Published online: 2019-09-26

Case Report

Primary intestinal lymphangiectasia: A rare cause of diarrhea in adults diagnosed by capsule endoscopy and double balloon enteroscopy

Varun Gupta, Piyush Ranjan, Mandhir Kumar, Munish Sachdeva

Department of Gastroenterology, Sir Ganga Ram Hospital, New Delhi, India

Abstract

Primary intestinal lymphangiectasia (PIL) or Waldmann's disease is a rare protein-losing enteropathy presenting with diarrhea. The etiology and prevalence of PIL remain unknown. <200 cases have been reported in the literature so far. Diagnosis of intestinal lymphangiectasia is difficult as there are no serological or radiological tests available. Small bowel imaging modalities like capsule endoscopy and double balloon enteroscopy have increased the chances of diagnosis of PIL due to direct visualization of small bowel. Diagnosis is confirmed by characteristic histopathological finding, which includes dilated intestinal lymphatics with broadened villi of the small bowel. We report a case of a patient with chronic diarrhea who was extensively worked up before he was finally diagnosed to have PIL involving the small bowel by performing balloon enteroscopy-guided biopsy.

Key words

Capsule endoscopy, double balloon enteroscopy, intestinal lymphangiectasia

Introduction

Intestinal lymphangiectasia is a rare disease caused by congenital malformation or obstruction of intestinal lymphatic drainage.[1,2] Primary intestinal lymphangiectasia (PIL) was first described by Waldmann *et al*. in 1961.[1] Etiology and prevalence of the PIL are unknown, and <200 cases have been reported.[3] It is, usually, diagnosed before 3rd year of life, but occasionally may be diagnosed in late childhood. Clinical features are persistent diarrhea, abdominal pain, malabsorption, peripheral edema and chylous effusion.

Diagnosis is dependent on histopathology as there are no serological or imaging tests to diagnose PIL. Intestinal involvement may be patchy and upper gastrointestinal (GI) endoscopy may be normal. In these circumstances Capsule endoscopy and double balloon enteroscopy (DBE) help in the diagnosis by examining the entire small bowel and allowing tissue biopsy from the affected part of a small intestine.

We report a case of a young boy whose GI symptoms remained undiagnosed for 3 years before a diagnosis was clinched by help of a combination of capsule endoscopy and DBE.

Access this article online	
Website: www.jdeonline.in	Quick Response Code
DOI: 10.4103/0976-5042.144832	

Case Report

This 18-year-old man presented in our department with complaints of diarrhea and abdominal pain since last 3 years. He had 2-3 loose stools/day, usually post prandial, without any nocturnal episodes. Stool was small in volume it was greasy, and there was no blood or mucus. Abdominal pain was generalized and sometimes severe enough to require hospitalization. He also complained of poor appetite, weight loss, and occasional abdominal distention. There was no history of skin rashes, oral ulcers, joints pain, tremor or history related to fat and water-soluble vitamin deficiency.

His general physical examination was normal except low body mass index (19 kg/m^2), and systemic examination was normal.

Patient was evaluated elsewhere, and his hematological and biochemical parameters were normal. He had normal upper

Address for correspondence:
Dr. Piyush Ranjan, Department of Gastroenterology, Sir Ganga Ram Hospital, New Delhi, India. E-mail: piyushranajan70@gmail.com

GI endoscopy and normal duodenal biopsy. Colonoscopy and contrast-enhanced computed tomography abdomen were also done which were normal.

He was admitted in our department for further evaluation due to persistent diarrhea. Complete blood count showed mid anemia (Hb, 12.3 g/dl, range 13-16.5 g/dl) with normal platelet and white blood cell count. Liver function tests and renal function tests were normal. He had mild hypoalbuminemia (3.0 g/dl) and normal immunoglobulin levels. Immunoglobulin A anti tissue transglutaminase antibody and absolute eosinophil counts were normal. Stool examination for common parasites was negative. We repeated upper GI endoscopy and colonoscopy, which were normal and duodenal biopsy revealed normal architecture. In view of persisting pain abdomen, CT enteroclysis was done which was normal.

Capsule endoscopy showed whitish spots in the jejunal mucosa suggesting PIL [Figure 1]. These lesions were seen in entire jejunum. DBE was done from the oral route to confirm CE findings and to take biopsies. In DBE length of small bowel examined was approximately 250 cm, and it showed similar punctuate white spots, sparsely distributed in jejunum with mild mucosal edema [Figure 2] and biopsies were taken. Histopathological examination revealed broadened villi with dilated lymphatic vessels within the lamina propria. Occasional lymphatic showed presence of lymphocytes and lamina propria showed mild mixed inflammatory cell infiltrates. Based on endoscopic findings and corroboration on histopathology a diagnosis of lymphangiectasia was made [Figure 3]. Since CT abdomen and CT enteroclysis did not show any intra-abdominal lymph nodes and two-dimensional cardiac echo did not show evidence of constrictive pericarditis, we labeled it as PIL.

