

Jejuno-jejunal Intussusception Secondary to Metastatic Adenocarcinoma of Lung: A Case Report

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ABSTRACT

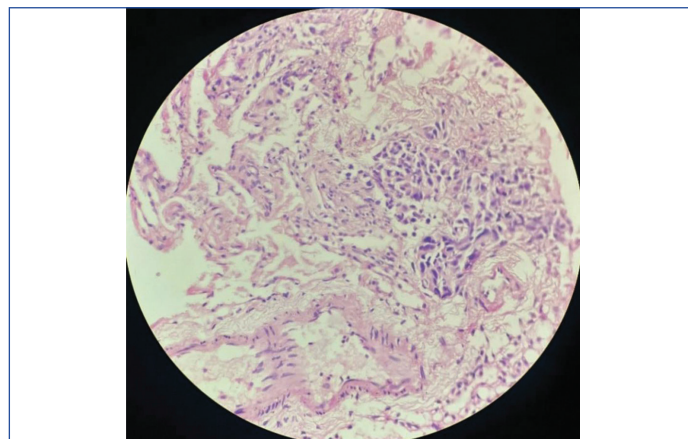
Adult intussusception is an uncommon cause of bowel obstruction and is usually associated with an underlying pathological lesion, often malignant. Intussusception secondary to metastatic lung adenocarcinoma is exceedingly rare. We report the case of a 64-year-old man with previously diagnosed moderately differentiated adenocarcinoma of the lung, Stage IIIA, positive for Epidermal Growth Factor Receptor (EGFR) mutation, who was treated with paclitaxel-carboplatin chemotherapy, gefitinib, definitive chemoradiotherapy, and subsequently whole-brain radiotherapy for cerebral metastases. He presented acutely with abdominal pain, vomiting, and a palpable abdominal mass. Imaging demonstrated jejuno-jejunal intussusception, and an emergency laparotomy with bowel resection and primary anastomosis was performed. Histopathological examination with Immunohistochemistry (IHC) confirmed metastatic adenocarcinoma consistent with a pulmonary primary. Although the patient initially had an uneventful postoperative recovery, he succumbed to progressive systemic disease one month later. This case highlights the rarity of small-bowel intussusception secondary to metastatic lung adenocarcinoma and emphasises the importance of prompt recognition and surgical intervention to achieve palliation in advanced-stage malignancy.

Keywords: Adult intussusception, Intestinal obstruction, Jejunum, Malignancy in intussusception

CASE REPORT

A 64-year-old male presented to the Department of Medical Oncology with complaints of cough and breathlessness. He had a history of chronic tobacco use (20 bidis per day for 20 years) and regular alcohol consumption for 20 years. He had suffered an ischaemic cerebrovascular accident five years earlier, from which he recovered completely, and was maintained on aspirin and atorvastatin. He was diagnosed with Stage II chronic kidney disease three years previously and had stable renal function while receiving telmisartan along with dietary and hydration advice. There was no history of pulmonary tuberculosis, diabetes mellitus, hypertension, bronchial asthma, or other major comorbid illnesses. High-Resolution Computed Tomography (HRCT) of the thorax revealed a 45×34×40 mm mass in the left upper lobe with bronchial cut-off, pleural extension, and ipsilateral lymphadenopathy. Positron Emission Tomography-Computed Tomography (PET-CT) using ¹⁸F-Fluorodeoxyglucose (FDG) demonstrated a metabolically active pleural-based spiculated lesion in the left upper lobe measuring approximately 34×35 mm, with a maximum Standardised Uptake Value (SUVmax) of 7.53. An FDG-avid left hilar lymph node measuring 16×14 mm showed an SUVmax of 7.83. Additional FDG-avid ipsilateral mediastinal (N2) lymph nodes were identified, the largest measuring 16×14 mm. No distant metastases were detected. Based on these imaging findings, the disease was staged as cT3 cN2 M0 (Stage IIIA, AJCC 8th edition). Complete blood counts revealed mild normocytic hypochromic anaemia (haemoglobin 11.5 g/dL) with an elevated red cell distribution width (RDW), while leucocyte and platelet counts were within normal limits. Liver function tests were normal except for mildly reduced serum albumin (3.4 g/dL). Serum creatinine was elevated at 2.5 mg/dL. Viral and tropical disease serologies were negative. Histopathological examination of the lung biopsy showed moderately differentiated adenocarcinoma composed of atypical gland-forming epithelial cells infiltrating the lung parenchyma. The tumour cells displayed round-to-oval vesicular nuclei, conspicuous nucleoli, and moderate eosinophilic cytoplasm. Irregular acinar and tubuloglandular structures with focal luminal formation were identified, consistent with adenocarcinoma morphology. Mitotic figures were

