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Case Series

'Listen to Your Patient- She is Telling You the Diagnosis': A Key to Spotting Sheehan's Syndrome — A Case Series from Bangladesh

Salam MU[1], Dhar P[2], Ahmad MM[3], Saha M[4], Bristy FA[5], Ferdous T[6], Alam S[7], Rahman S[8]

Abstract

Sheehan's syndrome (SS) is a form of hypopituitarism, often progressing to panhypopituitarism, which occurs in women due to ischemic necrosis of the pituitary gland following severe postpartum hemorrhage (PPH). This case series describes four patients diagnosed and treated at the Department of Medicine, Sylhet Women's Medical College (SWMC), Bangladesh. Each patient had a characteristic obstetric history indicating PPH, along with lactational failure following childbirth. Over the years, they developed symptoms attributable to deficiencies of various anterior pituitary hormones. Clinical and biochemical evaluations consistently revealed hypoprolactinemia, hypothyroidism, adrenal insufficiency, and gonadal hormone deficiency. Assessment of growth hormone function was not possible due to limitations in diagnostic resources.Notably, brain MRI revealed an empty sella or partially empty sella in all cases except one.

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Introduction

Sheehan's syndrome (SS), also known as postpartum pituitary necrosis, is a condition characterized by the necrosis of anterior pituitary cells due to hypovolemia following significant bleeding during or after childbirth. The syndrome affects up to 5 in 100,000 women, with a reported prevalence as high as 3.1% in India.[1] Although advances in obstetric and medical care have significantly reduced the incidence of SS in developed countries, it remains a common cause of hypopituitarism in the developing world.[2]

1. Dr. Mahjuba Umme Salam, Professor and Head, Dept. of Medicine, SWMC, Sylhet*
2. Dr. Pinkey Dhar- Ex-Indoor Medical Officer, Department of Medicine, SWMC, Sylhet
3. Dr. Md Masuq Ahmad, Assistant Registrar, Dept. of Medicine, SWMC, Sylhet
4. Dr. Madhusudan Saha- Professor and Head, Dept. of Gastroenterology, SWMC, Sylhet
5. Dr. Farzana Ahmed Bristy- Ex-Indoor Medical Officer, Department of Medicine, SWMC, Sylhet
6. Dr. Tabassum Ferdous- Indoor Medical Officer, Department of Medicine, SWMC, Sylhet
7. Dr. Shahidul Alam- Registrar, Department of Medicine, SWMC, Sylhet
8. Dr. Sayem Rahman- Registrar, Department of Medicine, SWMC, Sylhet

***Corresponding author: Dr. Mahjuba Umme Salam**, Professor and Head, Dept. of Medicine, SWMC, Sylhet
Email: mahjubasalam@yahoo.com.

The central pathogenic event in SS is the enlargement of the pituitary gland during late pregnancy, which increases its volume and metabolic demands, rendering it susceptible to ischemic injury and necrosis in the setting of severe postpartum hemorrhage (PPH). This results in either a panhypopituitarism or a varying degree of different pituitary hormone deficiencies, including growth hormone, ACTH, TSH, prolactin, FSH, and LH. Additional risk factors may include a congenitally small sellaturcica, genetic susceptibility, and autoimmune mechanisms.

Timely and effective management of delivery can prevent most cases of PPH and, consequently, SS.[4] The relatively high prevalence of SS in developing countries points towards the need to enhance and improve obstetric care, particularly in rural and underserved areas of the country. Diagnosis of SS basically requires a thorough obstetric history, especially when symptoms present years after the initial hemorrhagic event.

