Case Report

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Metastatic Carcinoid in Mesenteric Lymph Node from Occult Primary in the Midgut: A Report of Two Cases

Divya Vijayanarasimha*, Aswathi Krishnan, Kavitha K.P.***, Sangeetha K. Nayanar****, Syam Vikram*****, Surij Salih******

*Senior Resident, Department Of Pathology, Malabar Cancer Centre, Thalassery, Kannur, Kerala, India.

**Assistant Professor, Department Of Pathology, Malabar Cancer Centre, Thalassery, Kannur, Kerala, India.

***Associate Professor, Department Of Pathology, Malabar Cancer Centre, Thalassery, Kannur, Kerala, India.

****Professor, Department Of Pathology, Malabar Cancer Centre, Thalassery, Kannur, Kerala, India.

*****Associate Professor, Department Of Surgical Oncology, Malabar Cancer Centre, Thalassery, Kannur, Kerala, India.

******Associate Professor, Department Of Surgical Oncology, Malabar Cancer Centre, Thalassery, Kannur, Kerala, India.

Abstract

The diversity of presenting features of gastrointestinal (GI) carcinoids presents a major challenge in the diagnosis and treatment of these cases. An increasing incidence of midgut carcinoids is being reported due to improved diagnostic modalities. Occult metastatic carcinoid in mesenteric nodes requires a diligent search for localisation of primary tumor in GIT which are often smaller in size than the metastasis and requires a high index of suspicion and meticulous examination for detection. Here we describe two cases presenting as metastatic carcinoid in mesenteric nodes of unknown origin, which on further investigation revealed primary of small size in the midgut.

Keywords: Neuroendocrine tumors; Midgut carcinoid; Metastatic carcinoid; Mesentric metastasis; Small sized carcinoid.

Introduction

Neuroendocrine tumors (NETs) are increasing in both incidence and prevalence and are more prevalent than either gastric, pancreatic, oesophageal or hepatobiliary adenocarcinomas, or any two of these cancers combined.[1]

GI NET may present with carcinoid syndrome due to production of vasoactive amines or may be asymptomatic, in which case their diagnosis and management is delayed. Though occurrence of mesenteric lymph node metastasis is known, primary presentation of midgut NET as large metastatic mesenteric masses with occult primary is rare; requiring a high index of suspicion on part of the clinician and appropriate pathological examination. Further NETs of Ampulla of Vater are rare, constituting only 0.35% of GI NETs.[2]

We are reporting two cases of NET presenting primarily as large mesenteric lymph node masses and on further evaluation were found to have small-sized primary in the small bowel.

Case Report

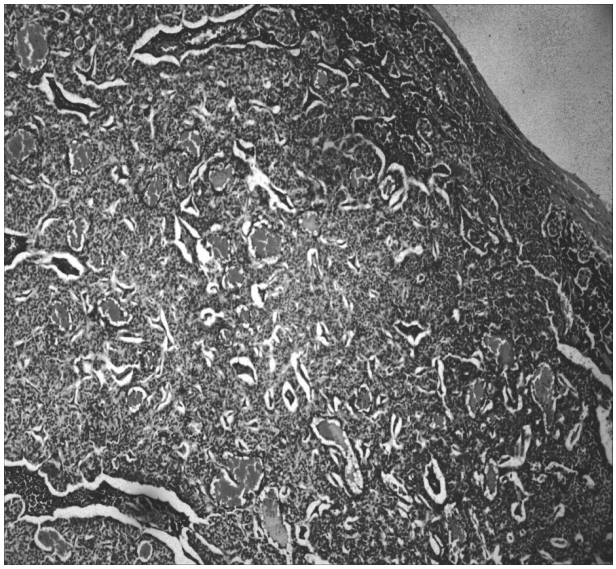
Case 1: A 40- year old male presented with a 10 cm retroperitoneal mass in the para-aortic region. Histology showed a lymph node with metastatic NET with IHC positivity for CK, synaptophysin and chromogranin A.

Exploration laparotomy and segmental resection of small bowel was done which showed a yellow nodule in jejunum measuring

Corresponding Author: Dr. Divya Vijayanarasimha, 17, 2nd Main, Kamakshi Hospital Road, Kuvempunagar, Mysore 570023, Andhra Pradesh, India.

E-mail: divyamala@ymail.com

Figure 1: Metastatic Neuroendocrine Tumor in Mesenteric Lymph Node [H & E x 100].



1x0.8cm extending upto serosa with further mesenteric lymph nodes, largest measuring 5x4 cm. Histology showed NET grade 2 (pT2N1) with similar morphology.

Case 2: A 55 year old male presented with a large retroperitoneal mass, which on FNAC was reported as metastatic NET.