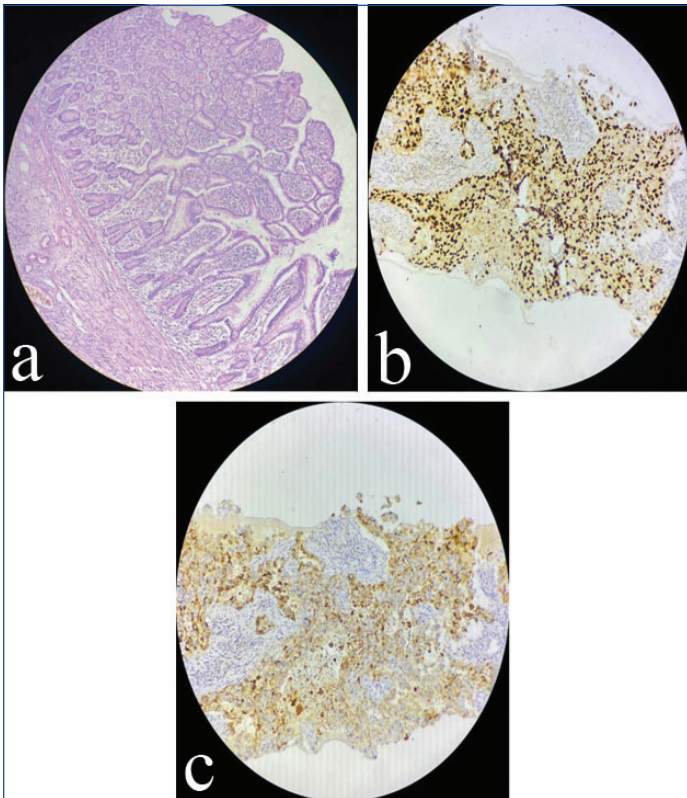
present but not markedly increased. Immunohistochemistry (IHC) demonstrated strong nuclear positivity for Thyroid Transcription Factor-1 (TTF-1) and diffuse cytoplasmic positivity for Napsin A, confirming a primary pulmonary origin [Table/Fig-1].



[Table/Fig-1]: H&E-stained lung biopsy section (40x) showing moderately differentiated adenocarcinoma. Neoplastic epithelial cells exhibit pleomorphism, hyperchromatic nuclei, and irregular nuclear membranes, arranged in glandular and acinar patterns. The alveolar spaces are distended and show oedema and vascular congestion. Mitotic figures are present.

The patient received 13 cycles of weekly paclitaxel (80 mg/m²) and carboplatin (AUC 2) along with daily gefitinib, followed by definitive chemoradiotherapy (60 Gy in 30 fractions with concurrent paclitaxel). Interval PET-CT demonstrated partial regression of the primary lesion but revealed a new FDG-avid lesion in the left parotid gland. Fine-Needle Aspiration Cytology (FNAC) of the lesion showed reactive lymphoid hyperplasia. Six months later, imaging revealed persistent pulmonary disease, osseous metastases, and multiple FDG-avid lesions. Subsequently, the patient developed neurological symptoms, including headache. Magnetic Resonance Imaging (MRI) of the brain demonstrated multiple nodular and ring-enhancing lesions with haemorrhage and associated bony deposits. He received palliative whole-brain radiotherapy (30 Gy in 10 fractions) and continued weekly paclitaxel and carboplatin.

Subsequently, the patient presented with acute abdominal distension and bilious vomiting. Clinical examination revealed a palpable sausage-shaped mass in the right side of the abdomen, along with blood-stained mucus on rectal examination. Imaging confirmed jejuno-jejunal intussusception with proximal bowel dilatation. Emergency laparotomy revealed a jejuno-jejunal intussusception approximately 120 cm proximal to the ileocaecal junction. Segmental bowel resection with end-to-end anastomosis and mesenteric lymph node excision was performed. Histopathological examination demonstrated metastatic adenocarcinoma. Immunohistochemistry showed strong nuclear TTF-1, cytoplasmic Napsin A and Cytokeratin 7 (CK7) positivity, Cytokeratin 20 (CK20) negativity, and a high Ki-67 proliferation index, consistent with metastatic adenocarcinoma likely pulmonary origin [Table/Fig-2].



