Case Report

Unusual presentation of jejunal hemangioma on Tc-99m pertechnetate scan with single-photon emission computerized tomography-computed tomography

ABSTRACT

Small bowel hemangioma is a rare benign tumor in the pediatric population. The usual presentation of these tumors is melena, anemia, or hematochezia. Our case demonstrates the usefulness of Meckel's/Tc-99m pertechnetate scan with single-photon emission computerized tomography/computerized tomography in diagnosing a vascular lesion in the small bowel in a child presenting with melena, unresponsive to medical management. We present a case of incidentally detected jejunal hemangioma during Tc-99m pertechnetate scintigraphy which would help the nuclear medicine physician and surgeon, to be cognizant of this atypical presentation in their clinical practice.

Keywords: Hemangioma, jejunum, laparotomy, Meckel's scan, small bowel, Tc-99m pertechnetate

INTRODUCTION

Gastrointestinal (GI) hemangioma is a rare benign tumor accounting for approximately 5% of all GI neoplasms.[1,2] Moreover, they are rarely found and suspected in the pediatric population, presenting with melena. The major symptom of small bowel hemangioma is overt GI bleeding.[1-3] Clinical experience in detection and diagnosis of ectopic gastric mucosa and few other congenital anomalies by Tc-99m pertechnetate scintigraphy is well known. However, there are certainly false positives which may be incidentally detected on Meckel's study, for example, vascular anomalies such as hypervascular tumors, arteriovenous malformation, hemangioma, bowel ulcerations, Crohn's disease, ulcerative colitis, appendicitis, intestinal obstruction, intussusception, and volvulus. These false-positive results are thought to be due to hyperemia caused by these conditions.[4-6] Timely, accurate diagnosis and treatment of aforementioned lesions are critical to the successful outcome. Herein, we describe a rare case of pediatric jejunal hemangioma with anemia and melena, wherein the functional nature of Tc-99m pertechnetate scan with single-photon emission computerized tomography/computerized tomography (SPECT-CT) raised suspicion of the presence of highly vascular lesion.

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CASE REPORT

A 9-year-old male child born to a nonconsanguineous marriage couple was diagnosed to be severely anemic during evaluation for diarrhea at 8 months of age, needing blood transfusion. At around 1 year of age, the parents noted blackish discoloration of stools. Similar episodes of blood in stools were noted at 2 years and again at 5 years of age. He underwent multiple blood transfusions for severe anemia. The general physician could not clinch

Karan Peepre, Nitinkumar Borkar[1], Sunil N. Jondhale[2], Mudalsha Ravina, Amal Moideen, Vipin Yadav, Sushmita Dey

Departments of Nuclear Medicine, [1]Pediatric Surgery and [2]Pediatrics, All India Institute of Medical Sciences, Raipur, Chhattisgarh, India

Address for correspondence: Dr. Mudalsha Ravina, Department of Nuclear Medicine, C1 Block, Lower Ground Floor, AIIMS Raipur, GE Road, Tatibandh, Raipur, Chhattisgarh, India.
E-mail: mudalsharavina@gmail.com
Dr. Nitinkumar Borkar,
Department of Pediatric Surgery, B1 Block, First Floor, AIIMS Raipur, GE Road, Tatibandh, Raipur, Chhattisgarh, India.
E-mail: drnitinborkar25@gmail.com

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the diagnosis. During evaluation, ultrasonogram of the abdomen, barium meal follow through, and Meckel's scan without SPECT-CT were done and interpreted as normal. He was asked by the family doctor to continue on iron supplements.

However, the patient now presented to the pediatric department of our tertiary care center with generalized swelling, intermittent abdominal pain, fatigue, and exertional dyspnea. Diagnosed as a severe anemia (hemoglobin [Hb]: 3.3 gm%), 250 ml of packed red blood cells was transfused in view of low Hb. A provisional diagnosis of Meckel's diverticulum with bleeding per rectum was made, and the patient was referred to the nuclear medicine department for Tc-99m pertechnetate scintigraphy. Tc-99m pertechnetate was injected 45 min after transfusion of intravenous ranitidine at the dose of 1 mg/kg body weight for 20 min. Dynamic [Figure 1] Tc-99m pertechnetate scintigraphy depicted tracer accumulation in the right hypochondrium, and static [Figure 2] images revealed gradual accumulation of tracer in the left hypochondrium and lumbar region. It was a changing position which was suggestive of its small bowel origin. SPECT with low-dose CT [Figure 3] localized the tracer focus in jejunal loops. The activity seen in the dynamic images was confirmed to be in the duodenum. Based on planar and SPECT-CT findings, we suggested a possible vascular lesion in the small bowel.

