

## CASE REPORT

## Primary mesenteric carcinoid tumor

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Primary mesenteric carcinoid tumor is very rare, although secondary mesenteric involvement is common, reported as 40% to 80%. And distant metastasis rate reported as 80% to 90%, when the size is larger than 2 cm. We present a case of very rare primary mesenteric carcinoid tumor showing benign character though large size. The patient visited St. Vincent's Hospital, The Catholic University of Korea with increasing palpable abdominal mass. At laparotomy, a well encapsulated mass arising from the mesentery near the ligament of Treitz was found without any adjacent organ invasion or distant metastasis. The mass was measured as 8.2 × 7.3 cm and histopathologically benign character. At 11 months of follow up, the patient was recurrence free.

**Key Words:** Carcinoid tumor, Mesentery, Neoplasms

### INTRODUCTION

Carcinoid tumors are rare tumors that display neuroendocrine properties. About 90% of carcinoid tumors arise in the gastrointestinal tract (GIT) [1]. Carcinoid tumor is the most frequent primary malignant tumor of the small intestine beyond the ligament of Treitz and most frequently arises in the terminal ileum [2,3]. Secondary mesenteric involvement of small bowel carcinoid tumors is common, reported as occurring in 40% to 80% of cases [3,4]. However, primary mesenteric carcinoid tumors are very rare and most solid tumors arising in the mesentery are usually metastatic tumors [1,2]. Distant metastasis rates from carcinoid tumors increases up to 80% to 90%

when the size of the tumor is larger than 2 cm [3-5]. We present a very rare case of a primary mesenteric carcinoid tumor with 8.2 × 7.3 cm sized that demonstrated a benign character.

### CASE REPORT

A 73-year-old woman presented with a palpable abdominal mass which had been increased in size for 1 year. She denied any other gastrointestinal or systematic symptoms. Physical examination revealed an 8 cm sized round and movable mass without tenderness in the periumbilical area. Computed tomography (CT) scan demon-

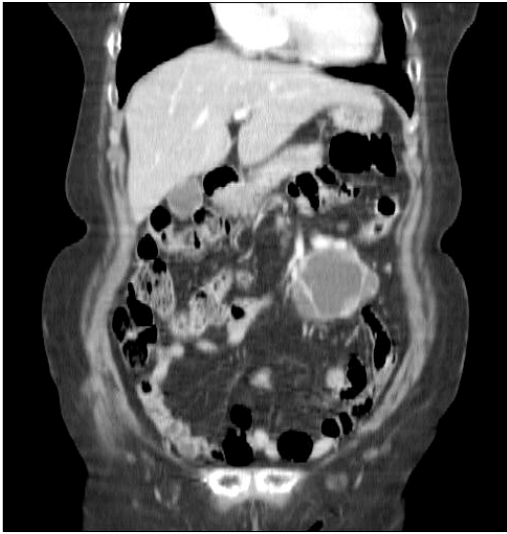
Received August 14, 2012, Revised October 16, 2012, Accepted October 26, 2012

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**Fig. 1.** Computed tomography scan shows well-defined and complex density mass in mesentery or adjacent proximal jejunum.

strated an 8.2 × 7.3 cm sized well-defined mass with complex density located in the mesentery or adjacent proximal jejunum (Fig. 1).

At laparotomy, a well-encapsulated mass was found to be arising from the small bowel mesentery near the ligament of Treitz (Fig. 2). We carefully dissected and removed the mass without injury to adjacent organs. There were no abnormal findings in the other organs including the small bowel and colon.

Histological examination showed tumor cells composed of homogenous small cells arranged in a trabecular pattern with the nucleus showing a round to oval shape, indistinct nucleoli, and coarsely granular chromatin pattern. There was no mitosis (Fig. 3A, B). Immunohistochemistry showed the tumor to be positive for multiple neuroendocrine markers including synaptophysin (Fig. 4A), CD56 (Fig. 4B), cytokeratin (Fig. 4C). Histopathologic examination confirmed the mass as a carcinoid tumor with a benign nature. At 11 months of follow-up, the patient was asymptomatic and recurrence free. This study had been approved by the Institutional Review Board of St. Vincent's Hospital, The Catholic University of Korea (VC12ZISE0142).