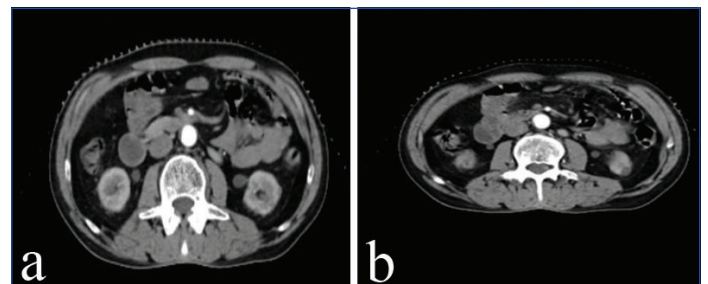
[Table/Fig-2]: a) H&E (20x) showing jejunal metastasis of moderately differentiated adenocarcinoma, characterised by poorly formed glands with complex glandular architecture, marked pleomorphism, loss of polarity, and areas of luminal necrosis. Immunohistochemistry (IHC) of the metastatic jejunal adenocarcinoma: (b) TTF-1 showing strong nuclear positivity in 80-90% of tumor cells, confirming pulmonary origin. The tumor cells exhibit moderate-to-severe pleomorphism with hyperchromatic nuclei arranged in glandular and acinar patterns. Nuclear staining is uniform and intense (IHC, 20x); (c) Napsin A demonstrating diffuse cytoplasmic positivity in approximately 85% of tumor cells, supporting lung adenocarcinoma as the primary source. The cytoplasmic staining is granular and moderately intense, highlighting secretory characteristics; non-neoplastic intestinal mucosa remains negative (IHC, 20x).

Follow-up imaging and cytology report

- The first response assessment PET-CT demonstrated a partial metabolic response, with interval reduction of the primary lesion to 15×15 mm (SUVmax 8.9) and the appearance of an intensely FDG-avid nodule in the superior aspect of the left parotid gland measuring 8×7 mm (SUVmax 8.3). No additional new lesions were identified.
- Ultrasound-guided FNAC of the left parotid gland demonstrated reactive lymphoid hyperplasia, with no evidence of malignant cells.
- The second response assessment PET-CT revealed a mixed response pattern, characterised by a new FDG-avid left submandibular lesion/lymph nodal mass measuring 3.3×1.9 cm (SUVmax 10.1). There was metabolic regression of the previously noted left parotid nodule to subcentimetric size (SUVmax 5.5). A persistent and metabolically progressive primary pleural-based lesion was noted in the left upper lobe, measuring 2.5×2.3 cm (SUVmax 13.6). A persistent FDG-avid

left hilar lymph node was also seen, measuring 1.5×1.4 cm (SUVmax 4.3). Additionally, a new mildly FDG-avid sclerotic lesion was identified in the left femoral head (SUVmax 4.3). Overall, the appearance of new nodal and osseous lesions, along with metabolic progression of the primary tumor, was consistent with progressive metastatic disease.

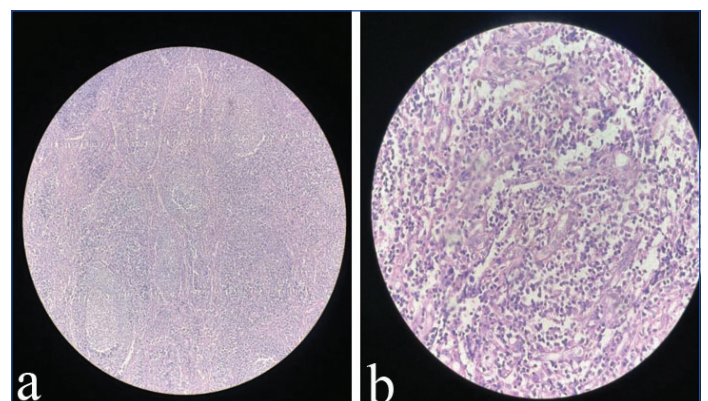
- MRI of the brain showed multiple nodular and ring-enhancing lesions with hemorrhage, along with associated bony deposits.
- Ultrasonography (USG) of the abdomen showed multiple dilated small bowel loops.
- Erect X-ray of the abdomen (AP view) showed dilated bowel loops with multiple air-fluid levels.
- Contrast-Enhanced Computed Tomography (CECT) of the abdomen and pelvis revealed a 9.8 cm jejunojejunal intussusception, demonstrating the characteristic 'target' or 'sausage-shaped' appearance of the bowel loops, along with mild proximal bowel dilatation. No hepatic or peritoneal nodules were identified [Table/Fig-3].



