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Case Report

Internal Medicine Section

A Rare Case of Sheehan's Syndrome Presenting as Depression and Dyselectrolytaemia in a Multiparous Woman

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ABSTRACT

Sheehan's Syndrome (SS) is a rare endocrine condition that presents with complex features in women with intrapartum or Postpartum Haemorrhage (PPH) seen in clinical practice. The spectrum of symptoms is diverse, and early detection with prompt treatment of this endocrinopathy is facilitated by a high index of suspicion, sound clinical acumen, and an appropriate diagnostic strategy by an astute physician. SS, which manifests as a major depressive disorder, but not accompanied with dyselectrolytaemia, is an interesting finding in the present case study. In fact, most of the time, it presents with non specific symptoms that delays the diagnosis and management. Hereby, the authors present the case of a 39-year-old multiparous woman who was diagnosed with depression for two months by the psychiatrist. Later, she developed symptoms including anorexia, for which she presented to the Medicine Department. On detailed examination, her vitals were poor. Again, she was evaluated in detail for her obstetric history presented as a history of agalactia and early amenorrhoea two years ago. Followed by the history, laboratory investigation and imaging techniques were done, and found to have thinned pituitary gland and flattened against the sella floor. With this prompt examination, diagnosed with SS due to PPH. Yet, her laboratory investigation resulted in abnormal electrolytes made the final diagnosis as SS with dyselectrolytaemia and depression as neuropsychiatric manifestations. She was treated with Hormone Replacement Therapy (HRT). Due to her financial constraints, her treatment switched to oral drugs and discharged Against Medical Advice (AMA) with follow-up advice.

Keywords: Hypopituitarism, Multiparity, Postpartum haemorrhage, Postpartum pituitary necrosis

CASE REPORT

A 39-year-old woman having Parity 3, Living 3 (P3L3) and a housewife presented with the symptoms of crying spells, insomnia, low mood, anger outbursts, hearing voices, slow taking, and inability to concentrate for a period of six months. Along with these symptoms, she also developed vomiting, headaches, and anorexia for last 15 days and her psychological symptoms also got aggravated. So, she got admitted in the nearby private clinic. Based on her condition, they investigated the electrolytes and haemoglobin, where they found she had electrolyte imbalance (sodium- 125 mEq/L; potassium- 3 mEq/L and chloride- 92 mEq/L). Immediately they treated her with Normal Saline (NS) 1pint and Ringer's Lactate (RL) one pint and after her recovery she was referred to the present hospital.

Based on her symptoms, she and her husband consulted with the psychiatrist in the present hospital, and she was diagnosed with depression. She got admitted for depression treatment. Basic investigations including complete blood profile, routine urine test and electrolytes were done in the Psychiatry Department [Table/Fig-1]. Her electrolyte evaluation showed low sodium levels. Physical examination revealed that she appeared ill-looking, thin and pale with cold extremities. The general and systemic examination is shown in [Table/Fig-2]. Laboratory investigations and thyroid profile was performed along with Chest X-ray (CXR) [Table/Fig-3], and Electrocardiogram (ECG) [Table/Fig-4]. All her investigations were normal except, reduced haemoglobulin level. Immediately, the psychiatrist sought medical opinion and the patient was taken by the General Medicine Department for further evaluation within 48 hours of her admission in Psychiatry Department.

Again, history was taken based on the signs and symptoms. There was no history of fever, diarrhoea, abdominal pain, diplopia, vertigo, or unsteadiness. She was not taking any other medications for any illness. There was no past or family history of psychiatric illness