Based on the findings, the child was taken up for diagnostic laparoscopy. Telescope was inserted through 5-mm primary port. Diagnostic laparoscopy revealed around 12–15-cm long hemangioma involving the distal jejunum [Figure 4]. There was no Meckel's diverticulum. Resection of involved segment of bowel and end-to-end anastomosis of the

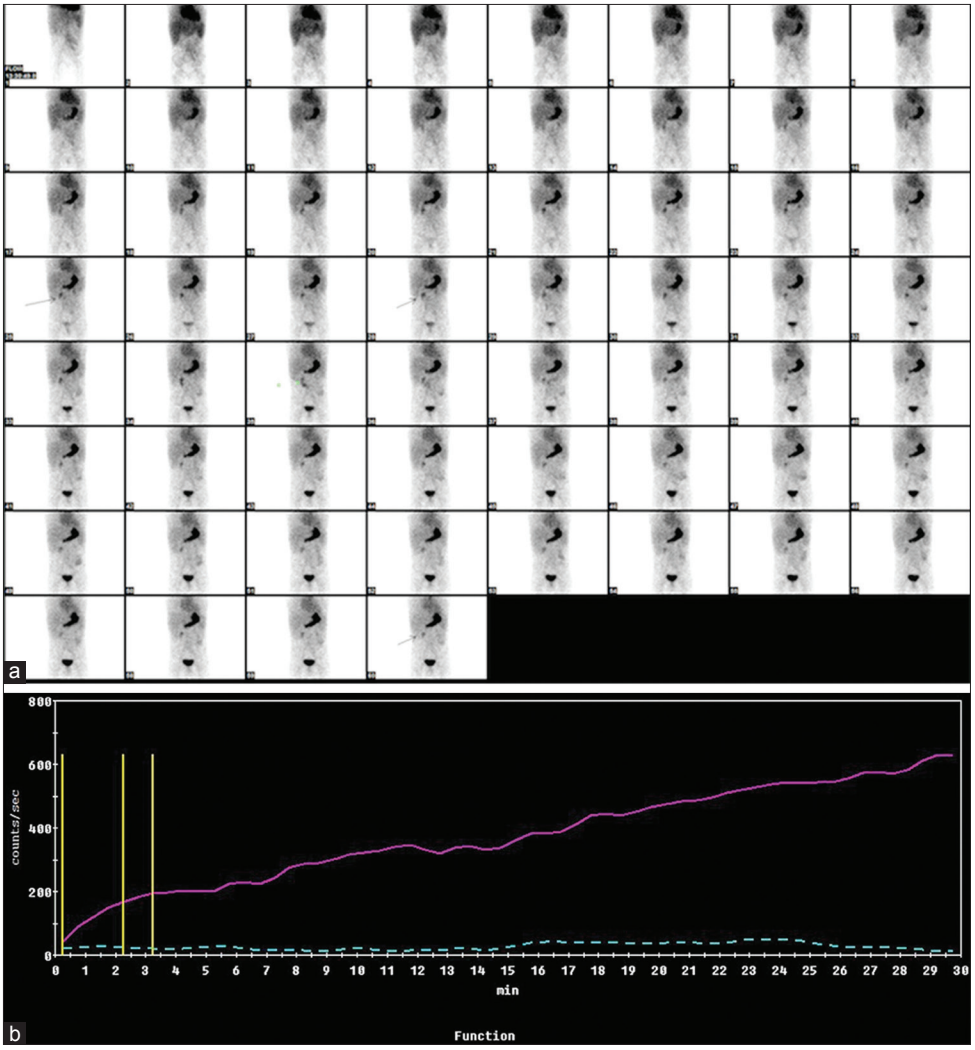

Figure 1: (a) Tc-99m pertechnetate scintigraphy was performed. Serial images (1 min/frame for 60 frames) depicted tracer accumulation in the right hypochondrium (multiple arrows) along with tracer uptake in the stomach. (b) Tim–activity curve (a) of the stomach (pink curve) depicts a rising curve. Time–activity curve of the lesion in the left hypochondrium and lumbar region (green curve) shows a flat curve as the activity gradually increased in intensity in delayed images only

involved segment was done by minilaparotomy. The lesion was actively bleeding and invaded the wall of the small bowel. The histopathology report reaffirmed our clinical diagnosis of hemangioma. On 2-week follow-up, the Hb levels and stools were normal.

