Open Journal of
Clinical & Medical
Case Reports

Volume 9 (2023)
Issue 27

Case Report ISSN: 2379-1039

Mckittrick- Wheelock syndrome (MKWS) - Rare cause of recurrent electrolyte derangements with hypotension and falls in elderly patients

Meenal Karkhanis*; Cheryl Stone

***Corresponding Author: Meenal Karkhanis**
Locum Consultant, Department of Older Peoples Medicine, Norfolk and Norwich University Hospital, UK.
Email: meenal.karkhanis@nnuh.nhs.uk

Abstract

We report a case of an 82-year-old gentleman presenting with recurrent hypokalaemia, renal impairment, postural hypotension and falls. Further investigations revealed large villous recto-sigmoid tumour associated with secretary diarrhoea in the closed bowel loop causing electrolyte depletion leading to hypotension and falls.

Keywords: Electrolyte depletion; MKWS; Postural hypotension in elderly.

Abbreviations: MKWS: McKittrick- Wheelock Syndrome; AF: Atrial Fibrillation; PR: Per rectal examination.

Introduction

MKWS was first described in 1954 and is rare condition characterized by secretory diarrhoea and severe electrolyte depletion due to a villous adenoma [1].

It is characterised by secretory diarrhoea, dehydration, pre-renal acute kidney injury, and electrolyte abnormalities secondary to a hyper-secretory villous adenoma [2].

It often leads to nonspecific long-standing symptoms which are managed medically before diagnosis is made [3]. A surgical resection offers corrective remedy to the underlying pathology and subsequent metabolic complications. Hence makes it important to create awareness about this condition.

Case Presentation

An 82-year-gentleman with mild cognitive impairment presented with history of recurrent admissions for orthostatic hypotension and falls with low Potassium happening intermittently for an year. Family reported weight loss, general decline and possible diarrhoea. Patient was initially referred to the gastroen-

terology service with complaints of persistent weight loss and symptoms. These were attributed to the worsening cognition as per the team and an outpatient CT scan was suggested to rule out malignancy.

The patient unfortunately had to be admitted before any of his outpatient tests could be done. On our history we learnt that he had been discharged two days prior to his present re-attendance. On reviewing the test results it was noted that he had renal impairment with deranged electrolytes and had had a fall secondary to Orthostatic hypotension. All medications were reviewed and he was discharged on oral potassium supplements post that episode.

On further checking background we noted that he had his first fall presentation in January 2019 ie: more than 2 years ago when it was thought to be multifactorial with possible new AF.

On examination, he looked dry and under perfused, Postural blood pressure revealed a 50 mmHg drop (Lying 133/82-Standing 71/45 mmHg). The patient wasn't overly compliant with a physical examination due to cognitive impairment and refused a PR examination. On questioning he denied any diarrhoea or abdominal pain. On minimal physical examination we could perform, abdomen was distended, intestinal loops were palpable, non-tender.

On previous investigations, it was noted that he had persistent derangements in his electrolytes and was always treated with potassium supplements. Other routine biochemical tests revealed mild anaemia suggestive of iron deficiency, mild impairment in renal tests with metabolic acidosis. Magnesium and calcium levels were noted to be normal. Given history of weight loss and electrolyte imbalance and attendances with hypotension and falls, serum cortisol level was checked which was normal at 450.

Table 1: Laboratory tests showed (over one year cumulative).

Date	Potassium	eGfr	Bicarbonate	Sodium
17/06/2021	3.2	48	19	135
18/05/2022	3.0	35	20	138
07/07/2022	2.3	21	21	135
30/07/2022	2.9	43	16	136
23/08/2022	2.6	43	25	145
26/08/2022	2.5	50	25	149

Given the history of recurrent hypokalemia, altered kidney tests and acidosis a possible renal tubular acidosis was thought as a differential and a plan was made for renal referral for opinion. As abdominal examination was limited and due to his h/o weight loss with previous gastroenterology attendance, an abdominal Xray was performed. In the meantime he was started on fluid resuscitation and potassium correction.

