

# Overflow diarrhea and acute kidney injury as a presentation of fecal impaction that led to obstructive uropathy

## Abstract

Fecal impaction is a known complication of chronic constipation and is particularly bothersome in the elderly population. Common complications of fecal impaction include hemorrhoids, megacolon, overflow diarrhea, and obstructive uropathy among others. Many case reports have been reported with fecal impaction and obstructive uropathy though none have reported overflow diarrhea as a presentation. In this case report, we present an elderly male who came in with overflow diarrhea and acute kidney injury that resulted from fecal impaction that caused obstructive uropathy. He was managed with catharsis and early recognition of the condition led to a good outcome. Recognition and management of fecal impaction can be challenging especially in patients who present with diarrhea. We, therefore, outline and discuss the importance of recognition of overflow diarrhea as a complication of fecal impaction and the management of such patients.

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## Introduction

Fecal impaction complicates as many as 2% of persons with long-standing constipation and may be associated with dietary (low fiber, low carbohydrate, high protein diets, insufficient fluid intake), anatomic, pharmacologic, metabolic (such as hypokalemia and hypocalcemia), and neurogenic etiologies. When adjusted for detection bias, fecal impaction (OR 3.2) was found to be only second to Hirschsprung disease in being associated with constipation.<sup>1</sup> Nursing home residents, patients with psychiatric, neurologic, and cardiac diseases, patients taking medications impairing colonic motility are at particular risk.<sup>2</sup> Several factors may contribute to the development of fecal impaction in older adults including impaired cognitive function, immobility, rectal hyposensitivity, and inadequate intake of fluids.<sup>2</sup>

One retrospective article of patients who presented with fecal impaction at Beth Israel Deaconess Medical Center reported that at least 54.8% of these patients were taking at least one commonly prescribed constipation causing medication.<sup>3</sup> In another retrospective study of 130 patients who presented to a tertiary center in Beirut with fecal impaction reported 75.3% had at least one of the following concurrent conditions: heart disease, neurological disease, diabetes, or being bedridden. In over two-thirds of these patients, the site of impaction was the rectum.<sup>4</sup>

Fecal impaction usually occurs in the rectum and the distal colon and can cause an overflow of liquid stool around the impacted fecal mass. It can be further complicated by systemic inflammatory response syndrome, stercoral ulceration with bowel perforation, megacolon, hemorrhoids, and rectal bleeding.<sup>1,2,4,8</sup>

Fecal incontinence is a common consequence of fecal impaction and is thought to be a result of a multitude of factors including a more obtuse anorectal angle, low anal pressures, mobility, pelvic floor muscle integrity, and impaired anorectal sensation.<sup>5</sup> Overflow diarrhea is frequently misdiagnosed and treated with antidiarrheal medications. The mainstay of treatment of overflow diarrhea is laxatives, particularly enemas; manual disimpaction and surgical consultation in cases of severe and refractory constipation may be

warranted. Lubiprostone, a chloride channel activator that increases intestinal fluid secretion and improves fecal transit, can also be used if other laxatives are ineffective.

Obstructive uropathy is also a well-established complication of fecal impaction. There are two age peaks in the incidence of fecal impaction with obstructive uropathy.<sup>6</sup>

Children and adolescents are more susceptible to obstructive uropathy from fecal impaction due to the higher intra-abdominal location of the bladder and loose connective tissue providing more mobility of intra-abdominal organs predisposing to compression by adjacent structures.

The other group is patients predominantly over 65 years old with multiple risk factors including diabetes mellitus, cerebrovascular disease, dementia, hypothyroidism, depression, or opioid use. To be noticed, the female gender doesn't seem to be protected by uterus position as has been noted by relatively equal gender distribution in previous reports.<sup>7,8</sup>

The most likely underlying mechanism of obstructive uropathy in fecal impaction is the elevation of the floor of the bladder and posterior urethra obstructing the bladder outlet, the most common level of obstruction being urethra or urethral-vesical junction.<sup>9-11</sup>

We came across 23 case reports of fecal impaction that were associated in one way or the other with hydronephrosis and obstructive uropathy and 15 of these were in patients aged over 65 years. In all these cases, the patients presented with at least a few weeks of constipation and failure to defecate.

