

Rotavirus gastroenteritis and a rare case accompanying acute pancreatitis

Ahmet Basturk, Reha Artan, Aygen Yilmaz

Department of Pediatric Gastroenterology, Faculty of Medicine, Akdeniz University, Antalya, Turkey

Gastroenterology Rev 2017; 12 (1): 68–69

DOI: 10.5114/pg.2016.64606

Address for correspondence: Ahmet Basturk PhD, Department of Pediatric Gastroenterology, Faculty of Medicine, Akdeniz University, Akkuyu mh. 1039. sk. Onursal kop. G Blok No: 16, 07059 Antalya, Turkey, fax: +90 5304167543, e-mail: drahmetbasturk@hotmail.com

Pancreatitis in children is inflammation of the pancreas gland which presents with epigastric abdominal pain and elevated levels of digestive enzymes, and it is an important cause of mortality and morbidity [1]. Although hyperamylasemia and hyperlipasemia are relatively frequently seen in gastroenteritis, pancreatitis is very uncommon [2]. Rotavirus infection and pancreatitis together are seen very rarely [3].

In this article, we present a case where rotavirus gastroenteritis was accompanied by acute pancreatitis which presented with acute diarrhea.

A 5-year-old male patient presented with abdominal pain, vomiting and diarrhea. In his history, he had diarrhea that started 5 days ago, vomiting and epigastric pain which became worse in the last 2 days. Family history did not reveal anything. Physical examination showed nothing apart from epigastric tenderness and increased bowel movement sounds. Laboratory results showed hemoglobin (Hb) 12.5 g/dl (normal range: 12–16), leukocytes (WBC) 3700/mm³ (normal range: 4800–10 800), lymphocytes 1000/mm³ (normal range: 1300–3500), neutrophils 1930/mm³ (normal range: 2060–7020), eosinophils 40/mm³ (normal range: 0–420), platelets (PLT) 272 000/mm³ (normal range: 150 000–450 000), alanine aminotransferase (ALT) 187 U/l (normal range: 0–41), aspartate transaminase (AST) 100 U/l (normal range: 0–40), γ -glutamyl transferase (GGT) 38 U/l (normal range: 10–61), total bilirubin 0.26 mg/dl (normal range: 0.1–1.2), direct bilirubin 0.12 mg/dl (normal range: 0–0.2), prothrombin time (PT) 13.12 s (normal range: 10.4–14), international normalized ratio (INR) 1.15, activated partial thromboplastin time (aPTT) 18.5 s (normal range: 21–36.5), C-reactive protein (CRP): 23 mg/dl (normal range: 0–0.5), pancreatic amylase 1230 U/l (normal range: 28–100), lipase 810 U/l (normal range: 13–60). Total cholesterol, high-density lipoprotein (HDL) cholesterol, low-density lipoprotein (LDL) chole-

sterol, very low-density lipoprotein (VLDL) cholesterol, triglycerides, serum electrolytes, kidney function tests, urine analysis, and hepatic markers were all normal.

Abdominal ultrasound (USG) demonstrated a mildly enlarged edematous pancreas and ultrasonography one month later showed that this had normalized. Stool samples were positive for rotavirus antigen and negative for adenovirus antigen using the VIKIA Rota-Adeno immuno-chromatographic test (bioMérieux). Oral intake was stopped and total parenteral nutrition was started along with intravenous lansoprazole.

During the follow-up, the patient was doing well and control laboratory results showed ALT 42 U/l, AST 56 U/l, GGT 24 U/l, total bilirubin 0.5 mg/dl, direct bilirubin 0.1 mg/dl, CRP 0.3 mg/dl, pancreatic amylase 42 U/l, lipase 24 U/l. He was switched to full oral feeding by incrementally increasing oral intake.

The patient was discharged and followed by the outpatient clinic. After three months of control follow-up, patient had no complaints and control laboratory results showed ALT 24 U/l, AST 36 U/l, GGT 31 U/l, total bilirubin 0.6 mg/dl, direct bilirubin 0.1 mg/dl, pancreatic amylase 34 U/l, lipase 14 U/l. The patient is still followed by our outpatient clinic. Informed consent has been signed by family members for reporting of this case and release of materials.