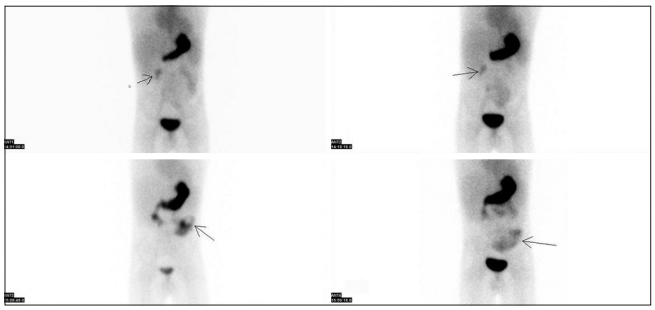

Figure 2: Delayed static images (anterior views) taken at different time intervals 1 h (top left), 1 h 15 min (top right), 2 h (lower left), and 2 h 30 min (lower right) confirm the early findings. In addition, mild tracer uptake is noted in the left hypochondrium and lumbar region which gradually increased in intensity (multiple arrows). The activity described in dynamic images in the right hypochondrium merged with stomach activity suggestive of its duodenal origin

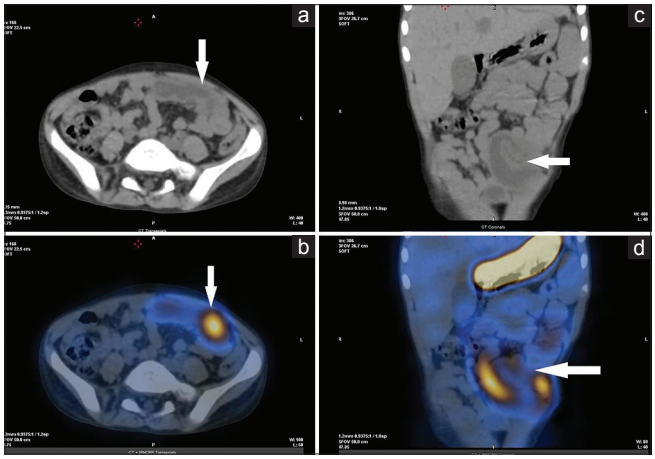

Figure 3: Single-photon emission computerized tomography/computerized tomography (b and d) fused with low-dose noncontrast computerized tomography (a and c) localized the tracer focus in jejunal loops (multiple arrows)

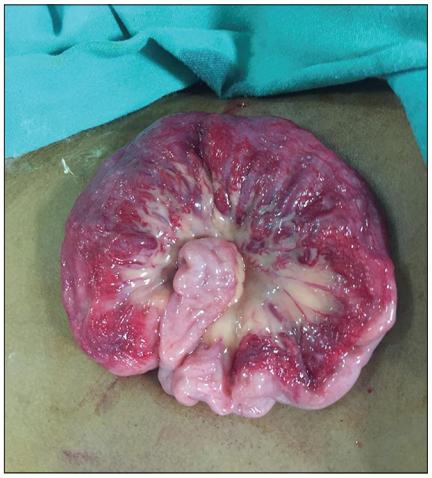

Figure 4: Operative specimen shows 12–15-cm long hemangioma involving the distal jejunum

In this case report, the authors wish to highlight the interestingly discovered rare pediatric jejunal hemangioma on Tc-99m pertechnetate scan, suggesting a potential diagnostic role.[7]

Pediatric patients rarely present with melena and anemia, due to intestinal hemangioma. We wish to highlight that hemangioma may be considered as a differential diagnosis in pediatric patients when we have ruled out the common causes, and the patient is not responding to medical management. Hemangiomas usually have a syndromic association, however this was not seen in our case.

The routine investigations in diagnostic armamentarium of GI hemangioma rely on scintigraphy, computed tomography, magnetic resonance imaging, angiography, and abdominal ultrasonography. These tools are accurate regardless of the patient's age or presentation. Depending on the location and features of the lesion, esophagogastroduodenoscopy or colonoscopy can be used to isolate a GI hemangioma.[8] However, in our case, as the scintigraphy findings were positive, the pediatric surgeon without much ado went ahead with diagnostic laparoscopy and further laparoscopic-assisted resection.[9]

As noted in the present case, it needs to be highlighted that the timing of appearance of activity and delayed static images may help Nuclear medicine physicians differentiate between false-positive causes from Meckel's diverticulum. It is a well-known fact that Technetium accumulates in areas of increased perfusion or hyperemia. To our understanding, this is the best possible explanation of the appearance of activity in a jejunal hemangioma in our case.

To the best of our knowledge, this is a tenth case report of intestinal hemangioma in the pediatric population.[10-16]

CONCLUSION

In our case, we conclude that Tc-99m pertechnetate scan with an added advantage of SPECT-CT raised suspicion for a highly vascular lesion in the small bowel. Visceral vascular anomalies have always posed a diagnostic challenge in the pediatric population. In the presence of repeated anemia and melena, it is recommended to consider this vascular anomaly in the differential diagnosis when other routine causes are ruled out.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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