Unusual presentation of more common disease/injury

Chronic constipation causing obstructive nephropathy in a delayed toddler

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Summary

Chronic constipation causing obstructive nephropathy is very rare in children. However, it can cause urinary tract obstruction with acute impairment of renal function with a need for emergent disimpaction. The authors discuss a 2 years 4 months old child who presented to our emergency department with acute renal failure due to faecal impaction.

BACKGROUND

Abdominal pain caused by constipation in children is a very common presentation.¹ In a European study, Yong and Beattie found that 34% of parents in the UK reported their children aged 4–7 years had at least intermittent difficulties with constipation.²

Constipation tends to be episodic in nature and generally is of benign origins. Severe constipation causing urinary tract obstruction and nephropathy is very rarely found in the current literature. This suggests a condition that either occurs very rarely in a younger population or is not sufficiently described.

CASE PRESENTATION

A 2 years 4 months Caucasian child presented to the emergency department with a 7 day history of no bowel motion despite micro enemas (combination of sodium citrate, sodium lauryl, sulfoacetate, sorbitol glycerol and sorbic acid), increasing lethargy with irritability, decreased oral intake and urinary output in the context of chronic constipation, prematurity (34/40) and global developmental delay of uncertain aetiology. He previously had extensive metabolic and chromosomal analysis that revealed a deletion of the long arm of chromosome 14 (of uncertain significance). His constipation had developed in mid-infancy and been managed over the years with oral laxatives and suppositories when required. He had passed meconium in the first 24 h of life.

On presentation, his physical examination revealed an irritable toddler with a grossly distended non-tender abdomen and distended bladder. The remainder of the physical examination was consistent with his developmental delay without other signs of clinical dehydration. His vital signs revealed hypertension at 124/95 mm Hg (non-invasive) and tachycardia at 128 bpm.

INVESTIGATIONS

Abdominal x-ray demonstrated stool throughout the rectum and colon with bladder distension (figure 1). Initial laboratory findings were consistent with renal failure:

creatinine level of 140 micromoles per litre, urea 27 millimoles per litre (mmol/l), sodium of 133 mmol/l, chloride of 99 mmol/l and potassium of 5.6 mmol/l.

DIFFERENTIAL DIAGNOSIS

The diagnosis of obstructive nephropathy with acute renal failure due to impaction/constipation was reached. However, further investigations were required to rule out any anatomical abnormality of the renal system.

Figure 1 Stool is demonstrated throughout the rectum and colon with bladder distension.

TREATMENT

A transurethral catheter was inserted and 460 ml of urine was drained. After a surgical review, manual evacuation of the rectum was required which resulted in large impacted faeces being removed. Physical examination during disimpaction revealed no anatomical narrowing of the rectal vault. This information combined with clinical improvement, which was maintained, decreed further gastrointestinal investigation unnecessary. His vitals normalised postevacuation.

OUTCOME AND FOLLOW-UP

After initial stabilisation and ward transfer, his renal function corrected rapidly within the first 12 h (urea 22.6 and creatinine 71) and returned to normal by day 4 of admission. Further investigations including renal ultrasound and micturating cyst urethrogram were normal. There was no polyuric phase and the postadmission course was unremarkable. The patient was discharged day 5 after commencement on laxative twice daily with suppositories as needed. Outpatient follow-up revealed the patient remains on laxatives without further issues or complications.

DISCUSSION

This patient with global developmental delay is suffering from a chronic functional constipation. His long-standing problem results in the long-term use of oral laxatives since infancy.

The proposed main cause of urinary tract obstruction in our patient was compression of the bladder by the over distended rectum caused by constipation/impaction. There are very few similar cases described in the literature. A 40-year-old case series describes three children (8, 6 and 3.5 years old) with simple urinary retention without renal impairment due to faecal impaction.³ One case reveals a 4-year-old boy with a 4 month history of abdominal distension, encopresis and incontinence of urine. After manual evacuation this patient's renal function and defecation returned to normal.⁴ A 17-year-old boy with long-standing

constipation presenting with obstructive uropathy due to faecal impaction which required large-bowel resection with resultant normalisation of renal function.⁵ To the best of our knowledge this case represents the youngest described case in current medical literature.

The bladder neck as the level of obstruction has been previously been reported to precipitate acute obstructive renal failure.⁶ We assume that the duration of obstruction in our patient was only of short duration due to the length of symptomatology and the speed of recovery.

Learning points

- Paediatric constipation tends to be episodic in nature and generally is of benign origins.
- Severe constipation causing urinary tract obstruction and nephropathy is very rarely found in the paediatric current literature.
- Urinary tract obstruction can be caused by compression of the bladder neck by an over distended rectum caused by constipation/impaction.

Competing interests None.

Patient consent Obtained.

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