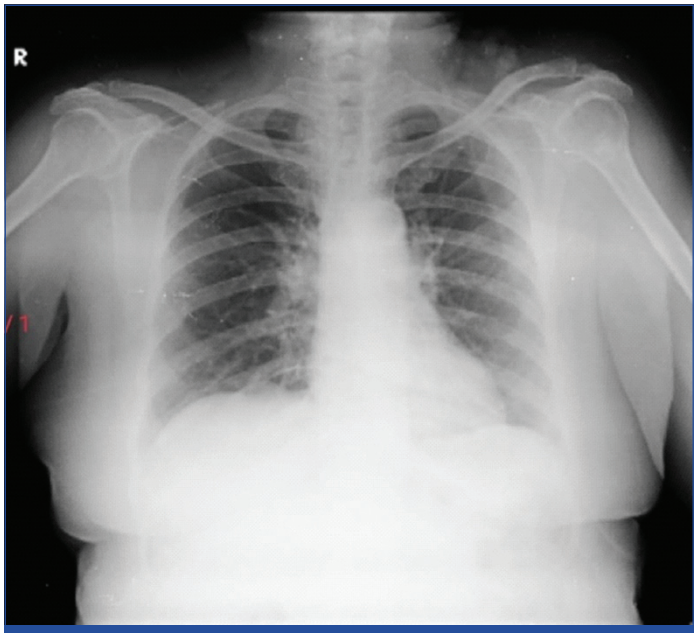
Test	Results	Normal range
Haemoglobin (Hb) (g/dL)	10.5	13-17
Total count (cells/mm^3)	6400	4000-11000
Platelets (lacs/mm^3)	1.7	1.50-4.50
Urine routine		
Appearance	Clear	Clear
Nitrate, urobilinogen, bilirubin	Nil	Absent
Protein, blood, glucose, leucocytes	Nil	Absent
Ketones	Negative	Negative
pH	6.0	5.5-8.0
Colour	Colourless	
Specific gravity	1.010	1.010-1.030
Epithelial cells (/hpf)	3-5	0-4
Pus cells (/hpf)	2-4	0-5
RBC, casts, crystals	Nil	Absent
Bacteria	Nil	Absent
Electrolytes		
Sodium (Na^+) (mEq/L)	130	135-145
Potassium (K^+) (mEq/L)	5.3	3.5-5.4
Chloride (Cl^-) (mEq/L)	101	98-107
Chest X-ray (CXR)	Normal cardiac shadow, Normal lung fields, Normal bony cage	
Electrocardiogram (ECG)	Heart rate 75/min, Normal sinus rhythm, Normal cardiac axis, No dynamic ST-T changes	
Thyroid profile		
Total T4 (µg/dL)	7.2	5-12
Total T3 (ng/dL)	88.4	80-220
Thyroid Stimulating Hormone (TSH) (mIU/L)	0.7	0.2-45

[Table/Fig-1]: Laboratory investigations and the thyroid profile.
RBC: Red blood cells; T3: Triiodothyronine; T4: Thyroxine

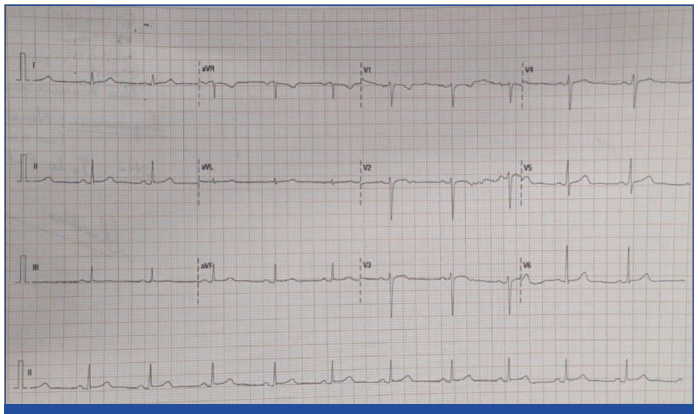
and physical examination results were unremarkable. At the time of admission, the patient was conscious and oriented; but her activities were slow.

Examination	Results
Vitals	
Pulse rate	60 beats per minute and feeble
Blood pressure	90/60 mmHg in lying down position
Respiratory rate	17 breaths per minute
Temperature	99°F
Systemic examination	
Cardiovascular system	No deformities found on inspection, and palpation Normal S1 and S2 heard, no murmurs
Respiratory system	Normal on inspection, palpation, and percussion Normal vesicular breath sound, no added sounds, no vocal fremitus
Abdomen	Normal, no scars, no dilated veins. Diffuse pain present all over the quadrants. Normal on percussion, no free fluids. Bowel sounds heard and normal
Central nervous system	Sluggish deep tendon reflexes found
Ophthalmology examination	Fundoscopy showed normal optic discs

[Table/Fig-2]: General and systemic examination of the patient at the time of admission.



[Table/Fig-3]: Chest X-ray (CXR) of the patient (PA view). It shows normal cardiac shadow, normal lung fields, and normal bony cage. No abnormalities were detected.
PA: Posteroanterior

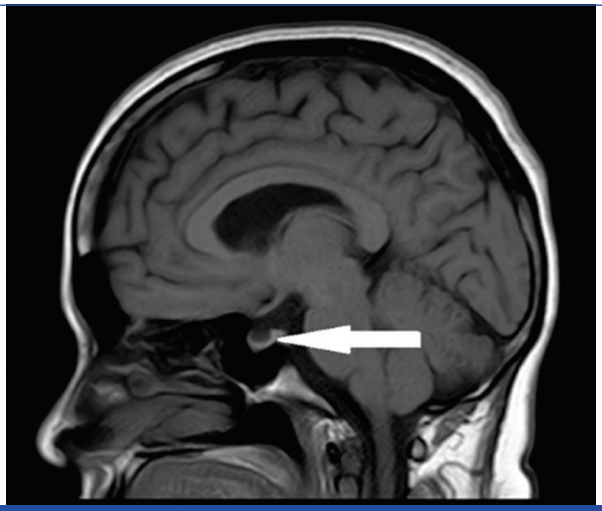


[Table/Fig-4]: Electrocardiogram (ECG) of the patient. ECG shows heart rate of 75/min, normal sinus rhythm, cardiac axis, and no dynamic ST-T changes.

