

RAPID COMMUNICATION

## Metastatic tumors to the stomach: Clinical and endoscopic features

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### Abstract

**AIM:** To evaluate the clinical and endoscopic patterns in a large series of patients with metastatic tumors in the stomach.

**METHODS:** A total of 64 patients with gastric metastases from solid malignant tumors were retrospectively examined between 1990 and 2005. The clinicopathological findings were reviewed along with tumor characteristics such as endoscopic pattern, location, size and origin of the primary sites.

**RESULTS:** Common indications for endoscopy were anemia, bleeding and epigastric pain. Metastases presented as solitary (62.5%) or multiple (37.5%) tumors were mainly located in the middle or upper third of stomach. The main primary metastatic tumors were from breast and lung cancer and malignant melanoma.

**CONCLUSION:** As the prognosis of cancer patients has been improving gradually, gastrointestinal (GI) metastases will be encountered more often. Endoscopic examinations should be conducted carefully in patients with malignancies, and endoscopic biopsies and information on the patient's clinical history are useful for correct diagnosis of gastric metastases.

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**Key words:** Stomach; Metastatic tumors; Clinical findings; Pathology; Endoscopy

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### INTRODUCTION

The stomach is an unusual site for metastasis. There have been several published reports on metastatic lesions in the stomach. However, information on gastric duodenal metastases is generally limited to single case reports. The present study examined the clinicopathological features in a large series of patients with metastatic tumors in the stomach from distant sites.

### MATERIALS AND METHODS

We conducted a chart review of patients with metastatic tumors in the stomach detected endoscopically from January 1990 to December 2003. Patients with malignant lymphoma involving the stomach, or with direct invasion from neighboring organs, were excluded from this study.

Analysis of data included indication for endoscopy, endoscopic appearance, location, primary site and time interval between the diagnosis of primary tumors and diagnosis of metastatic lesions.

### RESULTS

The present study included 64 patients, including 36 men and 28 women, with a mean age of 56 years (range 28-82 years). The common indications for endoscopy were anemia or bleeding (19 cases, 10 of which had active bleeding), dyspepsia (15 cases) and epigastric pain (14 cases). Endoscopic findings mainly included small nodules with or without central ulceration, polypoid mass and ulcers. The other findings included peptic ulcer scar and small black spots, which were metastatic tumors from malignant melanoma. Solitary metastases (40 cases, 62.5%) were more common than multiple metastases (24 cases, 37.5%). The solitary lesions were mainly located in the middle third (43%) or the upper third (45%) of the stomach, and the proportion of solitary lesions was similar to that of multiple lesions. Forty percent of the solitary lesions and 35% of the multiple lesions were located on

**Table 1** Endoscopic appearance and location of metastatic lesions *n* (%)

Small nodules	28 (43.7)
Polypoid mass	18 (28.1)
Ulcers	8 (12.5)
Small black spots	6 (9.3)
Peptic ulcer scar	4 (6.2)
Lower third	8 (12.5)
Middle third	27 (42.2)
Upper third	29 (45.3)
Solitary	40 (62.5)
Multiple	24 (37.5)

the greater curvature (Table 1).

The diagnosis of metastatic tumors was confirmed pathologically by endoscopic biopsies in 59 out of 64 cases (92.2%). The remaining 5 cases were diagnosed during surgery for uncontrollable bleeding from the tumor. The primary sites of metastases are shown in Table 2.

The average time interval between the diagnosis of primary tumors and the diagnosis of metastatic lesions was 25.7 mo (1-40 mo), and varied in site of primary tumor (Table 3).