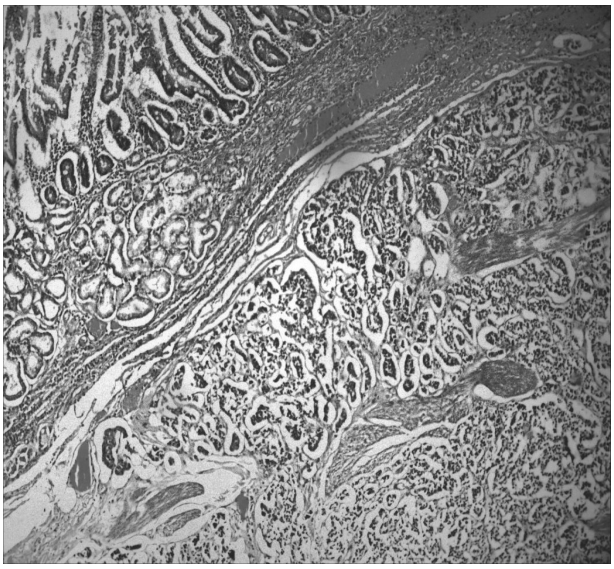
Laparotomy was done and an incidental thickening was noted in the periampullary region. Frozen section revealed a NET. Whipple's resection was done and a 1.5 x1 cm growth was seen at the Ampulla of Vater with multiple mesenteric lymph nodes. Largest measuring 9x6 cm. Histology showed NET grade 1 (pT2N1).

Neither case showed features of carcinoid syndrome.

Discussion

The incidence of gastrointestinal NETs has increased at a rate of 3%–10% per year over the past three decades. NET of GI tract constitute 60% of all cases and within the GI, the most common site is the small intestine (34%), followed by the rectum (23%) and colon (19%).[1] Synchronous non-carcinoid (22%) or metachronous (10%) cancers occur.[2,3]

Figure 2: Neuroendocrine Tumor in Ampulla of Vater: Monotonous Round Cells in Trabecular Pattern Invading the Muscularis Propria, with Preserved Mucosa [H & E x 100]



WHO classification of NET into four types is based on their size, proliferative rate, localisation, differentiation, and hormone production.[3]

Gastrointestinal carcinoids can produce symptoms due to amine production or can be asymptomatic and incidentally detected on imaging. This can lead to a delay in diagnosis of up to 5–7 years or result in inappropriate management.[1]

Diagnosis of midgut NET on computed tomography (CT) is difficult because of the small size, but mesenteric metastasis can be identified as an enhancing soft-tissue mass with linear bands radiating in the mesenteric fat.

Approximately 40%–80% of GI NET spread to the mesentery, either by direct extension or through the local lymphatics. The distal ileum is the most frequent location of the primary lesion. The mesenteric mass is usually discovered first, when patients present with nonspecific abdominal pain and grow larger than the primary tumor in the small bowel wall.[4]

62-67% required laparotomy for either intestinal obstruction or abdominal pain, and of these patients, 67-79% had extensive

mesenteric fibrosis upon surgical exploration.[5] This last phenomenon only occurs in midgut carcinoid and may result from the paracrine actions of serotonin on smooth muscle cells and fibroblasts, producing elastic vascular sclerosis. At an advanced stage, intestinal ischaemia may cause necrosis and perforation of the intestinal wall, a recognised cause of death in patients with midgut carcinoid.

More than half of midgut carcinoids present with nodal metastases (up to 80%), whilst a smaller proportion present with liver metastases (upto 40%).[6]

Indium-111 (111In) octreotide SPECT CT can be done pre and intra operatively to identify primary tumor in cases of occult mesenteric carcinoid which will help in planning surgery. However histopathological confirmation is essential as low tracer uptake was reported in normal sized nodes with microscopic disease.[7]

Selective venous sampling, positron emission tomography (PET) and various forms of radionucleotide scanning can be used to localize the tumor.[8]

FNAC can play an important role in diagnosing metastatic NET. On FNAC, in classic carcinoid tumor, the findings are distinctive enough to permit diagnosis, with or without ancillary tests such as electron microscopy or immunocytochemistry.[9]

Grossly NETs presents as a rounded submucosal protrusion into the lumen and is characterised by yellow colour of tumor after fixation.

Microscopic types include insular, trabecular, glandular, undifferentiated and mixed. Nests of monotonous appearing cells with small, round nuclei, moderate amount of finely granular chromatin and fine nucleoli are characteristic.[10] Invasion beyond submucosa or metastatic spread indicates that the lesion is aggressive.[3]

Ampullary carcinoids constitute 2% of all ampullary tumors and 0.35% of all GI NET carcinoids and are associated with a relatively poor prognosis. Tumor size and mitotic activity has no correlation with metastatic potential unlike NET in other sites. Even tumors less than 1 cm can present with metastasis, and local resection has high propensity to leave behind node positive tissue.[11,12]

The overall 5-year survival rate for patients with GI NETs is about 58%, with little change over the past 30 years. However, in patients with well differentiated NETs with distant spread, the 5-year survival rate has improved from 15% to 52% over this time period. This improvement probably reflects development of integrated management strategies.[1] Resection of mesenteric metastases may alleviate symptoms dramatically, and importantly, prolong survival.[6]

Conclusion

Metastatic NET in mesenteric lymph nodes warrants a diligent search for primary lesion in GIT particularly the midgut, which may be of small size and requires judicious use of various pathological and radiological investigations for appropriate management.

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