Patient was started on medium chain triglyceride (MCT) diet along with high calcium and proteins in the diet. On 1 month follow up his symptoms had improved with a reduction in a number of stools and improvement in pain.

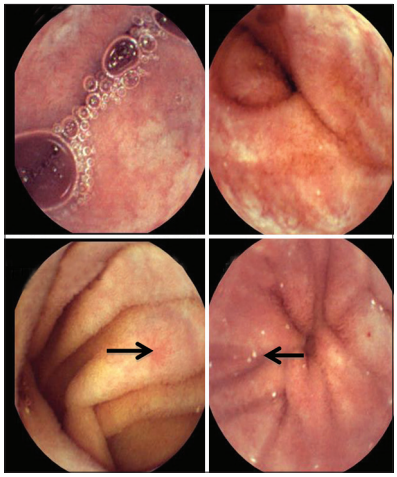

Figure 1: Capsule endoscopy showing whitish spots in jejunal mucosa

Discussion

Intestinal lymphangiectasia is a relatively rare disorder, and its exact incidence and prevalence are unknown. The disease affects males and females equally, and there is no racial predisposition. Depending on the cause of the disease, it can be classified into PIL, which can occur as an isolated disorder (from birth) or as a part of syndromes such as Noonan, Klippel-Trennay-Weber, von Recklinghausen, Hennekam and yellow nail syndrome.[4] Secondary interleukin lymphangiectasia occurs as a complication to disease states, such as constrictive pericarditis, lymphoma, sarcoidosis, scleroderma, Whipple's disease or rarely Crohn's disease, which mostly affects adults[5] [Figure 4].

Our patient had PIL since there was no evidence of any other secondary conditions causing IL Usually, symptoms in PIL start by 3 years of age. In our patient, the symptoms started at age of 15 years. Late onset presentation of PIL in our patient can be explained on the basis of segment involvement of small bowel.

The mechanisms for enteric protein loss in IL are not well understood, although an increase in the pressure of the lymph channels has been suggested to be a possible cause of protein loss.[6] The lymphatic hypoplasia results in an obstruction in lymph flow, which leads to increased pressure within the lymphatics. This, in turn, causes dilation of the lymphatic channels in the intestine and finally leads to the rupture of the channels with discharge of the lymph into the lumen of the bowel. As lymphatic fluid contains a lot of protein, fat and lymphocytes, leakage of lymph caused hypoproteinemia, lymphocytopenia and decreased serum levels of immunoglobulin.[7]

Main clinical manifestations include lymphedema, abdominal pain, weight loss, diarrhea, and fat-soluble vitamin deficiencies.[6] Our patient presented with symptoms of chronic diarrhea with pain abdomen, which started 3 years back. Laboratory

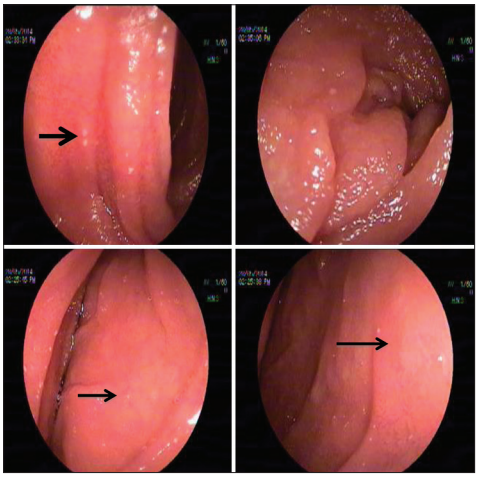

Figure 2: Double balloon enteroscopy showing edematous jejunal mucosa with scattered whitish spots

abnormalities like lymphopenia, low immunoglobulin levels or significant hypoalbuminemia, are subtle, suggestive features of IL. Our patient had mild hypoalbuminemia. His lymphocyte count and total globulin levels were normal. The severity of clinical features and various laboratory abnormalities may depend upon the length of small bowel involved.

