Acute Symptomatic Hyponatremia Following Single Balloon Enteroscopy With Water Immersion: Be on the Lookout

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INTRODUCTION

The water immersion endoscopic method is a safe and often used endoscopic technique. We report a unique case of electrolyte abnormalities in a single balloon enteroscopy secondary to this procedure

CASE PRESENTATION

A 70-year-old female with HTN and hypothyroidism presented for single balloon enteroscopy for removal of a retained capsule. The capsule was initially performed for the of work up of melena and iron deficiency anemia after a negative upper endoscopy and colonoscopy. Physical exam and labs prior to the procedure were normal, including a sodium level of 139.

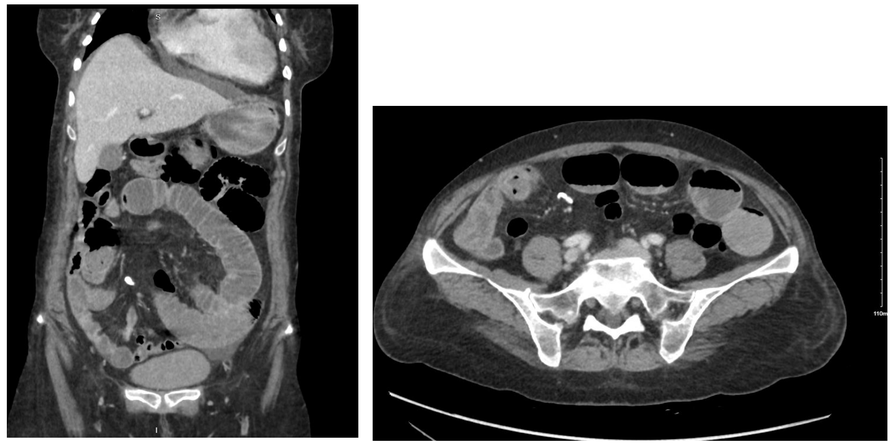
The patient underwent the planned enteroscopy with water emersion with an estimated amount of 4 L of water being used. Shortly after completion of the procedure, the patient was noted to be delirious and have an altered mental status. The patient became aphasic, began clenching her fists, and was shaking. A sodium level post-procedure was obtained and was 113. A head CT scan was performed and no central involvement was noted.

The patient was managed with 3% hypertonic saline and her symptoms resolved. Over the next 2 days patient's sodium level normalized and the patient was discharged from the hospital.

LABS & IMAGING

Component	Latest Ref Rng & Units	3/23/2022	3/23/2022	3/23/2022	3/24/2022	3/24/2022	3/24/2022	3/24/2022	3/24/2022	3/24/2022	3/25/2022	3/25/2022	3/25/2022	3/25/2022	3/26/2022	3/27/2022	3/28/2022
		8:23 AM	8:37 PM	10:27 PM	3:46 AM	6:25 AM	11:17 AM	3:47 PM	7:21 PM	10:06 PM	3:02 AM	6:31 AM	6:11 PM	7:24 PM			
Sodium	136 - 145 mmol/L	139	113 (AA)	112 (AA)	117 (AA)	119 (AA)	120 (L)	119 (AA)	121 (L)	122 (L)	127 (L)	128 (L)	133 (L)	130 (L)	132 (L)	132 (L)	133 (L)
Potassium	3.5 - 5.1 mmol/L	4.4	4.1	3.9	4.3	4.6	4.5	4.4	4.3	4.4	4.3	4.1	4.4	4.5	4.6	4.8	4.7
Chloride	98 - 108 mmol/L	102	80 (L)	78 (AA)	85 (L)	88 (L)	88 (L)	87 (L)	89 (L)	90 (L)	94 (L)	96 (L)	99	99	99	99	101
CO2	22 - 29 mmol/L	25	20 (L)	21 (L)	19 (L)	18 (L)	21 (L)	21 (L)	22	19 (L)	20 (L)	21 (L)	24	24	23	23	23
BUN	6.0 - 23.0 mg/dL	9.0	13.0	12.0	11.0	12.0	18.0	19.0	20.0	20.0	16.0	15.0	11.0	10.0	9.0	11.0	10.0
Creatinine	0.50 - 1.20 mg/dL	0.89	0.75	0.74	0.70	0.78	0.81	0.77	0.78	0.84	0.83	0.80	0.93	0.80	0.87	0.92	0.89
Glucose	74 - 110 mg/dL	92	177 (H)	146 (H)	107	86	90	100	90	98	74	82	82	105	83	81	84
Calcium	8.6 - 10.3 mg/dL	9.0	7.7 (L)	7.5 (L)	7.4 (L)	7.7 (L)	7.7 (L)	7.4 (L)	7.4 (L)	7.4 (L)	7.6 (L)	7.5 (L)	8.1 (L)	7.8 (L)	8.3 (L)	8.3 (L)	8.6
Anion Gap	5 - 15 mmol/L	12	13	13	13	13	11	11	10	13	13	11	10	7	10	10	9
eGFR(cr)	ml/min/1.73m2	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60

Note pre-procedure sodium level (blue) and subsequent hyponatremia (red) shortly after completion of procedure and discharge sodium level (green)



CT Abdomen with contrast (Coronal and Axial views): Radiopaque density in the distal ileum proximal to the terminal ileum.

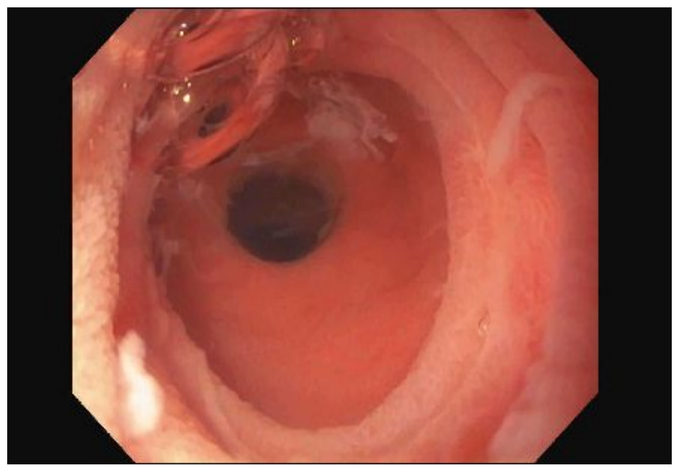


Image from Small Bowel Enteroscopy of the mid-jejunum s/p dilatation

DISCUSSION

This is the first reported case of hyponatremia secondary to water immersion endoscopy. While there is an abundance of reports describing hyponatremia in urologic and gynecologic procedures those procedures generally use glycine and mannitol as their irrigate. With regards to GI procedures, hyponatremia secondary to polyethylene glycol-electrolyte preparation has infrequently been reported.

Free water irrigation/immersion is generally regarded as safe during gastroenterological procedures. Our case, brings awareness to the possibility of symptomatic hyponatremia following prolonged enteroscopy with the use of large volume water irrigation/immersion. Absorption of ingested water and most solutes occur in the proximal small intestine.

CONCLUSION

If large amount of fluids are necessary then normal saline can be utilized instead of water. Limiting water to 1.5 liters and suctioning excess water can help minimize these complications. Clinicians should be aware of this serious complication when performing these procedures.

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