastasis-related intussusception is a poor prognostic indicator in patients with pleomorphic carcinoma, regardless of the treatment.

Keywords: intussusception, lung cancer, metastasis, pleomorphic carcinoma
differentiated malignant cells with abundant cytoplasm and bizarre nuclei beneath an unremarkable intestinal mucosa. Numerous tumor emboli were disseminated throughout the mucosa, submucosa (Fig. 2A), muscle layer, and peri-intestinal tissue. Regional lymph nodes were metastasized. The tumor cells exhibited diffuse and intense CK 7 immunoreactivity, indicating a pulmonary origin.

CT-guided biopsy of the right upper lung mass confirmed the diagnosis of primary right upper lung pleomorphic carcinoma with gastrointestinal metastasis. The patient did not receive adjuvant chemotherapy. Further, hospital course was complicated by persistent intestinal intussusceptions as an oblong sausage-shaped mass (Fig. 1B). Under the impression of intussusception leading to gastrointestinal bleeding, an emergency laparotomy for reduction of intussusception with segmental resection and anastomoses of both small and large bowels was performed.

Grossly, 10 tumors, 8 in the jejunum and 2 tumors in the ascending colon, were found protruding into the intestinal lumen measuring up to 6 cm in diameter. Pathological examination of the protruding masses showed poorly differentiated malignant cells with abundant cytoplasm and bizarre nuclei beneath an unremarkable intestinal mucosa. Numerous tumor emboli were disseminated throughout the mucosa, submucosa (Fig. 2A), muscle layer, and peri-intestinal tissue. Regional lymph nodes were metastasized. The tumor cells exhibited diffuse and intense cytokeratin 7 (Fig. 2B) and vimentin co-expression, but were negative for cytokeratin 20, suggesting metastatic pleomorphic carcinoma of pulmonary origin.

Fig. 1 (A) Chest CT scan demonstrating a 4-cm diameter, irregular shaped tumor in the right upper lobe and massive pleural effusions in both lungs. (B) Abdominal CT scan demonstrating long segment intestinal intussusception as an oblong sausage-shaped mass lesion (arrow).

Fig. 2 (A) Protruding masses revealing a metastatic pleomorphic carcinoma with a few tumor emboli (arrows) beneath an unremarkable intestinal mucosa. (B) Tumor cells exhibiting diffuse and intense CK 7 immunoreactivity, indicating a pulmonary origin.
bleeding and sepsis. He died of an intra-abdominal infection with septic shock 3 months after admission.

**Discussion**

Pleomorphic carcinoma, also known as monophasic sarcomatoid carcinoma, is a rare and aggressive pulmonary malignancy.⁴ This type of tumor shows the concurrent presence of malignant epithelial and homologous sarcomatoid cell components with coexpression of cytokeratin and vimentin in various proportions. The disease is strongly associated with smoking, and men are affected far more frequently than women (13:3). The prognosis is poor, with a median survival of 8 months.⁵ Metastasis from lung pleomorphic carcinoma to other organs, including the brain, liver, adrenal tissue, and bone have been reported. Clinical manifestations of metastasis to the bowel are relatively rare events.⁶ Small bowel was the most common gastro-intestinal metastatic site of lung cancer.⁷ The majority of gastrointestinal metastases present with nonspecific symptoms including tarry stool, bloody stool, abdominal pain, and rarely, intussusception. Intussusception due to intestinal metastasis is extremely uncommon in patients with primary lung cancer.⁸

Including the case described here, only 4 cases of intussusceptions arising from gastrointestinal metastasis from pleomorphic lung carcinoma have been reported in the English literature (Table 1).³,⁹,¹⁰ A combined analysis of these cases showed that the mean age of the patient was 63.3 years; gender was exclusively male; and the jejunum was the most common metastatic site. The clinical course and management was diverse. Gastrointestinal metastasis leading to intussusception occurred after treatment of lung cancer in 2 patients, 1 of whom received adjuvant chemotherapy. Intussusception and lung pleomorphic carcinoma were diagnosed simultaneously in the other 2 patients. Although, 2 patients underwent pneumonectomy and 1 of them received chemotherapy, the prognosis showed no difference compared with the other 2 patients who merely underwent bowel resection. The mean survival time was 4.25 months. Therefore, metastasis-related intussusception was a poor prognostic indicator in patients with pleomorphic carcinoma.

**Conclusion**

Intussusceptions caused by gastrointestinal metastases should always be considered in the differential diagnosis.
of patients with lung pleomorphic carcinoma presenting with abdominal pain, tarry stool, and other gastrointestinal symptoms. Intussusception indicated poor prognosis in patients with pleomorphic carcinoma, irrespective of the management strategy used.

**Disclosure Statement**

The authors declare no conflict of interest.

**References**