A diagnosis of PIL is based on endoscopic findings and the corresponding histology in intestinal biopsy specimens.[5] In our patient upper GI endoscopy was showing normal duodenal mucosa, which is commonly involved in PIL. Abdominal ultrasonography and CT can show diffuse wall thickening and mesenteric edema in PIL.[8] In our patient, all imaging modalities including CT enterography were normal.

Upper GI endoscopy can diagnose around 86% of the PIL cases. Since the involvement of small bowel may not be uniform and duodenum may be spared. In the rest of cases, newer diagnostic modalities like capsule endoscopy and DBE are helpful. Yang *et al*.[9] performed capsule endoscopy in 243 patients of undiagnosed chronic abdominal pain and found to have IL in 11 (4.5%) of patients. Chamouard *et al*.[10] described a case of PIL that was detected using M2A video capsule endoscopy. Fang *et al*.[11] reported the case of a female patient who was diagnosed with PIL by M2A capsule endoscopy and was confirmed by pathological examination.

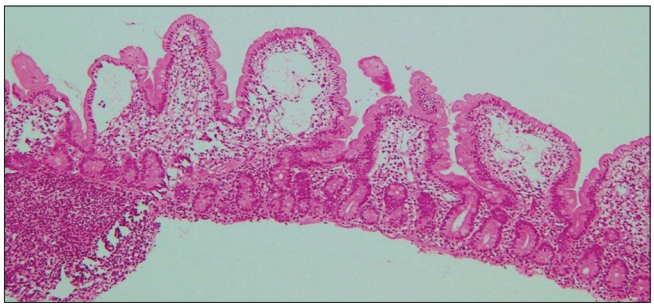

Figure 3: Jejunal biopsy (H and E, ×40) showing dialted lymphatics within the lamina propria

In our patient duodenal mucosa on upper GI, endoscopy was completely normal. When we did capsule endoscopy, we saw whitish spots in the jejunal mucosa suggesting PIL. PIL does not uniformly involve the entire small bowel and intraluminal small bowel modalities like capsule endoscopy and DBE increases the sensitivity of its diagnosis. Asakura *et al*.[12] reported three cardinal endoscopic findings in intestinal lymphangiecatasia: Scattered white spots, white villi and chyle-like substances covering the mucosa in the jejunum. DBE is helpful in taking biopsies from distal jejunum as we did in our case.

There is no specific treatment for PIL and fat restriction forms the cornerstone of treatment. It is likely that the absence of fat in the diet prevents engorgement of the intestinal lymphatics with chyle, thereby preventing their rupture that results in protein and T-cell loss.[2] Thus, a low-fat diet with supplemental MCT forms the cornerstone of management in PIL.[13] MCT are directly absorbed into the portal venous system, which prevents lacteal engorgement.[14] Small bowel resection may be helpful if the disease involves a localized segment of bowel.[15] Octreotide, antiplasmin (tranexamic acid), and corticosteroids