[Table/Fig-3]: Intraoperative photographs of jejunojejunal intussusception: a) Intraoperative image showing the intussuscepted jejunal segment with oedema and congestion of the bowel wall; b) Metastatic jejunal mass visible at the lead point of the intussusception. The surrounding bowel appears healthy.

The differential diagnosis for adult small-bowel intussusception in this case includes metastatic small-bowel tumour, primary small-bowel adenocarcinoma, Gastrointestinal Stromal Tumour (GIST), Non-Hodgkin Lymphoma (NHL), benign small-bowel polyps, lipoma, Meckel's diverticulum, postoperative adhesions, inflammatory bowel disease, and idiopathic adult intussusception. Among these, metastatic small-bowel involvement from a known EGFR-positive lung adenocarcinoma remains the most likely lead point.

Histopathology and Immunohistochemistry (IHC): Gross examination revealed a congested segment of jejunum with an intussusception located 6 cm from the proximal margin. The tumour measured 6×4.5×2.5 cm and appeared as a polypoid, greyish-white mass with focal reddish-brown areas. Two of the three excised mesenteric lymph nodes showed metastatic epithelial malignancy [Table/Fig-4]. Microscopically, the tumour demonstrated features consistent with metastatic adenocarcinoma. On immunohistochemistry, the tumour cells showed strong nuclear

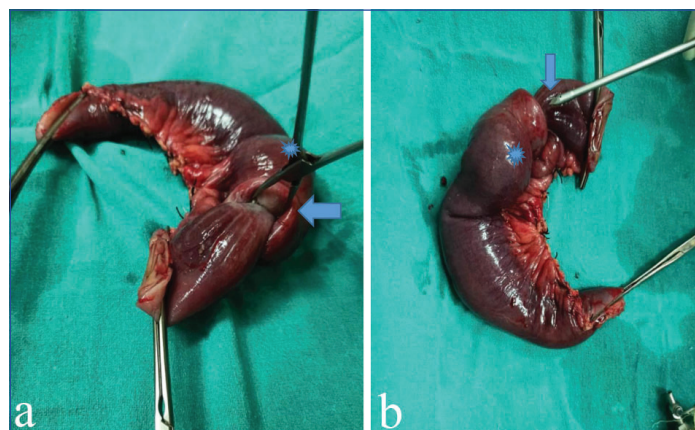


[Table/Fig-4]: (a): H&E, 10x showing metastatic malignant epithelial cells deposits within lymph node tissue, these cells reflect the micropapillary pattern shows gland like structures with nuclear atypia, prominent nucleoli and few mitotic figures; (b): H&E, 20x showing mesenteric lymph nodes positive for infiltration by epithelial malignant cells.

positivity for TTF-1, cytoplasmic positivity for Napsin A and CK7, and were negative for CK20. The Ki-67 proliferation index was high. These findings support a diagnosis of metastatic adenocarcinoma, most consistent with a pulmonary primary.

Management

The patient was transferred to the surgical oncology unit and underwent an emergency exploratory laparotomy. Intraoperative, a jejuno-jejunal intussusception was identified approximately 120 cm from the ileocecal junction, along with a 1×1 cm mesenteric lymph node [Table/Fig-5]. A segmental jejunal resection with end-to-end anastomosis was performed, and the mesenteric lymph node was excised. The remaining small and large bowel loops were healthy, and no hepatic or peritoneal nodules were observed. The patient



[Table/Fig-5]: Intraoperative and gross findings: a) Jejunal intussusception with a polypoid lead-point mass indicated by the arrowhead; b) Metastatic jejunal mass (star) identified intraoperatively. The resected jejunal segment shows a polypoid mass measuring 6×4.5×2.5 cm at the lead point of intussusception. The cut surface appears grey-white with focal reddish-brown areas. Two of the three excised mesenteric lymph nodes demonstrate metastatic infiltration.

had an uneventful postoperative recovery and was discharged in stable condition two weeks after surgery.

Follow-up

At the first postoperative clinic visit, the patient was recovering well, with a healed surgical wound and no immediate complications. However, the patient subsequently succumbed to progressive disease one month after surgery.