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Case series summary

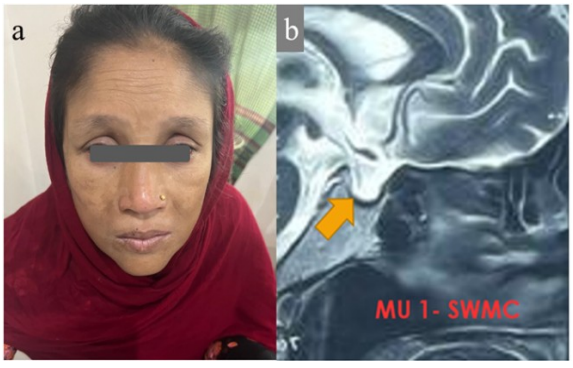
Case 1

A 40-year-old woman presented with a history of extreme fatigue and pallor persisting for the past eight years. She had been repeatedly hospitalized for blood transfusions and intravenous saline infusions, which provided only temporary relief. Upon detailed questioning, she reported experiencing severe postpartum hemorrhage during her last childbirth thirteen years ago, which was followed by lactational failure, amenorrhea, and secondary infertility. She gave history of cold intolerance and, lethargy.

On examination, she appeared apathetic, moderately anemic, and lethargic (Figure 1a). Her blood pressure was 90/50 mmHg, pulse rate 80 beats per minute, and systemic examination was otherwise unremarkable. Laboratory investigations revealed normocytic anemia (hemoglobin: 8.2 g/dL) and significant hyponatremia (serum sodium: 117 mmol/L). Hormonal assays showed a low-normal serum prolactin level (6.3 ng/mL), with other results indicating secondary adrenal insufficiency and secondary hypothyroidism (Table 1).

Magnetic resonance imaging (MRI) of the brain showed a slightly enlarged pituitary fossa filled with cerebrospinal fluid (CSF). The pituitary stalk extended to the floor of the fossa, which contained a thin rim of soft tissue- findings consistent with an empty sellaturcica (Figure 1b).

Figure 1: Case 1- a. Pale apathetic look of patient b. Empty sella on MRI brain



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Case 2

A 38-year-old woman presented with acute upper abdominal pain and vomiting. Abdominal ultrasonography revealed cholelithiasis. She was managed conservatively, as she declined surgical intervention. During routine history-taking, she reported experiencing frequent fainting spells, excessive sweating, and restlessness over the past six years.

On examination, she appeared lean and thin (Figure 2a), mildly anemic, and febrile (temperature: 100°F). Her blood pressure was 80/50 mmHg and pulse rate was 100 beats per minute. There were no signs of dehydration, mucosal pigmentation, or jaundice. Abdominal examination revealed moderate tenderness in the right hypochondrium, with no other remarkable systemic findings.

During her hospital stay, she became noticeably unwell even with minor stressors, such as injections or blood draws. At times she became transiently hypothermic. Further inquiry into her obstetric history revealed that she had experienced postpartum hemorrhage (PPH) during her last delivery 10 years earlier, followed by lactational failure, amenorrhea, and secondary infertility.

Hormonal evaluation confirmed adrenal insufficiency, hypothyroidism, and hypogonadism. Her serum prolactin was in the low-normal range, and growth hormone levels were not assessed. Magnetic resonance imaging (MRI) of the brain showed a pituitary fossa filled with cerebrospinal fluid (CSF), consistent with an empty sella (Figure 2b).

Figure 2: Case 2- a. Lean and thin patient with anxious look b. Empty sella on MRI brain

Case 3

A 37-year-old woman was admitted to the medical ward with complaints of excessive

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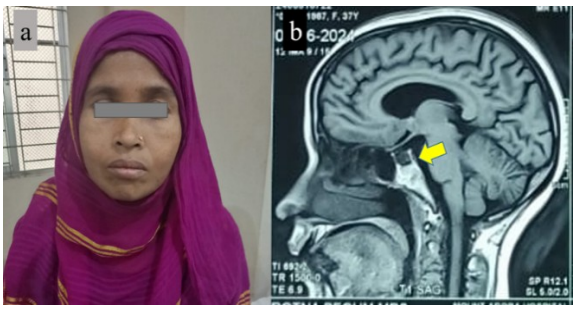
sweating and vomiting for several hours. She reported no history of fever, vertigo, abdominal pain, jaundice, chest pain, or reduced urine output. On examination, she appeared slightly drowsy, dehydrated, and lethargic (Figure 3a). Her pulse rate was 99 beats per minute, and blood pressure was 90/60 mmHg. There were no signs of focal neurological deficits. She looked apathetic and had a coarse dry skin.

