Perforated Meckel’s diverticulum as a result of gastrointestinal stromal tumor presenting as acute abdomen: A rare case report

INTRODUCTION

Meckel’s diverticulum is present on the antimesentric border of the terminal ileum, within 2 ft proximal to the ileocecal valve, and results from incomplete closure of the vitello-intestinal duct. Meckel’s diverticulum is usually diagnosed during laparotomy or due to a complication of it such as bleeding, diverticulitis, and perforation. Tumors within Meckel’s diverticulum are a rare, but known complication. A 50-year-old male presented with fever and pain abdomen particularly in periumbilical region with sign of peritonitis. During laparotomy, a perforated Meckel’s diverticulum was found. A perforation was found at the apex of Meckel’s diverticulum. We resected 5 cm of the healthy bowel each side with primary anastomosis. Histopathology and immune-histochemistry shows gastrointestinal stromal tumors (GISTs) of Meckel’s diverticulum. GISTs arising from Meckel’s diverticulum are an extremely rare, but recognized complication. Surgery is the standard treatment for nonmetastatic GISTs with en bloc resection and clear margins.

Key words: Gastrointestinal stromal tumor, imatinib, Meckel’s diverticulum, perforation, surgical resection

CASE REPORT

A 50-year-old male was referred to our institution in October 2011 due to fever and abdominal pain (more in periumbilical region) and no passage of stool and flatus for 3 days. On physical examination, he had tender abdomen and signs of peritonitis. Vitals were stable. Routine hematological examination, serum chemistry and liver function test were within normal limit. Plain X-ray abdomen in erect posture shows multiple air fluid levels. Hence, initially thought it to be a delayed case of peptic perforation as it is pretty common in our setup. So, abdomen is opened in upper mid line incision, which was filled with intra-abdominal free fluid. Stomach and duodenum found to be absolutely normal. Then we found a perforated Meckel's diverticulum at the tip. We resected 5 cm of the healthy bowel each side and did a primary anastomosis. The resected specimen send for microscopic study and showed high-grade malignant tumor composed of sheets of polygonal cells with scant areas of elongated oval cells [Figure 1]. Tumor cells showed round to oval centrally placed nuclei with moderate to abundant eosinophile cytoplasm.
and some cells showed central clearing [Figure 2]. Large confluent areas of necrosis were seen. On immunohistochemistry, the tumor cells are positive for c-kit (CD-117), while negative for smooth muscle actin, CD-34 and cytokeratin. It was diagnosed as malignant GIST. The patient was then treated with imatinib. Now the patient is doing well without any sign of metastasis after 18 months of follow-up.

DISCUSSION

Gastrointestinal stromal tumors are the most common non-epithelial tumors of the digestive tract, accounting for only 1% of all gastrointestinal malignancies. Primary GISTs can affect any part of the gastrointestinal tract from the esophagus to the anus. The most frequent site is the stomach (55%), followed by the duodenum and small intestine (30%), esophagus (5%), rectum (5%), colon (2%), and rare other locations. In a large series, have reported the most common presentations of symptomatic Meckel’s diverticula in adults to be bleeding (38%), obstruction (34%), diverticulitis (28%), and perforation (10%). The incidence of tumors within Meckel’s diverticulum is 0.5% to 3.2%. Most are commonly benign tumors such as leiomyomas, angiomys, and lipomas. Malignant neoplasms include adenocarcinoma (14.4%), sarcoma (25.5%), carcinoid tumor (31.5%), and GISTs. GISTs have a range of presenting features, including abdominal pain, an abdominal mass, gastrointestinal bleeding, small bowel obstruction, weight loss, fever, abscess, or perforation. Our patient had fever, pain abdomen, and perforation. GISTs arise from the interstitial cells of Cajal, the pacemaker cells of the gastrointestinal tract. GISTs strongly expresses the kit (CD 117) protein and may harbor mutations of the Type III tyrosine kinase receptor gene (either kit or PDGFRA). The most important adverse factors are thought to be a tumor diameter of > 5 cm and a high mitotic count exceeding 5 mitotic figures per 50 high powered fields on light microscopy. Other suggested factors indicative of poor prognosis include tumor perforation, tumor necrosis, high cellularity, and marked pleomorphism.

Surgery is considered the standard treatment for nonmetastatic GIST with en-bloc resection and clear margins. Study data on GISTs presenting in the United States between 1992 and 2000 state a 5-year survival of 50-60% after complete resection of the localized primary tumor. There is little evidence supporting local/regional lymphadenectomy as GISTs rarely metastasize to lymph nodes. Targeted therapy with Imatinib, a kit tyrosine kinase inhibitor, is considered the standard treatment for metastatic GIST.

CONCLUSION

Gastrointestinal stromal tumors arising from Meckel’s diverticulum are an extremely rare complication. Surgical resection with healthy margin with primary anastomosis is a standard practice. Imatinib is considered for high-grade and metastatic tumors.

REFERENCES


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