

Myxoedema Coma with Co-existing Malnutrition

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Introduction

- Myxoedema coma is a rare complication of hypothyroidism
- It is estimated that there are over 3 million people in the UK that are suffering from or at risk of malnutrition.(1)
- Cases of myxoedema co-existing with malnutrition are rarely described in medical literature

Case

- A 51 year old woman presented with acute confusion, peripheral oedema and a bilateral lower limb rash.
- She had global confusion, an AMT score of 3/10 and hallucinations involving extra-terrestrials.
- Clinical examination revealed proximal muscle weakness, slow relaxing reflexes and an erythematous macular rash on her lower legs.
- She had a BMI of 15 and stated that her weight had been static over the last few months.
- There was a strong family history of hypothyroidism affecting both parents

Results

- Investigations (detailed in Figure 1) revealed anaemia, hyponatraemia, severe hypothyroidism and vitamin D deficiency.
- A short synacthen tests showed adequate response and ruled out hypoadrenalism.
- Laboratory blood glucose confirmed hypoglycaemia. A prolonged fasting test was performed. This showed suppressed insulin, C-peptide, IGF-I, with suppressed ketosis and low IGF-II, raising the possibility of malnutrition.
- Sulphonylurea screen was negative.
- Chest X-ray revealed small bilateral pleural effusions.
- Computerised Tomography scan of the head excluded intracranial pathology.
- Ultrasound scan of the thyroid gland showed an echotexture suggestive of Hashimoto's Thyroiditis.
- Thyroid peroxidase (TPO) antibody was positive.
- The macular rash on her legs was investigated with a punch biopsy. This ruled out vasculitis or fungal infection but was suggestive of dermatitis seen in malnutrition.
- The occurrence of hypoglycaemia, hypoalbuminaemia, vitamin D deficiency, zinc deficiency and low BMI in the absence of an organic cause pointed to a diagnosis of malnutrition, which was further supported by the skin biopsy result.

Figure 1. Initial results

Investigations	Results (normal values)
Hb	9.1 g/dL (12 - 15)
Na	114 mmol/L (133 -146)
TSH	>100 mU/L (0.35 - 6)
T4	6.6 pmol/L (9 - 26)
Vitamin D	23 nmol/L (> 50)
Short Synacthen test:	Cortisol Level:
0 minute	396 nmol/L
30 minute	773 nmol/L
1 hour	989 nmol/L
Prolonged fasting test:	
Glucose	2.6 nmol/L
Insulin	< 10 pmol/L
C-peptide	< 94 pmol/L
Proinsulin	4 pmol/L
IGF-I	< 3.2 nmol/L
IGF-II	24.9 nmol/L
Beta hydroxybutyrate	140 umol/L
Albumin	27 g/L (35 - 50)
TPO antibody	Positive
Zinc	6.9 umol/l (11 - 24)

Treatment and Progression

The patient was treated with 100 micrograms levothyroxine, vitamin D, zinc and dietary supplements to good effect.

Her electrolytes normalised, her confusion resolved entirely and her muscle weakness improved. The patient's rash resolved and her weight increased.

Conclusion

- Primary hypothyroidism with myxoedema coma is an important differential diagnosis in all patients presenting with acute confusion. Timely diagnosis can be life-saving.
- This case highlights the importance of realising that not all patients with hypothyroidism will exhibit classical features such as weight gain.
- Co-existing conditions such as malnutrition can blur the clinical picture and should always be considered .

References

- <http://www.nhs.uk/conditions/Malnutrition/Pages/Introduction.aspx>