## DISCUSSION

The stomach is an unusual site for metastasis<sup>[1-8]</sup>. As the prognosis of cancer patients has been improving gradually, gastric metastases are encountered more frequently. In this series, lung, breast, and esophagus were the common primary metastatic sites, and malignant melanoma was associated with the highest rate of metastases. More than half of the metastatic tumors were found within a year of the diagnosis of a primary tumor. In particular, most of the gastric metastases from esophageal and lung cancer were detected within a year, since these cancers progress rapidly. On the other hand, breast cancer extended slowly, and it was sometimes more than three years before gastric metastases were diagnosed after the initial diagnosis of the primary tumor. It was noteworthy that metastatic tumors were detected before diagnosis of the primary tumors in 2 patients<sup>[8,9]</sup>. Symptoms of metastatic tumors including pain, nausea, vomiting, and signs of bleeding are nonspecific<sup>[4,9]</sup>. Endoscopy may be useful in the diagnosis and local treatment of gastric metastases, such as endotherapy that was performed successfully in 5 out of 10 patients with active gastrointestinal (GI) bleeding (endoscopic clipping in 4 cases and adrenaline injection in 1 case). In our series, more frequent endoscopic patterns included multiple nodules, bull's eye, extrinsic mass lesions, ulceration and polypoid tumor mass as previously reported<sup>[4-8,10-13]</sup>.

Solitary metastases were more common than multiple metastases. The solitary lesions were mainly located in the middle third (40%) or the upper third (40%) of the stomach, and the proportion of the solitary lesions was similar to that of the multiple lesions. Forty percent of the solitary lesions and 35% of the multiple lesions were located on the greater curvature. About 90% of the

**Table 2** Site of primary tumor *n* (%)

Breast	21 (32.8)
Lung	16 (25.0)
Malignant melanoma	14 (21.9)
Head/Neck	4 (6.2)
Uterus	4 (6.2)
Colorectum	3 (4.7)
Kidney	2 (3.1)
Soft Tissue	1 (1.5)

**Table 3** Time interval between the diagnosis of primary tumors and diagnosis of metastatic lesions

Time (yr)	Patients <i>n</i> (%)	Primary site			
		Lung	Breast	Melanoma	Other
-1	2 (3.1)	1			1
1-2	33 (51.5)	11	9	7	6
2-3	19 (29.6)	3	8	4	4
> 3	10 (15.6)	1	4	3	2
Total	64 (100)	16	21	14	13

metastatic lesions could be confirmed histologically by endoscopic biopsies. Tumor-negative biopsies may be mainly due to extrinsic mass rather than due to sampling error. It should be emphasized that the endoscopist should provide the pathologist with sufficient information about the patient's history to allow an accurate pathological diagnosis.

In conclusion, as the prognosis of cancer patients has been improving gradually, GI metastases will be encountered more often. Endoscopic examinations should be conducted carefully in patients with malignancies, and endoscopic biopsies. Information on the patient's clinical history is useful for the correct diagnosis of gastric metastasis.

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## COMMENTS

### **Backgrounds**

The stomach is an unusual site for metastasis. There have been several published reports on metastatic lesion in the stomach and information on gastric duodenal metastases is generally limited to single case reports. The present study examined the endoscopic and clinopathological features in a large series of patients with metastatic tumors in the stomach.

### **Research frontiers**

As the prognosis for cancer patients has been improving gradually, GI metastases will be encountered more often.

### **Innovations and breakthroughs**

Metastasis to stomach is rare, hence no large series has been published so far. The current study is an improvement in terms of numbers of cases. It reemphasises the same results which have been published earlier.

### **Applications**

Endoscopic examinations should be conducted carefully in patients with malignancies, and endoscopic biopsies. Information on the patient's clinical history is useful for correct diagnosis of gastric metastasis.

### **Peer review**

The current paper gives a retrospective analysis of data on metastatic tumors in stomach over a period of 15 years at author's center. Metastasis to stomach is rare, hence no large series has been published so far. Oda et al have published a series of 54 cases of metastatic tumors in stomach in 2001. The current study provides a slight improvement in terms of numbers of cases. Authors have reported in the current article that 19 cases underwent endoscopy due to bleeding and 5 cases were diagnosed with metastatic tumors at the time of surgery due to uncontrolled bleeding.

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