

CASE REPORT

Primary intestinal lymphangiectasia in a 23-month- old girl

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Abstract

Primary intestinal lymphangiectasia (PIL) is a rare protein-losing gastroenteropathy which is defined as dilation of existing mucosal, submucosal, or subserosal lymphatics within the gastrointestinal tract. That causes loss of lymph fluid into the gastrointestinal tract, leading to the development of hypoproteinemia, edema, lymphocytopenia, hypogammaglobinemia, and immunologic anomalies. It is usually diagnosed in patients younger than 3 years old and is rarely first diagnosed in adulthood. Here we have a case report in a 23-month- old female presented with the complaint of peripheral edema and diarrhea. The diagnosis of PIL was made through upper gastrointestinal endoscopy and pathology histologic analysis. Patient placed on oral supplements of medium-chain triglycerides, a high protein diet, supplements of fat-soluble vitamins and responded well.

INTRODUCTION

Primary intestinal lymphangiectasia (PIL) is a rare disorder often diagnosed in children before the age of three and rarely in adolescents. This clinical condition was first identified by Waldmann as 'idiopathic hypercatabolic hypoproteinemia', so it is also called as Waldmann's disease [1]. Intestinal lymphangiectasia (IL) can be primary, in which there is no predisposing condition for increased lymphatic pressures and that is probably due to congenital anatomic malformation of the lymphatics. This condition can also be secondary which is an acquired disease. It is characterised by increased intestinal lymph leakage, secondary to increased pressure due to obstruction within the lymphatics. Mesenteric lymphadenopathy, fibrosis of lymph drainage tracts, constrictive pericarditis, inflammatory bowel diseases, systemic lupus erythematosus, tuberculosis,

malignancies like lymphomas, parasitic and bacterial infections are the causes of secondary intestinal lymphangiectasia [2].

A CASE REPORT

A 23-month- old female presented with a history of moderate, non bloody diarrhea, 6–7 episodes per day and peripheral edema in lower limbs and face started at the age of 11 months. This illness was not associated with fever, vomiting, abdominal pain or rash. She was the third child of the family. She was delivered by natural delivery at the gestational age of 40 weeks. Her weight at birth was 1800 g. There was no family history of genetic disorders. Introduction of various food in the diet followed standard recommendations. The child underwent all the compulsory immunizations for her age. Physical examination on admission revealed a bilateral, pitting, painless lower limbs edema and

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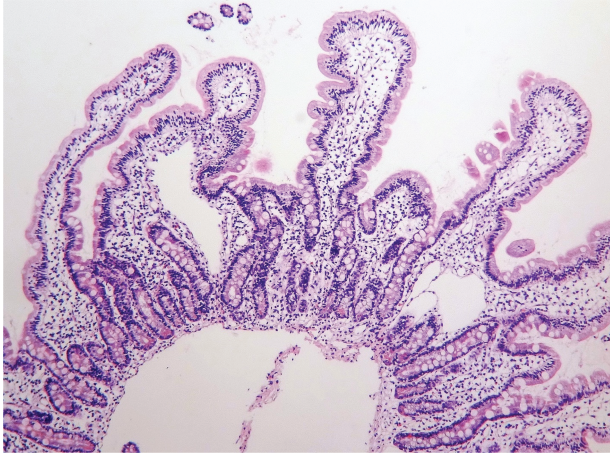


Figure 1: The biopsies from 3rd part of duodenum showed mucosal lymphangiectasia with no evidence of inflammation, villous atrophy or parasites.

eyelids edema. Her body weight was 10 kg (DS -1.5), length was 83 cm (normal), arterial pressure was 90/55 mm Hg, temperature was 37°C and her pulse rate was 120/minute. Other systems examination were within normal limits.

Laboratory investigation reports were as follows: hemoglobin (Hb) 11.7 g/dL, white blood cell count 7900/mm³, differential count polymorphs 54%, lymphocytes 30%, platelets 452 000/mm³, C-reactive protein (CRP) was normal, cholesterol 100 mg/dL, triglyceride 70 mg/dL, total protein 4.5 g/dL, albumin 2.4 g/dL. Other liver function tests, kidney function tests and electrolytes were normal. Peripheral blood smear was normal. Thyroid stimulating hormone (TSH) and free thyroxine (FT4) were normal. Urinalysis, Culture and sensitivity were normal. A 24-hour urine protein was normal as a result that excluded nephrotic syndrome. Stool examination showed: white blood cells WBCs(++), red blood cells RBCs (+), starch granules (+), fat granules (+), fungi (+), fecal occult blood (+). Electrophoresis showed decrease in all types of serum proteins. Abdominal ultrasound and echocardiography were normal. Cardiac disease was excluded by physical examination and echocardiography. Upper gastrointestinal endoscopy showed normal esophagus and gastric mucosa, moderate chronic duodenitis. The biopsies from 3rd part of duodenum showed mucosal lymphangiectasia with no evidence of inflammation, villous atrophy or parasites (Fig. 1). The diagnosis of primary intestinal lymphangiectasia (PIL) was made according to the clinical manifestations, laboratory reports and histological study. The patient was managed with albumin transfusions twice during two weeks, low-fat diet with medium-chain fatty acids and fat-soluble vitamins supplementation (A, D, E and K).

