

## Case Report

### Urine Like Diarrhea in Older Children: A Case Report

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#### Abstract

*“Urine-like diarrhea” is classically described in congenital chloride-losing diarrhea (CCLD), a rare neonatal-onset secretory diarrheal disorder. Presentation of similar stool characteristics in older children without CCLD is extremely uncommon. A 10-year-old Bangladeshi girl presented with 15 days of frequent passage of clear, watery stool described by her mother as “urine-like,” occasionally mixed with mucus. There was mild pre-defecation abdominal cramping but no fever, blood in stool, tenesmus, or weight loss. Physical examination was largely unremarkable except for an ill-defined mobile mass in the right iliac fossa. Laboratory investigations, including complete blood count, inflammatory markers, serum electrolytes, thyroid profile, HIV screening, and celiac serology, were normal. Stool examination, culture, and Clostridium difficile toxin assay were negative. Stool electrolytes showed low sodium, potassium, and chloride levels, with a low stool osmolality and low osmotic gap suggestive of secretory diarrhea. Endoscopy, colonoscopy, abdominal CT, and tumor markers (calcitonin, gastrin) were normal. However, a plain abdominal X-ray revealed fecal impaction in the right colon. During bowel preparation with polyethylene glycol and sodium phosphate enema, a large amount of fecal matter was expelled, followed by complete resolution of diarrhea. Colonic fecal impaction can present atypically as persistent “urine-like” watery diarrhea in older children. Recognition of this presentation can prevent unnecessary invasive investigations and lead to prompt, effective treatment.*

**Keywords:** Urine-like diarrhea; fecal impaction; persistent diarrhea; secretory diarrhea

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#### INTRODUCTION:

Watery diarrhea in children is a common clinical presentation, but its underlying mechanisms vary and include osmotic, secretory, inflammatory, and motility-related processes. Among these, secretory diarrhea is characterized by large-volume watery stool that persists despite fasting and is typically associated with electrolyte transport abnormalities.<sup>1,2</sup> One of the most distinctive clinical descriptions within this category is “urine-like diarrhea,” a term originally used to describe the characteristically clear, watery stool of congenital chloride-losing diarrhea (CCLD)<sup>3</sup>.

CCLD is a rare autosomal recessive disorder caused by mutations in the *SLC26A3* gene, which encodes an intestinal chloride–bicarbonate exchanger<sup>4,5</sup>. Dysfunction of this transporter leads to impaired chloride absorption and excessive chloride-rich fluid loss into the intestinal lumen, producing lifelong secretory diarrhea beginning in the neonatal period<sup>4,5</sup>. The stool typically lacks solid fecal material and resembles urine in appearance, a feature considered highly suggestive of the disorder<sup>3-5</sup>. Because of its early onset, metabolic disturbances, and persistent course, CCLD is usually recognized in infancy rather than later childhood<sup>4,5</sup>.

In contrast, watery diarrhea in older children is more often attributed to infections, malabsorption, inflammatory bowel disease, endocrine causes, or functional disorders. Chronic or persistent diarrhea (lasting more than 14 days) raises concern for noninfectious etiologies such as celiac disease, inflammatory conditions, or rare secretory tumors<sup>1,2,6</sup>. However, fecal impaction, a condition more commonly associated with constipation, may paradoxically present with diarrhea due to leakage of fluid and mucus around retained stool, a phenomenon known as overflow or paradoxical diarrhea. This is typically described as small-volume stool passage associated with rectal loading.<sup>7</sup>

Presentation of large-volume, clear, “urine-like” watery stool in an older child without neonatal history of CCLD is exceedingly uncommon and may prompt extensive evaluation for secretory diarrheal disorders. To our knowledge, reports linking this specific stool description to proximal colonic fecal impaction are lacking in the

pediatric literature. This case highlights an unusual but reversible cause of persistent watery diarrhea that mimics classical descriptions of secretory diarrheal disease.

**DTAIL CASE PRESENTATION**

A 10-year-old Bangladeshi girl presented with a 15-day history of frequent passage of clear, watery stool without visible fecal matter (Fig 1), occasionally mixed with mucus. Her mother described the stool as “urine-like” in appearance. Each episode was preceded by mild cramping pain in the abdomen. There was no history of fever, hematochezia, tenesmus, recent travel, antibiotic use, ingestion of non-food items, known food allergy, or symptoms suggestive of malabsorption. General physical examination was unremarkable, and anthropometric measurements were appropriate for age. Abdominal examination revealed an ill-defined, mobile mass in the right iliac fossa. Digital rectal examination showed an empty rectum, and there were no signs of intestinal obstruction. Before referral, she had received ciprofloxacin, metronidazole, probiotics, and oral rehydration solution without clinical improvement. Laboratory investigations demonstrated normal complete blood count, inflammatory markers, and serum electrolytes, including bicarbonate. Thyroid profile, HIV serology, and celiac screening (tTG IgA with normal total IgA) were within normal limits.