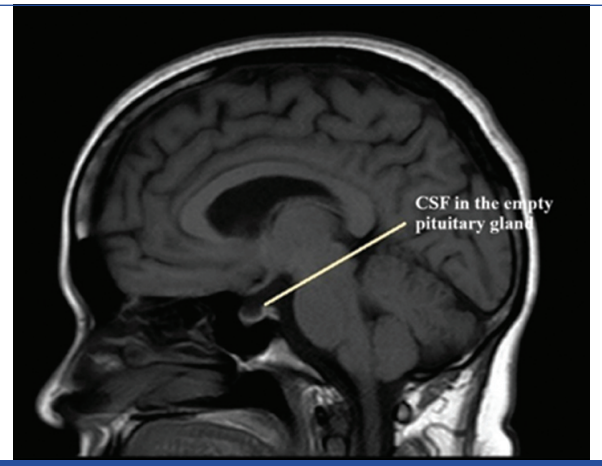
Under suspicion, again, a detailed history was obtained and found that the patient had an eventful obstetric history. She's been symptomatic for over two months following a normal vaginal delivery of her third child two years ago. She had excessive bleeding during the third stage of labour and required a blood transfusion. This was followed by agalactia and menstrual cycle cessation immediately after delivery, which she suspected to be menopause, but no gynaecologist was consulted.

Based on the history, Postpartum Pituitary Necrosis (PPN) was suspected. Without delay, Magnetic Resonance Imaging (MRI) of the brain was done and revealed no abnormalities. Then the patient underwent brain Computed Tomography (CT), which revealed that the pituitary gland had thinned (maximum thickness 1.7 mm) and flattened against the sella floor. Also, expansion of the Cerebrospinal Fluid (CSF) suggested an empty sella [Table/Fig-5,6]. Followed by that, hormones that were secreted and regulated by the pituitary gland, including cortisol, prolactin, Growth Hormone (GH), Follicle Stimulating Hormone (FSH), and Luteinising Hormone (LH) were measured and are shown in [Table/Fig-7]. Finally, a professional diagnosis of SS was made due to Postpartum Haemorrhage (PPH), with dyselectrolytaemia and depression.

The patient was then treated with intravenous fluids (i.v.) and Hormone Replacement Therapy (HRT) to treat SS. Treatment was continued with i.v. hydrocortisone (25-50 mg six hourly) and



[Table/Fig-5]: Computed Tomography (CT) of the brain shows the empty sella tunica. The pituitary gland is thinned and compressed against the sellar floor (maximum thickness ~1.7 mm) with concave upper borders indicated in white arrow.



[Table/Fig-6]: CT scan of the brain shows Cerebrospinal Fluid (CSF) in the empty sella tunica, which is indicated by the white line.

Test	Results	Normal range
Follicle-Stimulating Hormone (FSH) (IU/L)	3.6	25.8-134.8
Luteinising Hormone (LH) (IU/L)	2.8	14.2-52.3
Prolactin (ng/mL)	2.9	2-29
Growth Hormone (GH) (ng/mL)	2.8	1-14
Serum cortisol (µg/dL)	6.5	5-25

[Table/Fig-7]: Hormone study.

tab. Eltroxin 100 µg Once Daily (OD) in the morning before meals. The patient's appetite improved. Later, the patient decided to be discharged Against Medical Advice (AMA) due to financial reasons. The patient's treatment was switched to oral therapy with a tab. Eltroxin 100 µg in morning, tab. Prednisolone 7.5 mg (morning) and 2.5 mg (evening around 4 pm) and Oral Contraceptive Pills (OCP) (20 µg of ethinyl estradiol and 100 µg of levonorgestrel) for 21 days per month. Due to her financial constraints, she didn't want to continue the treatment; hence, the authors persuaded her and referred to the nearby government hospital for regular check-ups and follow-ups.

DISCUSSION

The present case report describes a 39-year-old multiparous woman who was diagnosed with depression for two months by the psychiatrist. Later she developed symptoms including anorexia, for which she presented to the Medicine Department. On detailed examination, along with her obstetric history, the case presented as a history of agalactia and early amenorrhoea two years ago. Laboratory investigation and imaging techniques were done and found to have thinned pituitary gland, flattened against the sella floor. With this prompt examination, the patient was diagnosed with SS due to PPH. Since her laboratory investigation showed abnormal electrolytes, the final diagnosis was SS with dyselectrolytaemia and depression as neuropsychiatric manifestations. She was treated with HRT.