After 3 years of making diagnosis, edema was back without diarrhea. The patient relapsed because she did not follow the MCT-based diet. Serum total protein was 4 g/dL, serum albumin 2.3 g/dL and TG 40 mg/dL with other normal tests of liver and kidney functions. Upper gastrointestinal endoscopy repeated again. It showed normal esophagus and gastric mucosa, cotton balls images in duodenum which is associated with PIL (Fig. 2). Analysis of biopsies which was taken confirmed a diagnosis of PIL (Fig. 3). Management was with administration of IV human albumin. The patient was confirmed to commitment to diet. She was discharged after the edema had reduced. Regular clinical examination and laboratory tests are normal till now.

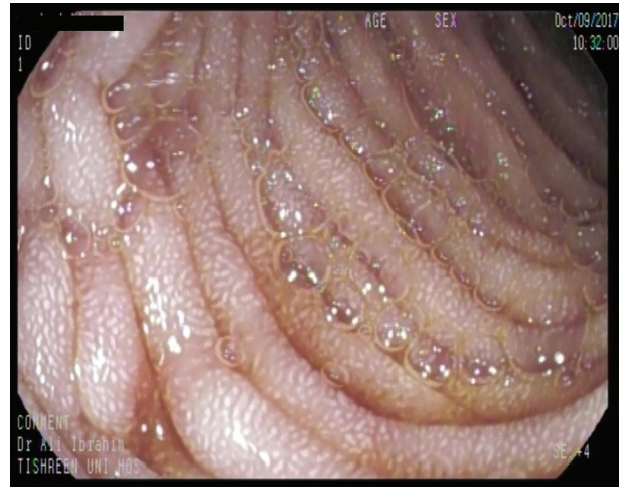


Figure 2: Upper gastrointestinal endoscopy showed cotton balls images in duodenum



Figure 3: The biopsies from 3rd part of duodenum showed mucosal lymphangiectasia.

DISCUSSION

PIL is a rare, benign digestive disease with several hundred reported cases which is a result from focal or diffuse dilatation of intestinal mucosal, submucosal, and subserosal lymphatics and loss of lymph fluid into the gastrointestinal (GI) tract. The prevalence and etiology is unknown. It can be isolated or as a part of syndromic disease. Very rare familial forms of Waldmann's disease have been reported [3]. Several genes as the VEGFR3 (vascular endothelial growth factor receptor 3), the PROX1 factors, the FOXC2 and the SOX18 are involved in the development of the lymphatic system. Hokari et al. reported an inconsistently changed expression of regulatory molecules for lymphangiectasia in the duodenal mucosa of PIL patients [4]. Recently, CD55 deficiency with hyperactivation of complement, angiopathic thrombosis, and protein-losing enteropathy (the CHAPLE syndrome) has been identified as a monogenic form of PIL [5]. It can also be a component of Hennekam syndrome which is an autosomal recessive disorder characterized by the association of lymphedema, intestinal lymphangiectasia, moderate mental retardation, and facial dysmorphism [6]. Our patient does not have history for genetic diseases and the general appearance was normal. That excludes genetic disorders.

PIL affects children and young adults. The diagnosis in these cases often occurs during the first decade of life, with the first manifestation being peripheral edema (in 95% of cases). Other manifestations include fatigue, abdominal pain, nausea, vomiting, diarrhea, weight loss, growth retardation, recurrent gastrointestinal bleeding, iron deficiency with anemia, malabsorption, fat-soluble vitamin deficiencies and hypocalcemia leading to convulsions. An association with celiac disease has been reported in children [7]. However, PIL can be asymptomatic and has been reported as an incidental finding in 1.9% of adult patients undergoing endoscopy and may be transient [8]. The most common laboratory finding in intestinal lymphangiectasia is hypoproteinemia, lymphocytopenia, hypogammaglobulinemia and increased stool α -1 antitrypsin clearance [9]. The patient in our study had a classic clinical picture including chronic diarrhea, peripheral edema and hypoalbuminemia. The diagnosis is confirmed by the gastrointestinal endoscopy that showed prominent folds (Kerckring folds) with whitish appearing villi, small white dots that are not eliminated by the endoscopic wash, and 'cotton ball' imaging. The intestinal biopsy that reveals the dilated lymphatic lacteals, but a normal result does not rule out a diagnosis of PIL because the lesion may be limited to one intestinal segment. Capsule endoscopy has also been used to help identifying the characteristic changes of PIL not reachable with standard endoscopy [10]. Low-fat long-term diet supplemented by medium-chain triglycerides is the first method recommended to treat PIL. The rationale for this is based on the following, long-chain fatty acids lead to chylomicrons, obstructing lymphatics and increasing lymphatic pressure and lymphocyte loss, whereas medium-chain fatty acids are thought to be more water-soluble and, thus, absorbed through portal venous channels rather than through lymphatics. The administration of diuretics may sometimes be helpful. Albumin infusion is sometimes proposed in patients with important serous effusion or uncomfortable lower limb edema. In case of failure, parenteral nutrition may be necessary. Very occasionally surgical removal of the diseased portion of the intestine may be beneficial if the damage is limited to a local area. In some refractory cases or that does not respond to diet, octreotide, antiplasmin and corticosteroids is proposed (which is not the case with our patient) [3, 10]. Eculizumab may be used as a potential treatment of the patients with CHAPLE syndrome. It suppresses C5a production. As a result that decreases protein losing enteropathy and reduces bowel-movement frequency within 100 days after the initiation of therapy [6].

CONFLICT OF INTEREST STATEMENT

None declared.

CONSENT

Received.

FUNDING

None.

ETHICAL APPROVAL

We obtained patient's parents informed consent for the presentation of this case.

GUARANTOR

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