

# Esophageal metastatic sub-mucosal lesion of hepatocellular carcinoma diagnosed by EUS

## Abstract

Esophageal metastatic lesions are rare particularly of hepatocellular carcinoma (HCC). The majority of reported cases were diagnosed post-mortem, only a few cases were identified by upper endoscopy. Endoscopic ultrasound (EUS) has never been reported as a diagnostic tool for esophageal metastasis from HCC, nor has EUS-FNA ever been used for this purpose. We reported a 59-year-old male who was under surveillance post liver transplant from HCC 4years ago, had elevated alpha fetoprotein (AFP) at 258.3ng/ml and a positron emission tomography-computed tomography (PET-CT) showing an increased uptake lesion of standardized uptake value (SUV) 7.5 at gastro-esophageal junction. EUS showed a homogeneous hypoechoic mass measuring 35x20mm from the 3rd layer of the distal esophageal wall and EUS-FNA was performed. Cytopathology was consistent with metastatic HCC. The patient expired 20months later from progressive disease with systematic bacterial infection despite multidisciplinary treatments.

**Keywords:** endosonography, endoscopic ultrasound, eus, hepatocellular carcinoma, esophagus, metastasis, esophageal metastasis, eus-fna

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Pradermchai Kongkam,<sup>1</sup> Veeravich Jaruvongvanich,<sup>1</sup> Chadin Tharavej,<sup>2</sup> Akira Aso,<sup>3</sup> Takashi Osoegawa,<sup>3</sup> Shuji Shimizu,<sup>3</sup> Pinit Kullavanijaya<sup>1</sup>

<sup>1</sup>Gastrointestinal Endoscopy Excellent Center, Department of Medicine, Thailand

<sup>2</sup>Department of Surgery, Chulalongkorn University and King Chulalongkorn Memorial Hospital, Thailand

<sup>3</sup>Department of Endoscopic Diagnostics and Therapeutics, Kyushu University Hospital, Japan

**Correspondence:** Pradermchai Kongkam, Gastrointestinal Endoscopy Excellent Center, Department of Medicine, Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital, Thai Red Cross Society 1873, Rama 4 Road, Patumwan, Bangkok, Thailand 10330, Tel +66-2-256-4356, Fax +66-2-652-4219, Email kongkam@hotmail.com

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**Abbreviations:** EUS, endoscopic ultrasound; EUS-FNA, endoscopic ultrasound-guided fine needle aspiration; AFP, alpha fetoprotein; PET-CT, positron emission tomography-computed tomography; SUV, standardized uptake value

## Introduction

Esophageal metastatic lesions are rare particularly of hepatocellular carcinoma (HCC). The majority of reported cases were diagnosed post-mortem, only a few cases were identified by upper endoscopy. Endoscopic ultrasound (EUS) has never been reported as a diagnostic tool for esophageal metastasis from HCC, nor has EUS-FNA ever been used for this purpose. We recently used both EUS and EUS-FNA to diagnose esophageal metastasis.

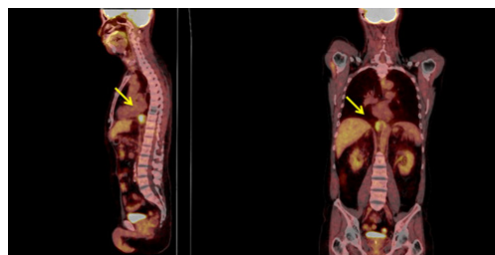
## Case presentation

A 59-year-old male who was under surveillance post liver transplant from HCC 4years ago, had elevated alpha fetoprotein (AFP) at 258.3ng/ml and a positron emission tomography-computed tomography (PET-CT) showing an increased uptake lesion of standardized uptake value (SUV) 7.5 at gastro-esophageal junction (Figure 1). Upper endoscopy showed unremarkable esophageal mucosa so EUS was performed showing a homogeneous hypoechoic mass measuring 35x20mm from the 3rd layer of the distal esophageal wall (Figures 2.1 & 2.2) and EUS-FNA was performed. Cytopathology was consistent with metastatic HCC (Figures 3.1 & 3.2). The patient expired 20months later from progressive disease with systematic bacterial infection despite multidisciplinary treatments.

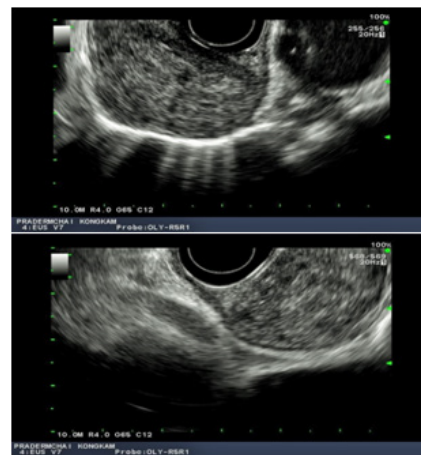
## Discussion

Gastro-intestinal metastasis from HCC is rare with an incidence of only 2%.<sup>1</sup> Only 10 cases of the metastases have been reported in the PUBMED (Table 1).<sup>2-11</sup> The majority of patients presents with

