

# SEVERE RECURRENT HYPERCALCAEMIA DUE TO MILK ALKALI SYNDROME AND IMMOBILISATION

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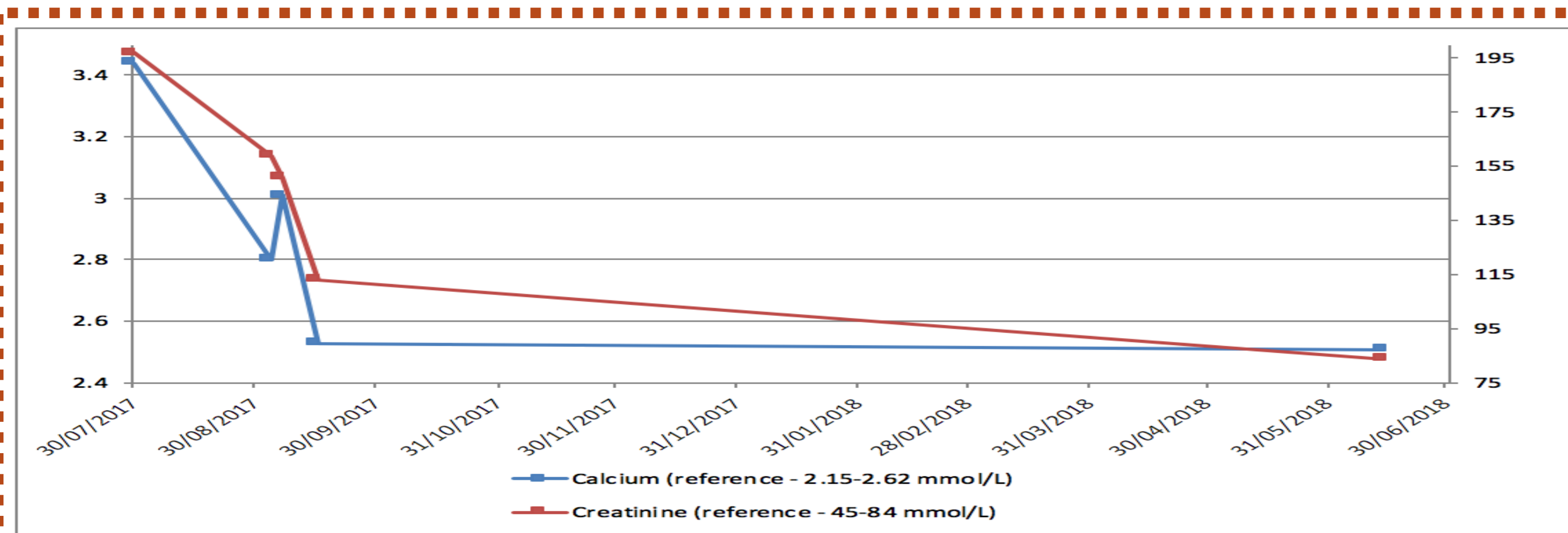
## BACKGROUND

- Milk Alkali Syndrome, classically the triad of hypercalcaemia, metabolic alkalosis and renal failure<sup>[1]</sup>, is caused by excessive ingestion of calcium and absorbable alkali.
- Historically, it was prominent when large quantities of milk and bicarbonate were ingested simultaneously as treatment for peptic ulcer disease<sup>[2]</sup>.
- The incidence of Milk Alkali Syndrome significantly declined after the advent of conventional pharmacotherapy for peptic ulcer disease, which became routinely used in clinical practice.
- However, there has been a recrudescence of the disorder and it currently accounts for 12% of cases of hypercalcaemia, making it the third leading cause of hypercalcaemia after primary hyperparathyroidism and malignancy in select groups of patients<sup>[3,4]</sup>.

	30/08/2017	03/09/2017	06/09/2017	15/09/2017	14/06/2018
Calcium (2.15-2.62 mmol/L)	3.44	3.01	2.53	2.51	
Phosphate (0.80-1.50 mmol/L)	1.21	0.83	0.88	0.50	
Urea (2.5-7.8 mmol/L)	11.2	7.6	10.1	5.0	6.6
Creatinine (45-84 mmol/L)	197	159	151	113	84
eGFR	25	32	34	55	
Vitamin D (50-250 nmol/L)	58				
Bicarbonate (22-29 mmol/L)	25	21	18	25	
Total Protein (60-80 g/L)	82				
IgA (0.7-4.0 g/L)	2.38				
IgG (7-16 g/L)	18.8				
IgM (0.4-2.3 g/L)	0.84				
PTH (1.1-4.7 µmol/L)	<1.2		<1.2		
Bence Jones	Not detected				
LDH (<250 u/L)	154				