It may not always manifest in the traditional manner. Various literature show that neurocognitive impairment and psychosis may occur in rare cases, but not dyselectrolytaemia [1,2]. Therefore, the authors report a rare case of SS that manifested with a neuropsychiatric disorder years after PPH with dyselectrolytaemia.

The findings from the authors' patient were similar to the study done by Qadri MI et al., where the patient presented with major depression, but her electrolytes were normal [1]. In Nepal, Bhandari R et al., presented a case of P3L3 in shock with hypertension and type-2 diabetes, and diagnosed as SS with a history of multiple psychiatric consultations for depression [3], was in concordance with the present study findings. Another study from Indonesia, by Adewiah S et al., reported a case of PPH with loss of consciousness, and was diagnosed as SS with hypoglycaemia and hyponatraemia, but her neuropsychiatric manifestations were not seen [4]. Other case studies, also presented with symptoms such as depression, electrolyte imbalance, hormone deficiency, and others, but not in concordance with each symptom [5-8]. All these studies showed that SS can manifest in various ways, yet most of the studies presented either with neuropsychiatric manifestation or with electrolyte imbalance but in the present case, it presented both.

The SS or PPN is caused by necrosis/ischaemia of the pituitary gland following severe hypotension or shock due to PPH in women [1,9]. It has been found that one in 5,000 women suffer from SS [1,9]. In India, the prevalence has been estimated to be 3.1% in parous women ≥20 years and 63% in women who delivered at home [10,11]. SS, a gradual, slow, indolent condition, sudden or delayed, affects some women immediately after delivery or later [1,9]. In order to reduce morbidity and death, early diagnosis requires a thorough history of PPH, lactational failure/agalactia and amenorrhoea.

The SS leads to partial/complete pituitary hormone deficiency, [1,9,12] with aetiopathogenesis suggesting petite sella, disseminated intravascular coagulation and physiologic expansion of the pituitary gland during pregnancy [1,9]. It causes hypopituitarism, while anterior pituitary injury can impede the adrenal glands, liver, thyroid, bones, and gonads, and posteriorly the kidneys and mammary glands [9-13].

In a 20-year cohort study, an average of 13 years elapsed between the obstetric event and diagnosis [14]. In the present patient, although the symptoms began a few months after the third delivery, the diagnosis was not made until two years later. The unique earlier manifestation of this syndrome was agalactia, and/or amenorrhoea, and it may manifest several months or years postpartum [1,9,12]. Moreover, it presents with myriad of symptoms, including coarse dry skin, premature wrinkling of the forehead and face, genital and body hair loss, and overall weakness and debility. Circulatory collapse, congestive heart failure, hypoglycaemia, diabetes insipidus, and even psychosis are unremarkable clinical manifestations of SS [1,10,11,14]. All these manifestations become clearly evident when 75% pituitary gland is damaged [2,9]. In the present case, the patient presented with overall weakness and debility as the initial presentation. As highlighted in the previously published case reports [1,2,15], the present patient also showed neuropsychiatric manifestations with different symptoms, and completely damaged pituitary gland.

According to Lynch S et al., dysthymia and depression are two psychiatric diagnoses associated with GH deficiency [15]. However, hyponatraemia, which affects 33-69% of cases, is the most prevalent electrolyte imbalance [9,10,12]. In the present case, the authors found low GH levels and electrolyte imbalance. In addition, the absence of a prolactin response in patients with suspected SS may be a sensitive test for screening purposes [12], although in the present case, it was found to be relatively low compared to the normal range.

Various studies have found that the effective treatment for SS is lifelong HRT [1,2,10,12,13]. Our patient's HRT used were OCP, prednisolone, and thyroxine. Thus, the psychiatric features of SS were found to be due to hypopituitarism, hypothyroidism, hypocortisolism, and low GH, which can be effectively treated with HRT. In addition, a few clinical studies have found that a completely empty sella is an early diagnosis in 70% and partial sella in 30% of patients [3,4,10,12,13]. CT scan of the patient's brain revealed complete destruction of the pituitary gland with an empty sella. Finally, the diagnosis of SS was established, based on a clear history of amenorrhoea and agalactia.

CONCLUSION(S)

Hence, in the present case study, the patient presented with symptoms of depression as first, and had electrolyte imbalance. Later, with thorough history and investigations, she was diagnosed with SS and treated appropriately. Thus, it is imperative to acknowledge the presence of depression along with dyselectrolytaemia in individuals with SS. It is the responsibility of the astute clinician to maintain a high index of suspicion in patients with an obstetric history of PPH and to understand that SS in such patients manifests as depression along with standard care. Conversely, further investigation is recommended to unravel the unfathomable aetiopathogenetic factors underlying this exceptional relationship and save the patient from untoward consequences.

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