During our literature search, we did not come across any case where a patient with fecal impaction presented with overflow diarrhea and acute kidney injury associated with acute urinary retention.

## Case report

Today we present an 82-year-old Male with PMH of diabetes, hypertension, coronary artery disease, paroxysmal atrial fibrillation,

sick sinus syndrome with a pacemaker, prostate cancer s/p radiation, and myelodysplastic syndrome who came in with a 4-week history of non-bloody watery diarrhea (up to 8 to 10 episodes per day) with associated fecal incontinence, abdominal bloating and generalised pain. He did report a long-standing history of constipation before this. No history of fevers or recent use of antibiotics or new medications.

His home medications included azacitidine, leuprolide, apixaban, simvastatin, metformin, glargine, and alogliptin.

On exam, he was found to have vitals within normal limits and he was a frail elderly gentleman with diffuse abdominal distention with generalised tenderness worse over the suprapubic area with distended bladder. A foley catheter was placed with drainage of over 1 liter of urine.

Rectal exam showed no skin tags or external hemorrhoids. Normal rectal tone and brown loose stool in the rectal vault.

Labs showed normal white cell count and mild anemia (hemoglobin 11g/dL) with elevated creatinine at 1.5mg/dL. Electrolytes within normal limits except hypokalemia of 3.3mEq.

Prostate specific antigen (PSA) level was within normal limits.

He was initially managed conservatively with IV fluid resuscitation.

Stool analysis showed no evidence of ova or parasites and was negative for leukocytes.

Stool culture grew no organisms and was negative for Clostridium difficile and shiga toxin.

Computed Tomography (CT) scan of the abdomen without contrast done to evaluate for obstructive uropathy showed large stool burden in the distal colon and rectum with mild wall thickening and bilateral severe hydronephrosis.

The patient was managed conservatively with laxatives and intravenous hydration.

A week after presentation creatinine had improved to the baseline of 1.0mg/dL and repeated CT scan showed significantly reduced stool burden and improving wall thickness of the rectum, colon, and urinary bladder as well as improving hydronephrosis.

The urinary catheter was removed and the patient was able to void completely on his own. He was discharged on laxatives and home medications.

On a subsequent admission one month later for a different diagnosis, the patient was found to have worsening stool burden in the rectum with worsening bilateral hydronephrosis. He continued taking laxatives. After two more admissions for different diagnoses, the patient and his family decided to go with comfort care.

## Discussion

Our patient had multiple risk factors for fecal impaction including age, immobility, diabetes, and medications. Azacitidine and Leuprolide can cause constipation in 33.6% to 50.3% and 9.9% respectively.<sup>12,13</sup> It was thought that he likely had chronic constipation leading to fecal impaction which led to overflow diarrhea and was complicated by acute urinary obstruction due to obstruction at the level of the bladder. Despite having been found to have mildly low potassium levels, there was no improvement in his condition after correction of the potassium levels, leading us to think of other causes of constipation. Our patient's urinary obstruction was not due to prostate enlargement as is the case in many adult males given that he had had prostate surgery, the prostate was not enlarged on rectal exam, and PSA was within normal limits.

With catharsis, his stool burden reduced and hydronephrosis improved. Early recognition of the acute retention and hydronephrosis and management of the impaction with gentle catharsis led to a good outcome.

In contrast to our patient who had overflow diarrhea as a result of constipation which was complicated by acute obstructive uropathy and acute kidney injury, there was one case report of a patient with an over distended bladder that caused extrinsic bowel compression that led to chronic diarrhea which improved after clean intermittent catheterization.

Also noted from our literature review of other cases of urinary obstruction and fecal impaction, which are summarized in the Table 1 below, was that most patients were above the age of 65, and a majority of these had dementia or psychosis. Almost all patients did well with laxatives and manual removal though there were two deaths; one was in a patient with a ruptured bladder due to obstruction and the other was in a septic patient.