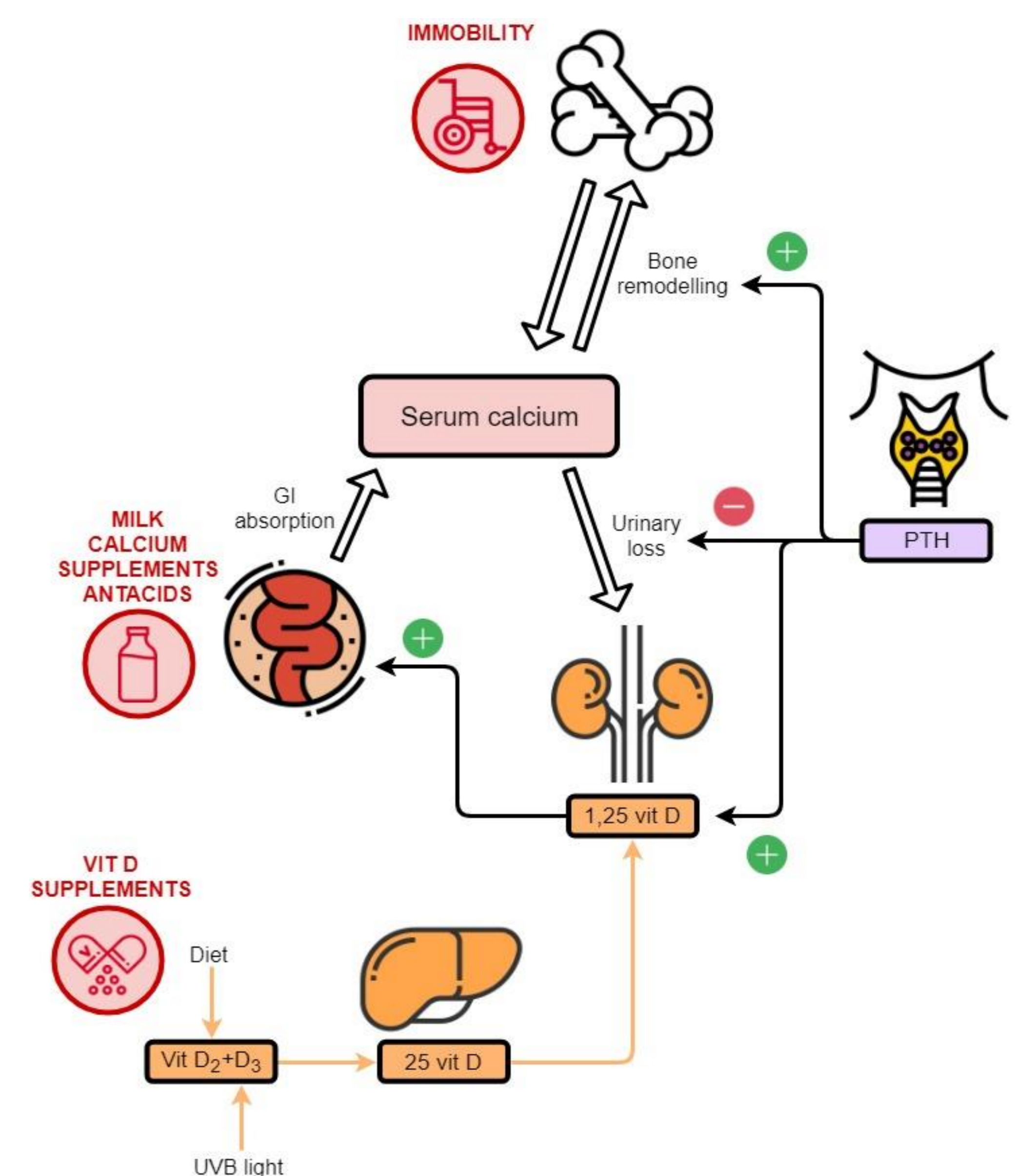
## CASE REPORT

- A 37 year old female presented via her GP with a six month history of several non-specific symptoms, corrected calcium of 3.44mmol/l, and acute kidney injury.
- Past medical history included bipolar disorder, fibromyalgia, juvenile idiopathic arthritis, spina bifida occulta, total hip replacement and lumbar spine fusion. Her only medication was an over-the-counter vitamin D supplement (400IU daily).
- Bloods are shown. A CT thorax-abdomen-pelvis was normal.
- Following treatment with IV normal saline, her calcium and AKI improved.



- The patient was readmitted 3 days later with recurrence of symptoms and corrected calcium of 3.01mmol/L. She was treated with IV pamidronate and IV fluids.
- Upon further careful history taking, it was revealed that patient had been drinking 1-2 pints (600-1100 mls) of milk every day for many years in addition to over the counter antacids.
- 1 pint of milk contains approximately 600 mg of calcium. Her hypercalcaemia was further exacerbated by immobility<sup>[5]</sup>.
- She was advised to stop taking excessive milk and antacids. Since discharge, her calcium levels have been in normal range.

## CASE-SPECIFIC FACTORS CONTRIBUTING TO HYPERCALCAEMIA



## LEARNING

- Our case report emphasises the importance of good history-taking in establishing the diagnosis of milk alkali syndrome.
- Although considered an uncommon cause of hypercalcaemia, our case illustrates it may go underdiagnosed in select patient populations with other contributing factors.
- Milk alkali syndrome may result in severe hypercalcaemia warranting admission<sup>[3]</sup> for treatment, including IV bisphosphonates.

- ## REFERENCES
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