## DISCUSSION

Carcinoid tumor is a rare, slow-growing, neuroendocrine tumor with about 90% of the lesions arising in the GIT [5]. GIT carcinoid tumors are classified by the embryologic origin as foregut, midgut and hindgut. 46% to 64% of GIT carcinoid tumors arise in the midgut and most midgut carcinoid tumors originate in the terminal ileum [3].

However, primary carcinoid tumors of the mesentery are very rare [2]. And carcinoid tumors arising in the mesentery are usually metastatic. Midgut carcinoid tumors commonly spread to the mesentery, reported as occurring in 40% to 80% of cases in various series [2].

On CT scan, mesenteric carcinoid tumors exhibit varying degrees of fibrosis, calcification, focal or diffuse neurovascular bundle invasion by the tumor or both mechanisms [2].

Surgical excision is a mainstay of treatment for carcinoid tumor. Larger tumors are usually associated with locally advanced or distant metastasis [3]. Also, approximately half of midgut carcinoid patients present with liver metastasis [2]. Generally, for tumors smaller than 2 cm without lymph node involvement, local segmental resection is adequate [3,4]. And tumors larger than 2 cm with regional mesentery metastasis and lymph node involvement, wide excision of the bowel and mesentery with lymph node dissection is needed because tumors larger than 2 cm are associated with 80% to 90% incidence of metastasis [3-5]. Also, surgical debulking of local or distant metastatic carcinoid tumors is recommended, both for relief of symptoms and prolonged survival, despite randomized evaluation not being done [3-5].

Microscopically, typical carcinoid tumors have one of five growth patterns: insular, trabecular, glandular, undifferentiated, or mixed [3]. Most midgut carcinoids show a mixed insular and glandular growth pattern [4].

In this case, the tumor originated from the mesentery near the ligament of Treitz and well encapsulated, free from the small intestine (Fig. 2). At the time of surgery, the entire small bowel was meticulously inspected and no evidence of tumor mass or enlarged lymph node was found. In addition, there was no evidence of tumor anywhere else

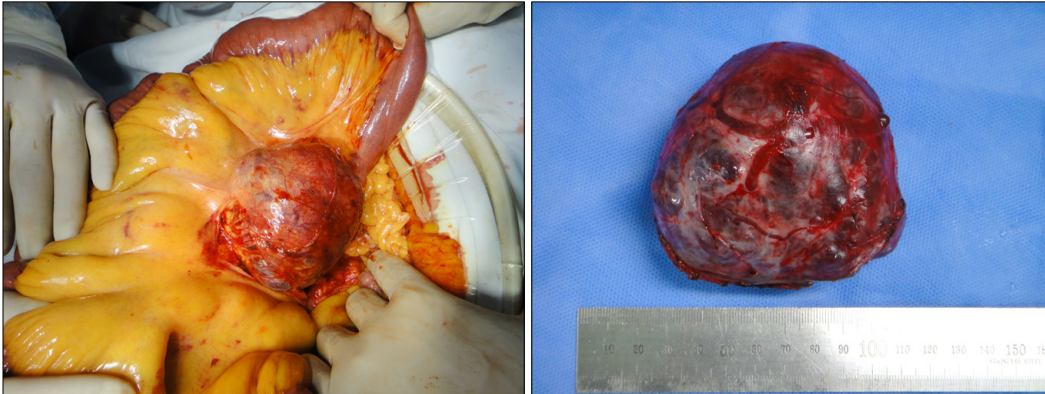


Fig. 2. Well-capsulated mass originated near the ligament of Treitz.

