

CASE REPORT

AN UNUSUAL CAUSE OF HYPOGLYCEMIA: A CASE REPORT S Pokharel*, A Shrestha, D Maskey, B Shrestha, P Poudel, B Shrestha, KN Poudel, G kandel

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ABSTRACT

Hypoglycemia is characterized by a reduction in plasma glucose concentration to a level that may induce symptoms or signs such as altered mental status or sympathetic nervous system stimulation. Glucose levels <55 mg/dL (3.0 mmol/L) with symptoms that are relieved promptly after the glucose level is raised document hypoglycemia. ¹ Hypoglycemia is most convincingly documented by Whipple's triad: (1) symptoms consistent with hypoglycemia, (2) a low plasma glucose concentration measured with a precise method (not a glucose monitor), and (3) relief of those symptoms after the plasma glucose level is raised[1]. Hypoglycemia is most commonly a result of the treatment of diabetes, however it can also be seen in patients with critical organ failure (hepatic, renal or cardiac failure), severe sepsis, pancreatic tumors, adrenal or pituitary insufficiency, alcohol use or who have had stomach surgery. There are very few case reports of patients presenting as hypoglycemia caused by panhypopituitarism. ² The potentially life-threatening consequences of sudden, unexpected hypoglycemia may endanger not only the affected person but others as well (eg, hypoglycemia in a driver of a motor vehicle).

Key Words: Hypoglycemia, Panhypopituitarism, Whipple's triad.

INTRODUCTION

Pituitary gland failure or pituitary insufficiency refers to complete or partial failure of secretion of anterior and/or posterior pituitary hormones. The anterior pituitary produces thyrotropin (thyroid-stimulating hormone [TSH]), corticotropin (adrenocorticotropic hormone [ACTH]), luteinizing hormone (LH), follicle-stimulating hormone (FSH), growth hormone (GH), and prolactin (PRL). The posterior pituitary produces vasopressin (antidiuretic hormone [ADH]) and oxytocin. The deficiency of all anterior pituitary hormones is termed panhypopituitarism. Onset of pan hypopituitarism may be in childhood or adult life and is generally permanent, requiring one or more specific hormone replacements. The most common cause of panhypopituitarism is pituitary adenoma followed by peripituitary tumors (like craniopharyngioma etc), post partum pituitary necrosis (sheehan's syndrome), empty sella syndrome etc. In a population-based study of hypopituitarism in 1998, the prevalence of hypopituitarism was 46 cases per 100,000 individuals and the incidence was 4 cases per 100,000 per year³ Clinical manifestations depend on the extent of hormone deficiency and may be non-specific and thus the diagnosis is often missed. The progressive loss of pituitary hormone secretion is usually a slow process, which can occur over a period of months or years. Generally, growth hormone (GH) is lost first, and then luteinizing hormone (LH) deficiency follows. The loss of follicle-stimulating hormone (FSH), thyroid stimulating hormone (TSH), adrenocorticotropic (ACTH) hormones and prolactin typically follow much later. ⁴

The clinical presentation of panhypopituitarism is similar to the deficiencies of those hormones that control target glands. Patient may present with amenorrhoea, decrease libido, decrease axillary and pubic hair due to gonadotropin deficiency; decreased exercise tolerance, decreased mood and general well-being, decreased quality of life due to growth hormone deficiency; cold intolerance, fatigue, myalgia and dry skin due to thyroid hormone deficiency; tiredness, pallor, anorexia, nausea, weight loss and hypoglycemia due to ACTH deficiency and agalactorrhoea due to prolactin deficiency. Patients with hypopituitarism typically present with low target hormone levels accompanied by low or inappropriately normal levels of the corresponding trophic hormone. MR imaging of the hypothalamo-pituitary region may provide essential information.

CASE PRESENTATION

A 40 years old female came to our ER with complaint of loss of consciousness for 15 minutes. O/E: BP:90/50, Pulse: 100bpm, RR:18/min, SPO2:98% in room air. On arrival her capillary blood glucose was 31mg/dl and her random blood glucose was 25mg/dl; after she was treated with IV dextrose she became fully conscious. Her relatives said that she had nausea and few episodes of vomiting at home before becoming unconscious but she had no history of diabetes mellitus, fall injury, fever, headache, jerking movement of limbs and alcohol intake. After she was fully conscious she said that she was apparently fine until the birth of her last child 5 years back. According to her, after the birth of her last child, which was normal delivery at