Abdominal X-ray showed dilated bowel loops suggestive of sigmoid volvulus. This prompted a call for CT abdomen to identify any evidence of obstruction and possible third space electrolyte depletion. Subsequent CT Abdomen and pelvis- Figure 1 showed a large villous recto sigmoid polypoid lesion which measured 68 mm x 43 mm (AP x ML).

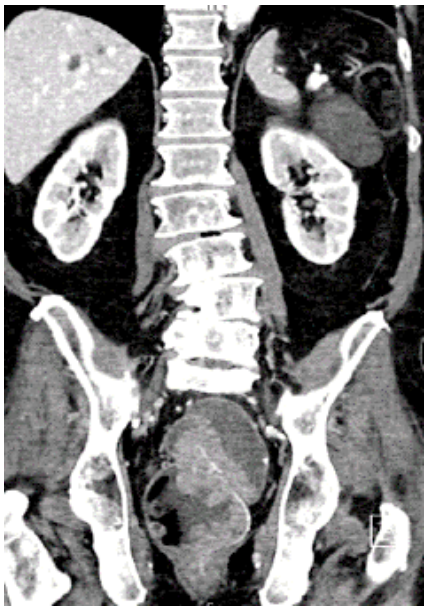

Figure 1: large villous recto sigmoid polypoid lesion

A Flexible sigmoidoscopy was recommended by surgeons however was difficult due to inadequate bowel preparation. In this period he was asymptomatic and electrolytes were successfully corrected. A repeat sigmoidoscopy was performed after good bowel preparation which showed a 7-8 cm polyp at recto-sigmoid junction with dilatation of proximal bowel. Biopsies taken showed villous adenoma with low grade dysplasia.

Retrospectively, on associating the recurrent electrolyte depletion, his frequent attendances with hypotension and falls and a newly identified Villous adenoma with no evidence of malignancy, and with radiologists suggestion after noting typical intestinal findings, a diagnosis of McKittrick Wheelock syndrome was thought as a possibility.

Surgical opinion was sought, and he was deemed unsuitable for surgical intervention. The patient was treated with intravenous fluids & electrolyte replacement. He also received laxatives to prevent constipation and bowel obstruction in the segment of bowel proximal to the polypoid mass as was evidenced on the first flexible sigmoidoscopy when it was attempted.

Soon after discharge he had repeat admission with similar presentation and after a multidisciplinary discussion a decision was made to refer him to palliative team and discharge for comfort care. Sadly, on follow-up we noted he had succumbed to his ongoing metabolic issues.

It's important to note that a systematic review by Orchard et al (2018) highlighted that 50% of patients who had no surgery died [4].

Discussion

MSKW is a rare disorder characterised by fluid and electrolyte secretion from a large rectal tumour which is usually benign. Patients can present with a depletion syndrome characterised by severe dehydra-

tion, hyponatraemia, hypokalaemia, metabolic acidosis [5].

Being a benign and slowly growing tumour in most of the cases patients can have multiple attendances with similar non specific presenting features. In our case it presented with electrolyte depletion and postural hypotension and fall, which is common syndromic presentation in geriatrics. Given the fact that a benign rectal tumour is causing depletion of electrolytes, if noted early, a possible potential surgery could be offered to suitable candidates to prevent further falls and morbidity and mortality.

With the mortality being certain if left untreated it is important to create awareness of this condition and its management.

Declarations

No Conflict of interests in this reporting. No funding needed.

Valid informed consent taken from the next of kin- Son and his brother who held the Power of attorney for health of the patient concerned.

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Manuscript Information: Received: June 27, 2023; Accepted: August 11, 2023; Published: August 15, 2023

Authors Information: Meenal Karkhanis[1]*; Cheryl Stone[2]

[1]Locum Consultant, Department of Older Peoples Medicine, Norfolk and Norwich University Hospital, UK.

[2]Trainee Advanced Clinical Practitioner, Department of Older peoples Medicine, Norfolk and Norwich University Hospital, UK.

Citation: Karkhanis M, Stone C. Mckittrick- Wheelock syndrome (MKWS) - Rare cause of recurrent electrolyte derangements with hypotension and falls in elderly patients. Open J Clin Med Case Rep. 2023; 2093.