DISCUSSION

Lung cancer remains the leading cause of cancer-related mortality worldwide, with adenocarcinoma being the most common histological subtype [1]. Metastatic spread most commonly involves the brain, bone, liver, and adrenal glands [2], whereas Gastrointestinal (GI) tract involvement is uncommon, with a reported clinical incidence of 0.2-1.7%; however, autopsy studies suggest a higher prevalence [3]. Small-bowel metastases, although rare, are clinically significant and may present with obstruction, perforation, or bleeding [4]. Intussusception accounts for only 5% of adult cases and 1-5% of intestinal obstructions, usually occurring secondary to a pathological lead point such as a polyp, benign tumour, or malignancy [5]. In the present case, the differential diagnoses for adult jejunal intussusception were systematically evaluated across malignant, benign, inflammatory, and idiopathic causes. Case-specific supportive and exclusionary features are summarised in [Table/Fig-6] [2]. Metastases from extra-intestinal primary malignancies, including melanoma, breast cancer, and lung cancer, are uncommon but well documented [6]. Nevertheless, jejuno-jejunal intussusception secondary to metastatic lung adenocarcinoma remains exceptionally rare.

A review of previously published cases [Table/Fig-7] [2-15] demonstrated that most patients were men aged 44-80 years, with adenocarcinoma representing the predominant histological subtype (Chiu WK et al., [7], Wang S et al., [2], Yoshida J et al.,

S. No.	Differential diagnosis	Relevance to case	Reason of Exclusion in context of present case
1.	Metastatic small bowel tumour	Highly relevant and confirmed in this case. Lung adenocarcinoma is a recognised though rare source of small bowel metastasis. The patient's known advanced lung cancer, rapid systemic progression, discrete jejunal mass at surgery, and IHC positivity for TTF1, Napsin A, and CK7 strongly support metastasis as the lead point.	Not excluded. Final diagnosis.
2.	Primary small bowel adenocarcinoma	Possible but unlikely. Typically presents with obstruction, anaemia, weight loss, and may form polypoid masses causing intussusception.	No history of chronic GI symptoms, no synchronous small bowel thickening, and IHC profile (TTF1+, Napsin A+) rules out primary intestinal adenocarcinoma (which is CK20+/CDX2+).
3.	Gastrointestinal Stromal Tumour (GIST)	Considered radiologically but ruled out pathologically. Usually a submucosal mass in jejunum/ileum; IHC shows KIT (CD117) or DOG1 positivity.	Histology did not show spindle/epithelioid morphology; IHC lacked KIT/DOG1 positivity.
4.	Lymphoma (non-Hodgkin lymphoma)	Low. Often causes segmental mural thickening, B-symptoms, and may rarely cause intussusception.	No diffuse wall thickening on CT; histology showed gland forming carcinoma, not lymphoid proliferation; IHC incompatible with lymphoma.
5.	Benign Small Bowel Polyps (Adenomas, Hamartomatous polyps)	Very low. Can act as lead points in younger patients or those with polyposis syndromes.	No relevant history; intraoperative findings showed a malignant appearing polypoid mass.
6.	Lipoma	Very low. A common benign cause; CT shows fat density lesion.	No fat attenuation on CT; gross specimen lacked typical yellow adipose tissue.
7.	Meckel's diverticulum	Minimal. Usually ileal, sometimes with ectopic mucosa producing a lead point.	Lesion was in the jejunum; no diverticulum identified intraoperatively.
8.	Postoperative adhesions	None. Occasionally cause transient non lead point intussusception.	No prior abdominal surgeries; discrete intraluminal mass identified.
9.	Inflammatory Bowel Disease (IBD) e.g., Crohn's disease	None. Can produce pseudopolyps and local edema that trigger intussusception.	No clinical history, no mural thickening, skip lesions, or chronic GI complaints.
10.	Idiopathic adult intussusception	None. Rare (<10%); typically transient, often without a definite mass.	Definite 6×4.5×2.5 cm metastatic mass clearly identified.

[Table/Fig-6]: Differential diagnosis of adult jejuno-jejunal intussusceptions [2].