Acute pancreatitis is less common in children than in adults and diagnosis in children is more difficult than in adults [4]. Determining the etiology of acute pancreatitis is significantly difficult and it is mostly idiopathic. Infections by viruses, bacteria, fungi or parasites may cause the condition, but very few cases associated with rotavirus have been reported yet [5]. Rotavirus is a very important cause of severe diarrhea among children around the world. Rotavirus is an important cause of morbidity in developed countries and mortality in developing countries [6]. Rotavirus gastroenteritis com-

monly manifests with vomiting, diarrhea and fever, but abdominal pain is less common [7].

Acute pancreatitis is a disease whose presentation varies a lot as it may cause mild abdominal pain to severe symptoms which may progress to metabolic disorders and shock. Approximately one quarter of cases present with severe symptoms, and the mortality rate is 4% despite new treatments [8]. Acute pancreatitis is diagnosed by classical abdominal pain, which extends from the umbilicus to the back, and a threefold increase in serum levels of amylase or lipase or radiological findings [9].

Serum amylase levels are frequently relatively high in patients with acute gastroenteritis. Different reasons have been defined. Commonly, it is thought to be due to increased absorption of macromolecules such as amylase due to increased permeability during intestinal inflammation [2]. Serum amylase and lipase levels may increase due to decreased excretion because of kidney and liver dysfunction which occurs during acute dehydration [10]. Rotavirus may cause direct damage to enterocytes of the small intestine, and it can escape the gastrointestinal system and cause viremia due to unknown reasons. Experimental studies on neonatal rats showed that rotavirus can replicate itself in many organs including liver, spleen, pancreas, heart, thymus, lungs and kidneys. Histopathological changes are caused by rotavirus infection and include inflammation of the portal tract and biliary duct [11]. The cause of pancreatic damage during gastroenteritis is not exactly defined. It is thought to be associated with obstruction caused by ductal inflammation and edema followed by viral intake and direct damage to acinar cells by infection [12].

Because of the high prevalence of rotavirus infection, rotavirus-associated pancreatitis is a major health problem. Therefore, rotavirus gastroenteritis and more importantly other systemic diseases such as pancreatitis which are causes of morbidity and mortality should be avoided by vaccinations, especially during infancy.

Conflict of interest

The authors declare no conflict of interest.

References

- Morinville VD, Husain SZ, Bai H, et al. Definitions of pediatric pancreatitis and survey of present clinical practices. *J Pediatr Gastroenterol Nutr* 2012; 55: 261-5.
- Tositti G, Fabris P, Barnes E, et al. Pancreatic hyperamylasemia during acute gastroenteritis: incidence and clinical relevance. *BMC Infect Dis* 2001; 1: 18.
- De La Rubia L, Herrera MI, Cebrero M, et al. Acute pancreatitis associated with rotavirus infection. *Pancreas* 1996; 12: 98-9.
- Kandula L, Lowe ME. Etiology and outcome of acute pancreatitis in infants and toddlers. *J Pediatr* 2008; 152: 106-10.
- Nydegger A, Couper RT, Oliver MR. Childhood pancreatitis. *J Gastroenterol Hepatol* 2006; 21: 499-509.
- Arista S, Giammanco GM, De Grazia S, et al. Heterogeneity and temporal dynamics of evolution of G1 human rotaviruses in a settled population. *J Virol* 2006; 80: 10724-33.
- Albano F, Bruzzese E, Bella A, et al. Rotavirus and not age determines gastroenteritis severity in children: a hospital-based study. *Eur J Pediatr* 2007; 166: 241-7.
- Lautz TB, Chin AC, Radhakrishnan J. Acute pancreatitis in children: spectrum of disease and predictors of severity. *J Pediatr Surg* 2011; 46: 1144-9.
- Fabre A, Petit P, Gaudart J, et al. Severity scores in children with acute pancreatitis. *J Pediatr Gastroenterol Nutr* 2012; 55: 266-7.
- Pezzilli R, Andreone P, Morselli-Labate AM, et al. Serum pancreatic enzyme concentrations in chronic viral liver diseases. *Dig Dis Sci* 1999; 44: 350-5.
- Crawford SE, Patel DG, Cheng E, et al. Rotavirus viremia and extraintestinal viral infection in the neonatal rat model. *J Virol* 2006; 80: 4820-32.
- Yukawa M, Takeuchi T, Mochizuki K, et al. Infection of reovirus type 3 in Mongolian gerbils (*Meriones unguiculatus*) – lesions in pancreas and brain. *J Basic Microbiol* 1993; 33: 147-52.

Received: 13.09.2015

Accepted: 18.01.2016