Stool examination revealed no leukocytes or red blood cells, and stool culture showed no pathogenic growth. Reducing substances were absent. *Clostridium difficile* toxin A and B assays were negative. Stool electrolyte analysis showed low sodium (<10 mmol/L), potassium (<2 mmol/L), and chloride (<15 mmol/L) levels. Stool pH was 6. Her stool osmolality

and the calculated stool osmotic gap were low, suggesting a secretory pattern of diarrhea. To evaluate potential causes of secretory diarrhea, further investigations were undertaken. Colonoscopy, esophagogastroduodenoscopy, and contrast-enhanced computed tomography of the abdomen were normal, effectively excluding inflammatory bowel disease, celiac disease, and structural lesions. Serum calcitonin and gastrin levels were also normal, reducing the likelihood of neuroendocrine tumors. A plain abdominal radiograph obtained before colonoscopy revealed fecal impaction in the right colon (Fig 2). During bowel preparation with polyethylene glycol 3350 (1.5gm/kg/day) and sodium phosphate enema (2.5ml/kg), a large quantity of retained fecal matter was evacuated along with watery stool (Fig 3). By the following day, stool frequency and consistency returned to normal. After that polyethylene glycol 3350 (1gm/kg/day) was given as maintenance therapy for 2 months followed by gradual tapering over 1 month.

Based on the clinical findings, radiological evidence, and complete resolution of symptoms following disimpaction, a diagnosis of persistent watery diarrhea secondary to proximal colonic fecal impaction was established. The child remained asymptomatic during a 6-month follow-up period.

Table 1 contains the laboratory and diagnostic profile of the patient with persistent urine-like watery diarrhea. It demonstrates normal systemic parameters, absence of infectious or inflammatory markers, and exclusion of endocrine, celiac, and structural gastrointestinal causes. Abdominal radiography revealed fecal impaction in the right colon, with complete clinical resolution following bowel disimpaction.

**Table 1. Lab and diagnostic profile of the patient with persistent urine-like watery diarrhea**

Investigation		Patient value	Reference range
Complete blood count	Haemoglobin	11.2 g/dL	11.5–15.5 g/dL
	White blood cells	7.28 ×10 <sup>3</sup> /μL	4.0–10.5 ×10 <sup>3</sup> /μL
	Platelets	366 ×10 <sup>3</sup> /μL	150–450 ×10 <sup>3</sup> /μL
	C-reactive protein	0.9 mg/L	<5 mg/L
Serum electrolytes	Sodium	142 mmol/L	135–145 mmol/L
	Potassium	4.3 mmol/L	3.5–5.5 mmol/L
	Chloride	106 mmol/L	98–106 mmol/L
Thyroid function	Thyroid-stimulating hormone	4.4 μIU/mL	0.5–4.5 μIU/mL
	Free thyroxine	1.65 ng/dL	0.77–2.08 ng/dL
Celiac screening	tTG IgA	0.9 U/mL	<4 U/mL
	Total IgA	1.2 g/L	0.42–2.95 g/L
Tumour markers	Calcitonin	<2 pg/mL	<4 pg/mL
	Gastrin	25.8 pg/mL	13–115 pg/mL
	HIV I & II	Negative	Negative

**Table 1. Lab and diagnostic profile of the patient with persistent urine-like watery diarrhea (Cont.d)**

Investigation		Patient value	Reference range
Stool examination	Pus cells	0–2/HPF	<5/HPF
	Red blood cells	None	None
	Reducing substances	Negative	Negative
	Stool culture	No growth	—
Stool electrolytes	<i>Clostridium difficile</i> toxin A/B	Negative	Negative
	Stool pH	6.0	6.0–7.2
	Sodium	<10 mmol/L	20–30 mmol/L
	Potassium	<2 mmol/L	55–75 mmol/L
	Chloride	<15 mmol/L	15–25 mmol/L
	Stool osmolality	<50 mOsm/kg	≈290 mOsm/kg*
	Calculated stool osmotic gap	≈ 26 mOsm/kg†	<50 mOsm/kg (secretory)
Imaging and procedures	Plain abdominal radiograph	Fecal impaction in the right colon	—
	Barium follow-through	Normal	—
	Colonoscopy	Normal	—
	Upper gastrointestinal endoscopy	Normal	—
	Contrast-enhanced CT abdomen	Normal	—

Abbreviations: HPF, high-power field; tTG, tissue transglutaminase; IgA, immunoglobulin A; CT, computed tomography.