home without significant blood loss, she started to feel tired, lethargic. She could not even breast feed her last child as she was not lactating and has amenorrhoea since then, which she thought was due to her weakness. According to her, in the past 2-3 years, she had been feeling very tired and lethargic that she left her job as a tailor. She also gives history of decrease appetite, nausea and vomiting on and off, for which she had been to many hospitals in chitwan and was diagnosed as “Acid peptic Disease with Depressive disorder” was under regular medication and had done UGI endoscopy several times. But her symptoms were worsening day by day. She was admitted in our hospital two times in the last 2 months with complain of decrease appetite, nausea and vomiting. During her previous admission at our hospital her UGI endoscopy and USG abdomen was normal, other lab reports:RBS:56.0mg/dl; Cr:0.97mg/dl; Na:124.4mmol/L; K:3.83mmol/L; Urine for Pregnancy test: Negative; Albumin:4.4gm/dl, Total protein:7.1gm/dl, AST: 207.0U/L(<31), ALT:136U/L(<40),Gamma GT:28.8, Alkaline phosphates:209IU/L, Billirubin Total:0.6,Direct:0.31;INR:1.18 ;Hepatitis panel:negative;TSH:5.25(0.39-6.16); ANA:Negative; PBS:Hb:10.6, WBC: 2,500, Platelet count:90,000 Impression: Pancytopenia(Normocytic normochromic anemia). She was treated conservatively and was discharged but her symptoms reappear and she was admitted again just 3 weeks after she was discharged. Her lab reports: Na:132.3mmol/L, K:4.1mmol/L, AST:58U/L, ALT:33U/L, serum amylase:172 IU/L(15-220); WBC:3,000, Hb:10.5gm/dl, Platelets:1,35,000; repeated endoscopy:normal. And she was discharged again after conservative management. Her Lab reports 2 weeks before admission: AST:195U/L, ALT:115U/L; WBC:4,000, Hb:10.2, Platelet:90,000.

She denies having severe headache, head trauma in the past, visual disturbance and galactorrhoea. Her bowel and bladder habit are normal. She has lost more than 10kg since last 5 years. She is non alcoholic, non smoker; has no history of TB, HTN, DM and no significant surgical history, no significant family history, no history of use of any drug for long time. On Physical examination: General condition: ill looking, BMI:17kg/m², Weight: 40kg, she had dry and pale skin and loss of the outer third of eyebrows were noted, sparse axillary and pubic hair was present, Her thyroid examination was normal. Lab Investigations: AST:111U/L,ALT:52U/L, INR:1.24; ECG: Sinus rhythm;TFT:FT3:0.85pg/ml(2.0-4.4)FT4:0.16ng/dl(0.93-1.70) TSH:3.56 μ IU/ml(0.27-4.20);LH:1.17(Post menopause:7.7-58.5);FSH:2.42(post menopause: 25.8-134.8);Prolactin:6.34ng/ml(4.79-23.3);4 pm Serum cortisol:1.48ug/dl(3.09-16.66);MRI pituitary: Empty sella; PBS: Hb:9.2,WBC:3,200,Platelet count:90,000 Impression: Pancytopenia; LKM(Liver kidney microsomal) antibody: Negative; Smooth Muscle antibody(ASMA):Negative.

At the time of discharge after thyroxine and steroid replacement her Lab reports: FBS:119mg/dl;AST:51;ALT:45;Na:143.6mmol/L,K:3.44mmol/L,urea:15.0;Cr:1.1; Hb:9.7,WBC:9,300,Platelet count:1,55,000.

DISCUSSION

This is a case of middle aged women with history of amenorrhoea and agalactorrhoea since her last child birth, however she denies

having excessive bleeding during child birth, who presented to us with clinical hypoglycemia fulfilling whipples triad. She also gave history of tiredness, lethargic and decrease appetite since her last child birth which was progressive and was admitted two times in our hospital in the last 2 months. On the previous two occasions, she had hyponatremia, mildly elevated liver enzymes, pancytopenia and her blood sugar was also in lower range however she did not had symptoms of hypoglycemia. On physical examination, her blood pressure was in lower range, she had typical hypothyroid faces (dry and pale skin with loss of the outer third of eyebrows) with sparse axillary and pubic hair suggesting gonadotropin deficiency. According to her history of amenorrhoea, agalactorea with lethargy, anorexia and recurrent hyponatremia with hypoglycemia; typical signs of hypothyroid faces and gonadotropic hormone deficiency and lab investigation showing secondary hypothyroidism (normal TSH with decreased FT3 and FT4) with low levels of LH and FSH excluding menopause with low cortisol level, panhypopituitarism was suspected. The most common cause of panhypopituitarism is due to pituitary tumour most commonly due to prolactinoma. But her prolactin level was in normal range, she has no history of galactorrhoea and her MRI showed empty sella. Although we did not measure ACTH due to cost factor but her serum cortisol was low which signify adrenal insufficiency (hypoadrenalism). A major distinction between primary and secondary hypoadrenalism is that in primary hypoadrenalism skin pigmentation is always present due to increased ACTH secretion(unless of short duration) but it is absent in secondary hypoadrenalism. This patient's TSH was 5.25(0.39-6.16) two months back which also signifies the importance of doing FT4 and TSH together to screen for thyroid disorder cause patients with secondary hypothyroidism are usually missed when we test TSH only .Hyponatraemia is common in secondary hypoadrenalism and is attributable to reduced renal free water clearance consequent upon cortisol deficiency with an additional contribution from TSH. As this patient's viral markers were negative; ANA, LKM, ASMA were also negative and her liver enzymes became normal after steroid and thyroid replacement which signify that it was due to panhypopituitarism. ⁵ There are many case reports of patients with panhypopituitarism presenting as pancytopenia which was improved after thyroxine and steroid replacement therapy.^{6,7} This patient also had repeated peripheral blood smear showing pancytopenia, which was improved by thyroid and steroid replacement therapy. So her final diagnosis was Hypoglycemia induced by Panhypopituitarism due to Empty sella.

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