Author (Year)	Age/Sex	Lung cancer type	Metastatic site	Presentation	Imaging findings	Management	Outcome
Adachi Y et al., 2020 [13]	68/M	Pleomorphic carcinoma	Jejunum+Ileocecum	Abdominal pain, vomiting	CT: pseudokidney sign	Surgery	Not reported

Chand JT et al., 2024 [5]	Mean 52.13±14.95 yrs	Systematic review	Colo-colic (16.82%), enteric (13.28%), ileocolic (4.89%), ileocecal (0.78%)	Abdominal pain (86.23%)	CT: target/sausage-shaped bowel	Surgical resection for malignant lead points	Poorer prognosis in malignant cases
Chiu WK et al., 2009 [7]	80/M	Adenocarcinoma	Jejunum	Abdominal pain, vomiting	CT: target mass	Surgery	Uneventful
Fujii Y et al., 2016 [11]	55/F	Giant cell carcinoma	Jejunum	Nausea, vomiting	CT: dilated loops, intussusception	Surgery	Uneventful
Hsu YF et al., 2010 [6]	56/M	Adenocarcinoma	Jejunum	Abdominal pain, vomiting	CT: bowel within bowel	Surgery	Uneventful
Jarmin R et al., 2012 [14]	75/M	Small cell carcinoma	Jejunum	GI bleeding, anaemia	CT+Endoscopy	Whipple+bowel resection	Not reported
Letaief-Ksontini F et al., 2021 [12]	49/M	Combined small cell+adenocarcinoma	Jejunum	Abdominal pain, vomiting	CT: target mass	Surgery	Uneventful
Otera H et al., 2010 [10]	63/M	Large cell carcinoma	Small intestine	Ileus, abdominal pain	CT: dilated loops	Surgery	Uneventful
Pezzuto A et al., 2013 [3]	43/M	Adenocarcinoma	Colon	Severe hyponatremia, dyspnea	CECT: colonic mass; Endoscopy: ulcerated mass	Supportive	Not reported
Shi B et al., 2009 [9]	61/M	Sarcomatoid carcinoma	Jejunum	Abdominal pain, vomiting	CT: dilated loops, intussusception	Surgery	Uneventful
Testini M et al., 2002 [15]	44/M	Primary malignant melanoma	Ileum	Acute abdominal distress	CT: dilated loops, intussusception	Surgery	Not reported
Wang S et al., 2024 [2]	65/M	Adenocarcinoma	Small intestine	Abdominal pain, vomiting	CT: intussusception	Surgery	14+ months survival
Xu X et al., 2024 [4]	61/M	Poorly differentiated adenocarcinoma	Small intestine	Intestinal obstruction	Abdomen CT: thickened bowel; Chest CT: lung mass	Chemo+Immunotherapy+Surgery	Post-op perforation; good PD-1 response
Yoshida J et al., 1998 [8]	45/M	Large cell carcinoma	Stomach+Jejunum	Bowel obstruction	Not specified	Surgery	Died within 1 month
Present case, 2025 (Current)	64/M	Adenocarcinoma (EGFR+)	Jejunum	Abdominal pain, vomiting, palpable mass	CECT: jejuno-jejunal intussusception; USG: dilated loops	Emergency laparotomy+resection+anastomosis+LN excision	Died after 1 month

[Table/Fig-7]: Reported cases of jejuno-jejunal intussusception secondary to metastatic lung cancer [2-15].

[8]. Less common histologies included sarcomatoid carcinoma [9], large-cell carcinoma [10], giant-cell carcinoma [11], combined small-cell adenocarcinoma [12], pleomorphic carcinoma [13], small-cell carcinoma [14], and primary malignant melanoma of the lung [15]. Clinical presentations most commonly included abdominal pain, nausea, vomiting, , and intestinal obstruction, with occasional cases presenting with gastrointestinal bleeding [14]. Computed Tomography (CT) was the most reliable diagnostic modality, typically demonstrating the characteristic target or pseudokidney sign. PET-CT was valuable in identifying small-bowel involvement and detecting additional metastatic sites. Surgical resection with primary anastomosis remained the mainstay of treatment, providing both symptom relief and histopathological confirmation of diagnosis. Outcomes were generally favourable in patients who underwent timely surgical intervention [7,13], although early mortality was reported in those with advanced systemic disease [8]. Long-term survival varied considerably. Wang S et al., reported survival beyond 14 months, suggesting that prompt surgical management can provide meaningful palliation and improve quality of life even in patients with advanced malignancy [2]. Correlation of metastatic lesions with the primary tumour using histopathology and immunohistochemistry remains essential for accurate diagnosis and for guiding subsequent systemic therapy.