It is important to consider fecal impaction as a cause of incontinence especially in elderly patients. Careful history and physical examination can raise suspicion of the diagnosis while imaging is essential in confirming it. Treatment should be tailored to the underlying mechanism and needs of the patients.

**Table 1** Summarized table of case reports with fecal impaction and urinary obstruction

Reference	Age	Sex	Associated illnesses	Presentation	Level of obstruction	Treatment	Outcome
14	19	Male	Paraplegia	Urinary Tract infection, Acute Renal Failure	Bilateral ureters	Unclear	Well
15	21	Female	Myelomeningocele	Routine Intravenous Pyelogram	Right hydronephrosis	Manual removal	Well
16	23	Male	Mental retardation	Abdominal pain	Bladder neck	Manual removal, enema, colostomy	Well
17	30	Male	Hirschsprung's disease	Acute urine retention	Right hydronephrosis	?manual removal	Well
18	50	Male	Neurogenic bladder	Routine Intravenous Pyelogram	Left hydronephrosis	Manual removal, enema, laxative	Well
11	55	Male	Schizophrenia	Cachexia	Urethra	-	Died

Table Continued...

Reference	Age	Sex	Associated illnesses	Presentation	Level of obstruction	Treatment	Outcome
19	59	Male	Unknown	Urinary Tract infection	Bilateral ureter	enema	Well
20	60	Female	Depression, post-traumatic pelvic injury	Anuresis	Bladder neck; Right ureter	Enema, Manual removal	Well
21	63	Female	History of hemorrhagic stroke	Constipation	Bilateral hydronephrosis	Colonoscopic irrigation, manual removal (failed laxatives and enema)	Well
22	65	Female	None	Anuresis	-	Manual removal	Well
23	67	Male	None	Iliac vein occlusion	Left ureter	Ileostomy (failed laxatives)	Well
24	70	Male	Cardio-vascular disease	Diarrhea	Left hydronephrosis	Manual removal	Well
25	71	Male	Diabetes Mellitus, Cardio-vascular disease	Urinary Tract infection, Acute Renal Failure	Bilateral ureters	Manual removal	Well
26	71	Male	Diabetes Mellitus	Abdominal pain	Right hydronephrosis	Manual removal	Well
27	73	Female	Cerebral Vascular Disease	Anuresis	-	Enema, rectal lavage	Well
28	74	Female	Diabetes Mellitus, Cardio-vascular disease	Urinary Tract infection, Acute Renal Failure	Right ureter	Manual removal, enema	Well
29	75	Female	Dementia	Urinary Tract infection	Right ureter	Enema	Well
30	81	Female	Dementia, sigmoid diverticulosis	Urinary Tract infection	Bilateral hydronephrosis	Manual removal, rectal lavage (ineffective laxatives)	Well
11	81	Female	Psychosis	Infective endocarditis	Urethra	-	Died
27	82	Female	unknown	Anuresis	-	-	Well
Our case	82	Male	DM, prostate cancer, MDS on azacitidine	Diarrhea, Acute Renal Failure	Bilateral hydronephrosis	Laxatives, enema	Well
31	84	Male	opioids	Lower limb ischemia	-	Manual removal, rectal lavage	Well
32	85	Female	hypothyroidism	Acute Renal Failure, lower limb edema	Bilateral hydronephrosis	Manual removal, enema	Well
29	88	Female	dementia	Urinary Tract infection, Acute Renal Failure, shock	Right hydronephrosis	-	died
33	90	Female	DM, dementia, neurogenic bladder	Chronic constipation, recurrent Urinary Tract infections, loss of appetite, fever	Right ureter	Manual disimpaction, enema, laxatives	Well

## Conclusion

Treatment of overflow diarrhea is counter-intuitive in that it requires relief of the underlying impaction with laxatives rather than antidiarrheal medications which would make the condition worse. Morbidity and mortality of fecal impaction is particularly high in the elderly hence patients with chronic constipation warrant aggressive measures to relieve it.

## Conflicts of interest

The author declares no conflict of interest.

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