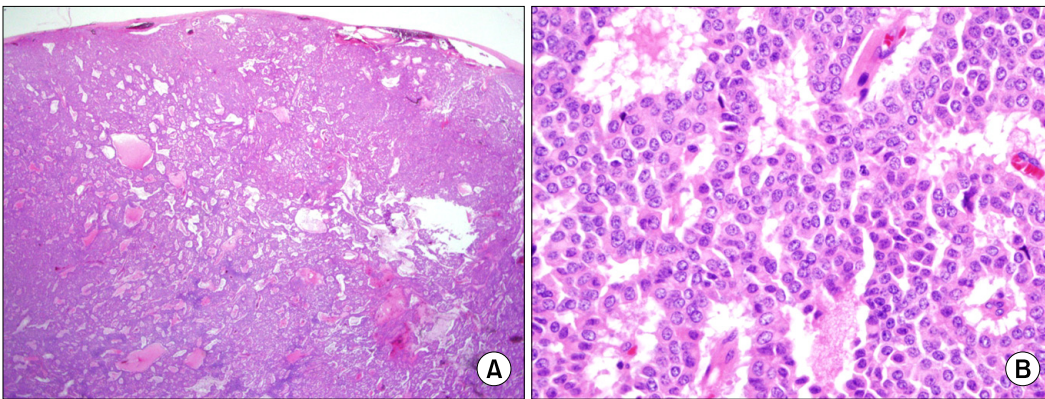


Fig. 3. (A) Cells composing tumor are arranged in trabecular pattern and well encapsulated (H&E,  $\times 40$ ). (B) Cellular nucleus has coarsely granular chromatin pattern without mitosis (H&E,  $\times 400$ ).

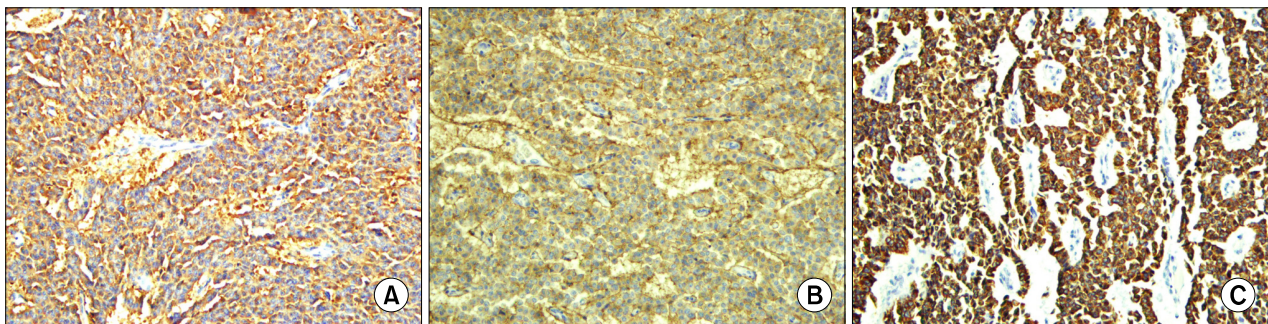


Fig. 4. Tumor expresses strong positivity in immunohistochemical stain with synaptophysin (A), CD56 (B), and cytokeratin (C) ( $\times 200$ ).

in the abdomen including the liver, ovary and other solid organs. So, it may be a primary mesenteric carcinoid tumor or metastasis from an occult primary site. Carcinoid tumors often have advanced malignant potential depending on location, size, nature. But this case shows a rare large primary mesenteric carcinoid tumor with character-

istics of uncommon position and benign nature.

### CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article

was reported.

## REFERENCES

1. Yamanuha J, Ballinger R, Coon D, Navin J. Carcinoid tumor presenting as a primary mesenteric mass: a case report and review of the literature. *Hawaii Med J* 2009; 68:137-9.
2. Karahan OI, Kahriman G, Yikilmaz A, Ozkan M, Bayram F. Gastrointestinal carcinoid tumors in rare locations: imaging findings. *Clin Imaging* 2006;30:278-82.
3. Woodside KJ, Townsend CM Jr, Mark Evers B. Current management of gastrointestinal carcinoid tumors. *J Gastrointest Surg* 2004;8:742-56.
4. Akerstrom G, Hellman P, Hessman O, Osmak L. Management of midgut carcinoids. *J Surg Oncol* 2005;89:161-9.
5. de Vries H, Verschueren RC, Willemse PH, Kema IP, de Vries EG. Diagnostic, surgical and medical aspect of the midgut carcinoids. *Cancer Treat Rev* 2002;28:11-25.