\* Direct measurement of stool osmolality is often unreliable because of bacterial metabolism; calculated values are preferred.

† Stool osmotic gap = stool osmolality of patient – 2(Na<sup>+</sup> + K<sup>+</sup>).

Figure 1 shows the appearance of the passed stool; clear, watery stool lacking visible fecal material, described by the caregiver as “urine-like” in appearance.



**Figure 1: Appearance of the passed stool at presentation**

Figure 2 displays the plain X-ray of the abdomen showing fecal loading and impaction in the right colon.



**Figure 2: Plain abdominal radiograph**

Figure 3 shows the appearance of the passed stool during disimpaction; watery stool with visible fecal material.



**Figure 3: Appearance of the passed stool during disimpaction**

## DISCUSSION

Watery diarrhea in children requires classification into osmotic, secretory, inflammatory, or mixed types to guide evaluation. In the present case, the very low stool osmotic gap supported a secretory pattern, which typically suggests enterotoxin-mediated infection, bile salt malabsorption, endocrine tumors, congenital transport defects, or inflammatory disorders<sup>1,2</sup>. Accordingly, infectious causes, inflammatory bowel disease, thyroid disease, and neuroendocrine tumors were systematically excluded through history, laboratory evaluation, endoscopy, and imaging.

In untreated cases, celiac crisis presents with explosive watery diarrhea and severe metabolic abnormalities<sup>8</sup>. However, our case was thriving well without any prior history of gluten sensitivity and had normal celiac screening results.

The clinical description of clear, feces-free “urine-like” stool initially raises suspicion for CCLD, the condition in which this term was first popularized<sup>3</sup>. CCLD results from

defective chloride–bicarbonate exchange, causing chloride-rich secretory diarrhea from early infancy and often leading to metabolic alkalosis and electrolyte imbalance<sup>4,5</sup>. However, the absence of neonatal onset, normal growth, normal serum electrolytes, and complete symptom resolution after bowel evacuation in this patient argues strongly against a congenital transport disorder.

An alternative explanation is **diarrhea secondary to fecal impaction**. Although traditionally associated with constipation, fecal impaction can lead to persistent watery stool passage. The pathophysiology involves prolonged contact between retained fecal masses and the colonic mucosa, causing irritation, inflammation, and increased mucus and fluid secretion<sup>9</sup>. Liquid intestinal contents may bypass the impacted stool, producing apparent diarrhea. This phenomenon is well described in adults and elderly populations, but less emphasized in children, particularly when impaction is located proximally rather than in the rectum.

Classical descriptions of overflow diarrhea emphasize small-volume stool leakage with rectal loading, yet this case differed in two important respects: the rectum was empty on examination, and stool output was described as large-volume, clear fluid. Proximal colonic impaction, as seen radiologically in this child, may allow greater accumulation of secreted fluid proximal to the obstruction, leading to more profuse watery output. Continuous mucosal stimulation by the fecal mass may further enhance secretory activity, producing stool that resembles descriptions of secretory diarrheal disorders<sup>9</sup>. This mechanism provides a plausible explanation for the misleading “urine-like” appearance.

Persistent diarrhea in children often triggers extensive investigations, including endoscopy and imaging, to exclude serious pathology. This case underscores that fecal impaction should remain in the differential diagnosis of persistent watery diarrhea, even when stool appears purely liquid and rectal examination is normal. Simple abdominal radiography may identify this reversible condition and prevent unnecessary invasive testing.

Thus, this report expands the clinical spectrum of fecal impaction in children and demonstrates that it can mimic rare secretory diarrheal states both clinically and biochemically. Recognition of this atypical presentation has important implications for cost-effective evaluation and timely management.

## CONCLUSION

Fecal impaction should be considered in older children presenting with persistent clear watery (“urine-like”) diarrhea, even when rectal examination is normal. Simple imaging may prevent misdiagnosis and unnecessary investigations. Prompt disimpaction can be curative.

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