

# Intramural Gastric Metastasis: A Rare Presentation of Esophageal Squamous Cell Carcinoma

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## Abstract

Intramural gastric metastasis of the esophageal carcinoma, excluding the direct extension of primary neoplasm, is rare. However, intramural metastasis to the esophagus is commoner than this. These are more common in squamous cell carcinoma variant. This signifies a poor prognosis. It is due to the spread of pathology through the intramural lymphatic channels. Sometimes the metastatic lesion is more extensive in volume than the primary. This is more often diagnosed on histopathology in postoperative specimens. We share our imaging experience with surface esophageal squamous cell carcinoma with giant intramural gastric metastasis infiltrating the liver in a 39-year-old male. Due to its rarity, and secondary lesion being more extensive than the primary leads to misinterpretation and wrong diagnosis. Knowledge of this rare phenomenon can prevent misdiagnosis, fasten the imaging workup, and ultimately improve the patient's survival.

**Keywords:** Lymphatic spread of esophageal neoplasm, mucosal oesophageal carcinoma, secondary gastric neoplasm, submucosal tumor of the stomach

## INTRODUCTION

Esophageal carcinoma of squamous cell type has a poor prognosis due to more propensity for direct spread and metastasis. Its direct spread can range from infiltration to adjacent organs such as aorta, trachea, main stem bronchi, and lungs; whereas, the hematogenous spread can occur in the liver, lungs, adrenals, and bone; and lymphatic spread can occur in regional/distant lymph nodes. Esophageal carcinoma's intramural metastasis can occur as a skip lesion in the esophagus itself or to the stomach. Intramural metastasis is seen in around 10% of esophageal carcinoma.<sup>[1,2]</sup> However, intramural gastric metastasis is significantly rare, accounting for only 2% of resected specimens.<sup>[3]</sup>

## CASE REPORT

A 37-year-old chronic alcoholic and smoker, and daily wage laborer male of Indian descent presented with dysphagia, early satiety, and significant weight loss for 2 months; referred for abdomen ultrasonography (USG). On USG

[Figure 1 and Video 1], a large heterogeneously hypoechoic exophytic mass was seen filling the lumen of the stomach with no obvious vascularity on Doppler. The gastresophageal junction was not well appreciated. The lesion was also seen infiltrating into the adjacent liver parenchyma. The diagnosis of a gastric neoplastic lesion with adjacent liver infiltration was made with differentials of the gastrointestinal (GI) stromal tumor.

On the oral barium examination (barium swallow and meal) [Figure 2], a filling defect was seen in the lower esophagus at the 8<sup>th</sup> and 9<sup>th</sup> thoracic vertebrae levels. Apart from this, a distortion of the shape of the gastric barium column was seen with a large filling defect in the region of the stomach's fundus and upper body. The differential diagnoses were esophageal malignancy with gastric metastasis, gastric neoplasm with esophageal metastasis, and dual malignancy of the esophagus and stomach.

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Received: 02-01-2021 Revised: 22-02-2021 Accepted: 25-02-2021 Available Online: 21-08-2021

Video Available on: [www.jmuonline.org](http://www.jmuonline.org)

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**How to cite this article:** Roul PK, Saran S, Poonia DR, Paul P. Intramural gastric metastasis: A rare presentation of esophageal squamous cell carcinoma. J Med Ultrasound 2022;30:47-9.

For further imaging workup, contrast-enhanced computed tomography (CECT) of the abdomen and thorax was performed [Figure 3]. CECT demonstrated an intraluminal proliferative mass lesion involving the distal esophagus at the previously described vertebral levels without significant locoregional lymphadenopathy. Another large heterogeneously enhancing exophytic mass lesion was seen protruding into the stomach lumen; predominately in the cardia, fundus, and upper body region extending to involve the gastroesophageal junction. However, there was no direct communication between the esophageal lesion and the stomach lesion. The rest of the stomach was normal. The stomach lesion showed infiltration into the adjacent left lobe of the liver.