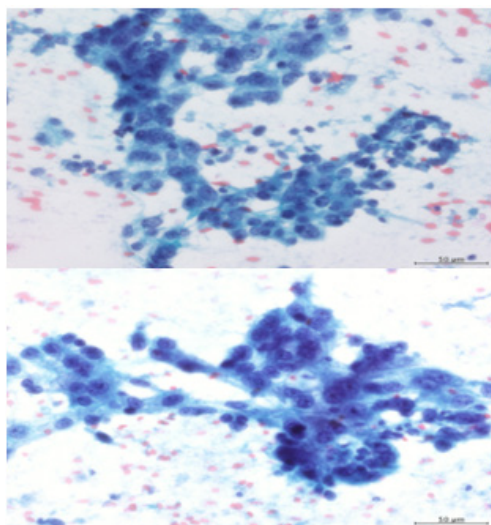
gastrointestinal bleeding, dysphagia and elevated AFP. Diagnosis was mostly made by biopsy from endoscopy.



**Figure 1** Positron emission tomography (PET) scan showed abnormal uptake of SUV 7.5 at gastroesophageal junction of distal part of the esophagus.



**Figure 2a & 2b** Endoscopic ultrasound showed a sub-mucosal homogeneous hypo-echoic mass measuring 20x35 mm in diameter, being located at 34-39 cm from incisor. The lesion originated from third layer of esophageal wall as shown in figures.



**Figure 3a & 3b** a) Malignant cells resembling hepatocyte present in trabeculae; b) Pseudoacinar pattern. They were stained with Papanicolaou stain with original magnification 400X.

It is hypothesized that esophageal metastasis from HCC came about through the tumor invading the portal vein through hepatofugal portal blood flow<sup>12</sup> or direct invasion of tumor cells to the left gastric vein to the esophagus.<sup>7</sup> This case supports a hypothesis of hematogenous spread mechanism of HCC due to the detection of tumor in the submucosa without mucosal involvement.

Based on available information, the majority of esophageal metastases present either as polypoid masses or sub-mucosal lesions which mainly were discovered during endoscopy. EUS were applied in only 3 cases only after the lesions were detected by endoscopy.<sup>6-8</sup> In this case, the esophageal metastasis was incidentally suspected from the PET scan. Upper endoscopy did not detect any lesion. Nevertheless, EUS successfully identified the lesion with positive results of HCC from EUS-FNA. This suggests that patients with history of HCC with positive results of PET-CT in the gastrointestinal wall, EUS should be considered as an investigation of choice despite negative finding from endoscopy.

In general, prognosis of esophageal metastasis is extremely poor with an average survival time shorter than 1 month.<sup>8</sup> Given the fact that this current case was detected in earlier stage than other previously reported cases, his survival time was then longer than other ones.

**Table 1** Clinical characteristics of patients with HCC with esophageal metastasis were shown in this table

	Gender/Age	Presentation	Diagnostic Method	Shape	Tissue Diagnosis	AFP (ng/ml)	Survival Time* (months)	Note
Sohn et al. <sup>3</sup>	M/74	Anorexia	Esophagogram	Polypoid	EGD	ND	ND	
Kume et al. <sup>4</sup>	M/56	Dysphagia, tarry stool	EGD	Polypoid	Autopsy	12,200	2	
Sohara et al. <sup>5</sup>	M/54	Melena	EGD	SMT	EGD	4,987	3	
Sohara et al. <sup>5</sup>	M/46	Hematemesis	EGD	Polypoid	Autopsy	990	7	
Cho et al. <sup>6</sup>	M/50	Dysphagia, hematemesis	EGD	Polypoid	EGD	Elevated	13	EUS was utilized
Tsubouchi et al. <sup>7</sup>	M/63	Epigastric pain	EGD	Polypoid	EGD	4,130	14	EUS was utilized
Choi et al. <sup>8</sup>	M/66	Hematemesis	EGD	SMT progressed to polypoid in 1 month	EGD	3.47	7	EUS was utilized
Xie et al. <sup>9</sup>	M/50	Dysphagia, odynophagia	EGD	Polypoid	EGD	ND	More than 7	OLT 3y
Hsu et al. <sup>10</sup>	M/54	Hematemesis, tarry stool	EGD	Polypoid	EGD	ND	4	OLT 2y
Fukatsu et al. <sup>11</sup>	M/63	Progressive anemia	EGD	Polypoid / SMT	EGD	ND	1	

## Conclusion

This case report demonstrated that EUS can diagnose early esophageal metastasis despite negative endoscopic findings. It is hence a potential investigation of choices to search for gastrointestinal wall metastasis including esophagus in patients with positive PET scan. This current case report also supports a hypothesis of hematogenous spreading mechanism of hepatocellular carcinoma.

## Conflicts of Interest

None.

## Acknowledgements

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