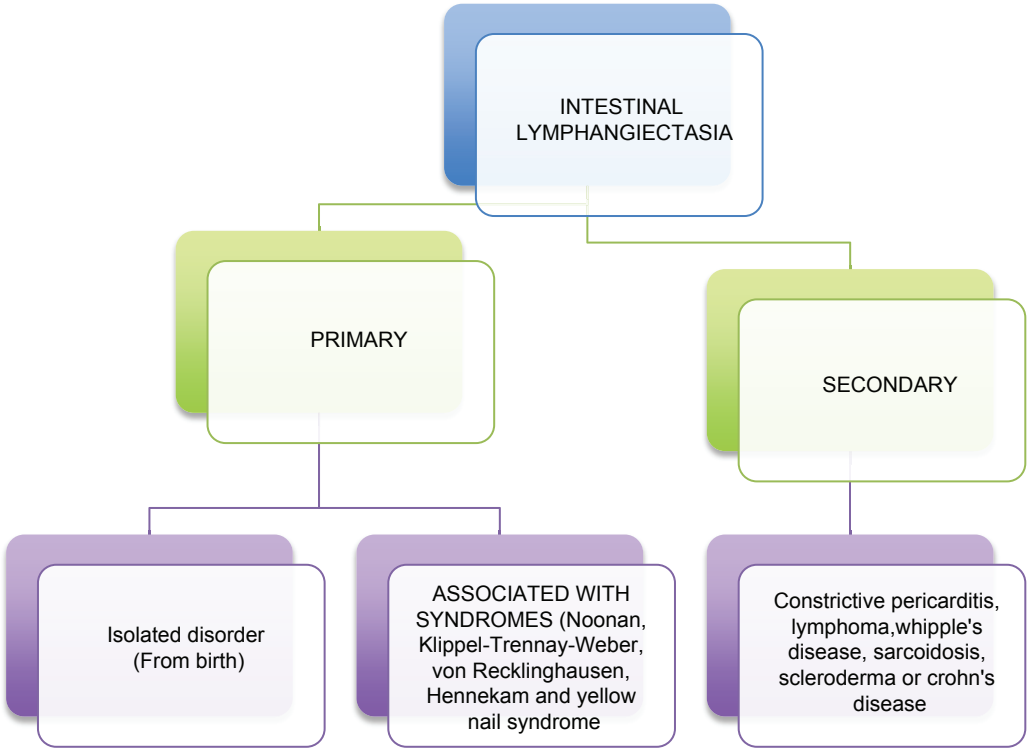

Figure 4: Classification of intestinal lymphangiectasia

are treatment options described in the literature, but there is insufficient data for their use.[2] We started our patient on MCT based diet and fat restriction and after 1 month he gained weight, and the diarrhea improved.

Conclusion

Primary intestinal lymphangiectasia is a rare condition that presents in early childhood with diarrhea. We diagnosed PIL in a young adult with the help of capsule endoscopy and DBE assisted biopsy.

References

1. Waldmann TA, Steinfeld JL, Dutcher TF, Davidson JD, Gordon RS Jr. The role of the gastrointestinal system in "idiopathic hypoproteinemia". Gastroenterology 1961;41:197-207.
2. Vignes S, Bellanger J. Primary intestinal lymphangiectasia (Waldmann's disease). Orphanet J Rare Dis 2008;3:5.
3. Lee J, Kong MS. Primary intestinal lymphangiectasia diagnosed by endoscopy following the intake of a high-fat meal. Eur J Pediatr 2008;167:237-9.
4. Waldmann TA. Gastrointestinal protein loss demonstrated by Cr-51-labelled albumin. Lancet 1961;2:121-3.
5. Freeman HJ, Nimmo M. Intestinal lymphangiectasia in adults. World J Gastrointest Oncol 2011;3:19-23.
6. Mistilis SP, Skyring AP, Stephen DD. Intestinal lymphangiectasia mechanism of enteric loss of plasma-protein and fat. Lancet 1965;1:77-9.
7. Wen J, Tang Q, Wu J, Wang Y, Cai W. Primary intestinal lymphangiectasia: Four case reports and a review of the literature. Dig Dis Sci 2010;55:3466-72.
8. Maconi G, Molteni P, Manzionna G, Parente F, Bianchi Porro G. Ultrasonographic features of long-standing primary intestinal lymphangiectasia. Eur J Ultrasound 1998;7:195-8.
9. Yang L, Chen Y, Zhang B, Chen C, Yue M, Du J, *et al.* Increased diagnostic yield of capsule endoscopy in patients with chronic abdominal pain. PLoS One 2014;9:e87396.
10. Chamouard P, Nehme-Schuster H, Simler JM, Finck G, Baumann R, Pasquali JL. Videocapsule endoscopy is useful for the diagnosis of intestinal lymphangiectasia. Dig Liver Dis 2006;38:699-703.
11. Fang YH, Zhang BL, Wu JG, Chen CX. A primary intestinal lymphangiectasia patient diagnosed by capsule endoscopy and confirmed at surgery: A case report. World J Gastroenterol 2007;13:2263-5.
12. Asakura H, Miura S, Morishita T, Aiso S, Tanaka T, Kitahora T, *et al.* Endoscopic and histopathological study on primary and secondary intestinal lymphangiectasia. Dig Dis Sci 1981;26:312-20.
13. Jeffries GH, Chapman A, Sleisenger MH. Low-fat diet in intestinal lymphangiectasia. Its effect on albumin metabolism. N Engl J Med 1964;270:761-6.
14. Alfano V, Tritto G, Alfonsi L, Cella A, Pasanisi F, Contaldo F. Stable reversal of pathologic signs of primitive intestinal lymphangiectasia with a hypolipidic, MCT-enriched diet. Nutrition 2000;16:303-4.
15. Warshaw AL, Waldmann TA, Laster L. Protein-losing enteropathy and malabsorption in regional enteritis: Cure by limited ileal resection. Ann Surg 1973;178:578-80.

How to cite this article: Gupta V, Ranjan P, Kumar M, Sachdeva M. Primary intestinal lymphangiectasia: A rare cause of diarrhea in adults diagnosed by capsule endoscopy and double balloon enteroscopy. J Dig Endosc 2014;5:71-4.

Source of Support: Nil, **Conflict of Interest:** None declared.