The patient had later undergone upper GI endoscopy and biopsy of both lesions. On upper GI endoscopy [Figure 4], a small proliferative growth was seen in the lower esophagus (D8-9 level) with luminal narrowing, and the scope was negotiable. Another large diffuse proliferative growth was seen in the lumen of the stomach, extending from gastroesophageal

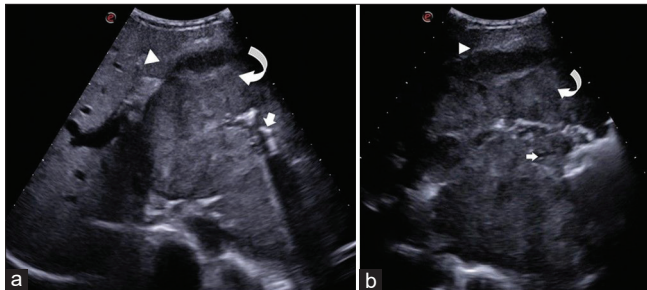
junction to midbody, involving the entire circumference. Multiple biopsies were taken from both the lesions and sent for histopathological examination.

Histopathological examination [Figure 5] showed an infiltrating tumor of squamous origin with large polygonal cells in sheets and nests from both the lesions. These cells had vesicular chromatin and occasional nucleoli. Cytoplasm occasionally showed dyskeratosis and vacuolations. These findings were corroborative of squamous cell carcinoma of the esophagus. Alcian blue and Periodic acid–Schiff (PAS) stain was used to look for intracellular mucin to rule out adenocarcinoma.

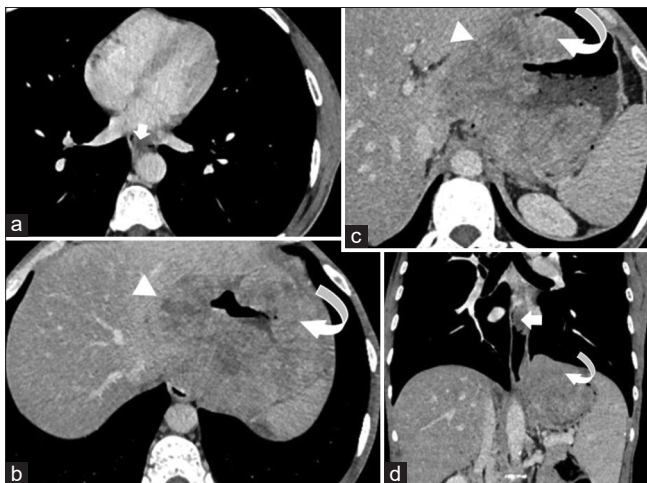
The final diagnosis was squamous cell carcinoma of the esophagus with intramural gastric metastasis and surrounding liver parenchymal infiltration. The patient was put on symptomatic management and neoadjuvant chemotherapy with cisplatin and 5-fluorouracil.

## DISCUSSION

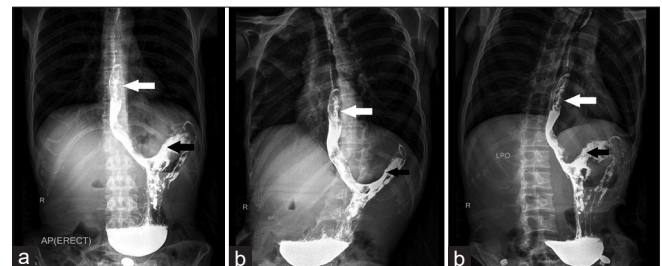
Esophageal carcinoma is the sixth leading cause of cancer-related mortality worldwide.<sup>[4]</sup> Out of the two histological variants, squamous cell carcinoma is usually seen in the upper and mid esophagus, whereas adenocarcinoma has a propensity for the lower esophagus.<sup>[5]</sup> Squamous cell carcinoma has a poorer prognosis owing to the higher propensity for lymph nodal and distant metastasis. The most frequent visceral sites of metastasis are the liver, followed by the lung and the adrenals.<sup>[6]</sup> Intramural gastric metastasis