CONCLUSION(S)

Jejuno-jejunal intussusception secondary to metastatic lung adenocarcinoma is an exceptionally rare manifestation of advanced disease. In adults, intussusception usually results from an underlying pathological lead point, with metastatic lesions representing an uncommon cause. Surgical resection remains the cornerstone of management, providing effective symptom relief and preventing complications such as bowel ischaemia and perforation. Despite intervention, the overall prognosis remains poor because of the

advanced stage of the underlying malignancy. Clinicians should maintain a high index of suspicion for gastrointestinal metastases in patients with lung cancer who present with acute abdominal symptoms, as early recognition and timely surgical intervention may improve short-term outcomes and quality of life.

REFERENCES

[1] International Agency for Research on Cancer. World fact sheet [Internet]. Lyon (FR): IARC. 2025 [cited 2025 Sep 30]. Available from: <https://gco.iarc.who.int/media/globocan/factsheets/populations/900-world-fact-sheet.pdf>.

[2] Wang S, Tang W, Jin F, Luo H, Yang H, Wang Y. Comprehensive analysis of lung cancer metastasis: Sites, rates, survival, and risk factors- a systematic review and meta-analysis. Clin Respir J. 2025;19(7):e70107.

[3] Pezzuto A, Mariotta S, Fioretti F, Uccini S. Metastasis to the colon from lung cancer presenting with severe hyponatremia and dyspnea in a young male: A case report and review of the literature. Oncol Lett. 2013;5(5):1477-80.

[4] Xu X, Zhou Q, Chen P, Du C, Huang Y, Gao X, et al. Exploring the multifaceted challenges of gastrointestinal metastases in lung adenocarcinoma: A case report highlighting diagnostic dilemmas and therapeutic innovations. Front Oncol. 2024;14:1486371.

[5] Chand JT, RR, Ganesh MS. Adult intussusception: A systematic review of current literature. Langenbecks Arch Surg. 2024;409(1):235.

[6] Hsu YF, Huang CY, Chen TJ, Chou YH. Small bowel intussusception due to metastatic intestinal carcinosarcoma from a pulmonary primary. Int Med Case Rep J. 2010;4:01-05.

[7] Chiu WK, Lin YC, Wang LT, Chen JH, Yu JC, Hsieh CB. Jejunojejunal intussusception secondary to metastasis from adenocarcinoma of the lung: A case report. Acta Chir Belg. 2009;109(4):519-22.

[8] Yoshida J, Ishimaru T, Ekimura M. Non-small cell lung cancer metastatic to the stomach and the jejunum causing intussusception: A case report. Nihon Kokyuki Gakkai Zasshi. 1998;36(3):268-72.

[9] Shi B, Gaebelien G, Hildebrandt B, Weichert W, Glanemann M. Adult jejunojejunal intussusception caused by metastasized pleomorphic carcinoma of the lung: Report of a case. Surg Today. 2009;39(11):984-89.

[10] Otera H, Ikeda F, Nakagawa S, Kono Y, Sakurai T, Tada K, et al. Intussusception of small intestine due to metastasis of large cell carcinoma of the lung with a rhabdoid phenotype. Eur Respir Rev. 2010;19(117):248-52.

[11] Fujii Y, Homma S, Yoshida T, Taketomi A. Jejunal intussusception caused by metastasis of a giant cell carcinoma of the lung. BMJ Case Rep. 2016;2016:bcr2016216030.

- [12] Letaief-Ksontini F, Boujnah R, Yahiaoui Y, Zaimi Y, Ksentini M, Aloui R, et al. An acute jejunojejunal intussusception revealing a metastatic combined lung cancer. *Case Rep Surg.* 2021;2021:9999605.
- [13] Adachi Y, Katsuki T, Akiyama Y, Torigoe T, Hirata K. A case report of multiple intussusceptions by intestinal metastases of pleomorphic carcinoma of the lung. *J UOEH.* 2020;42(1):83-88.
- [14] Jarmin R, Azman A, Rahim R, Kosai NR, Das S. A rare case of intussusception associated with metastasized small cell carcinoma of lung. *Acta Med Iran.* 2012;50(11):782-84.
- [15] Testini M, Trabucco S, Di Venere B, Piscitelli D. Ileal intussusception due to intestinal metastases from primary malignant melanoma of the lung. *Am Surg.* 2002;68(4):377-79.

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