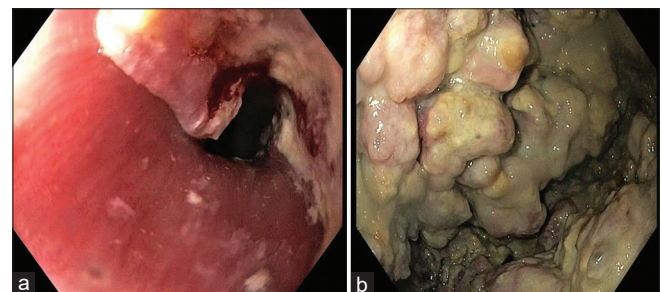
**Figure 1:** Ultrasonography abdomen done at right hypochondrium in the transverse plane (a), and epigastrium in sagittal/longitudinal plane (b) showing a heterogeneously hypoechoic intraluminal mass in the stomach (curved arrow), intraluminal air/fluid (arrow), and infiltration in the liver parenchyma (arrowhead)



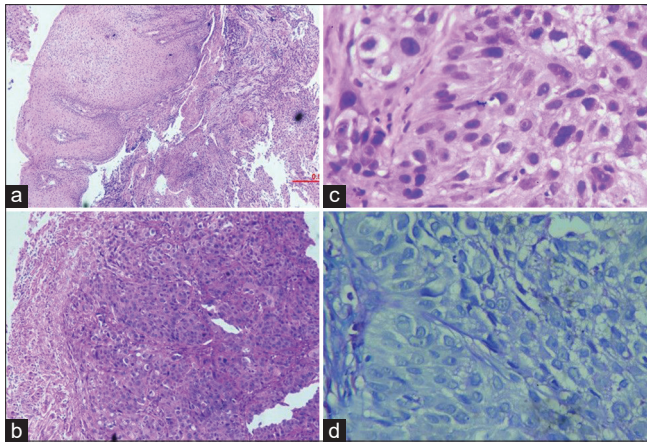
**Figure 3:** Axial contrast-enhanced computed tomography at the level of the lower esophagus (a), the stomach (b and c), and coronal contrast-enhanced computed tomography (d) showing heterogeneously enhancing esophageal (arrow) and gastric mass lesion (curved arrow) with adjacent liver infiltration (arrowhead)



**Figure 2:** Upper gastrointestinal barium study in anteroposterior erect (a), right posterior oblique (b), and left posterior oblique (c) view showing a filling defect in the lower esophagus (solid white arrow) and upper stomach (solid black arrow). Note the normal-appearing barium column between two filling defects



**Figure 4:** Upper gastrointestinal endoscopy images showing ulceroproductive growth involving distal esophagus (a) and proximal as well as mid gastric body (b)



**Figure 5:** Histopathology examinations showing squamous epithelium of esophagus with neoplastic tissue (H and E,  $\times 4$  [a]), necrosis [H and E,  $\times 10$  [b]], polygonal cells with vesicular chromatin, and occasional nucleoli [H and E,  $\times 40$  [c]]. AB-PAS stain (d) showing no intracellular mucin

occurs mainly through the submucosal lymphatic route rather than the bloodstream and was first described by Watson in 1933.<sup>[7]</sup> Weinberg reported the communication of lymphatic channels between the esophagus and stomach by virtue of neo-lymphangiogenesis into the carcinomatous lesion.<sup>[8]</sup> The mucosal lymphatic channels of the esophagus are not in direct connection with that of the stomach; however, the submucosal ones may have a direct connection with submucosal gastric lymphatics.<sup>[9]</sup> This might be the reason for the upper stomach's involvement by intramural metastasis in primary esophageal squamous cell carcinoma.

On imaging, intramural metastasis is usually seen in the cardia and upper part of the stomach. Sometimes primary esophageal lesion may be very small in comparison to the gastric metastatic lesion. Hence, radiologists should thoroughly look for the esophagus in case of a lesion in the stomach. Usually, the lesions are exophytic in morphology due to the submucosal site of implantation. Primary gastric adenocarcinoma can sometimes also have similar morphology, but this tends to be more in the lower part of the stomach. GI stromal tumor also appears as an exophytic lesion. Primary gastric squamous cell carcinoma can have similar imaging characteristics; however, it is a rare tumor. The current treatment guidelines with neoadjuvant chemoradiotherapy followed by surgery can

improve survival rates in advanced esophageal squamous cell carcinoma.<sup>[10]</sup>

The advanced stage of presentation and poor prognosis need a rapid diagnostic workflow for timely management, which may increase the chance of the patient's survivability. Radiological imaging can be handy in this regard with proper knowledge of this rare phenomenon.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal the identity, but anonymity cannot be guaranteed.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

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