Initial laboratory investigations revealed significant hyponatremia (serum sodium- 113 mmol/L), which was initially attributed to fluid loss from vomiting. Further workup, including abdominal ultrasonography, serum creatinine (0.96 mg/dL), alanine aminotransferase (ALT, 30 U/L), and serum troponin I (<0.01 ng/mL), yielded normal results. Notably, the patient had been hospitalized multiple times in the past for similar episodes of vomiting and hyponatremia, which were managed with intravenous fluid therapy.

Her obstetric history revealed that her last childbirth occurred six years prior and was complicated by postpartum hemorrhage (PPH) and shock. She was unable to breastfeed following delivery. However, she continued to have regular menstrual cycles, likely due to her use of oral contraceptive pills.

Hormonal evaluation revealed evidence of secondary adrenal and, gonadal insufficiency and, secondary hypothyroidism. MRI of the brain showed features consistent with a partially empty sellaturcica (Figure 3b).

Figure 3: Case 3- a. Ill looking lethargic patient b. Partially empty sella on MRI brain



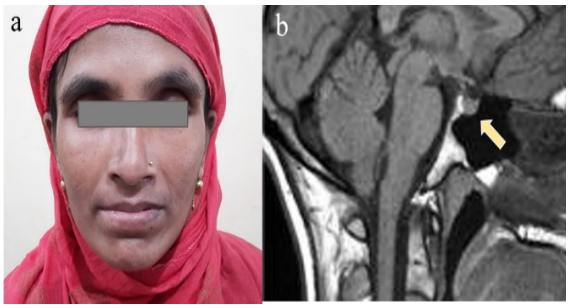
Case 4

A 26-year-old woman had been under psychiatric care for several years with a diagnosis of major depressive disorder (MDD). She also sought treatment from a gastroenterologist for severe chronic constipation. During evaluation, the gastroenterologist noted a concerning obstetric history suggestive of Sheehan's syndrome and referred her to the Department of Medicine for further assessment.

On detailed inquiry, she reported experiencing postpartum hemorrhage (PPH) and shock during vaginal delivery at home four years ago, which was subsequently managed at a local Upazila Health Complex. She was unable to breastfeed due to lactational failure. Since then, she had not resumed normal menstrual cycles and had not conceived again. She also reported symptoms of cold intolerance, generalized weakness, and lethargy.

On examination, she appeared depressed (Figure 4a), which was corroborated by a low Mini-Mental State Examination (MMSE) score. Her blood pressure was 100/70 mmHg, and her pulse rate was 78 beats per minute. Laboratory investigations (Table 1) revealed secondary hypothyroidism and secondary adrenal and, gonadal insufficiency. However, her brain MRI was normal, with no evidence of empty sella (Figure 4b).

Figure 4: Case 4- a. Depressedlooking patient b. Normal sella on MRI brain



The case series at a glance

The summary of investigations of the four case reports have been shown in Table 1. And, the clinical presentations, age at presentation, time lapse from the hemorrhagic event to diagnosis, underlying endocrine abnormality revealed from investigations and the treatment given have been summarized in Table 2. The summary of endocrine features have been shown in Table 3.

Table 1:Summary of investigations of the four cases

	Investigations	Case 1	Case 2	Case 3	Case 4
1	Random blood glucose (mmol/L)	5.6	4.5	6.4	6.3
2	Hemoglobin (gm/dl)	8.2	9.7	10.9	11.0
3	ESR (mm in the first hour)	23	55	29	37
4	Total count of WBC/ cu-mm	7000	11000	4800	6500
5	Neutrophil %	69	85	71	70
	Lymphocytes %	24	12	22	24
	Monocytes %	06	01	04	04
	Eosinophils %	01	03	03	02
6	Serum prolactin (ng/mL)	3.3	2.04	1.9	2.1
7	Serum TSH (mIU/L)	1.24	0.12	0.18	0.98
	Serum FT3 (pg/ml)	1.09	1.27	0.81	0.99
	Serum FT4 (ng/dl)	0.84	0.13	0.57	0.098
8	Serum morning ACTH (pg/ml)	7.427	5.31	6.78	10.3
9	Serum morning cortisol (ng/ml)	9.85	10.1	28.0	7.8
10	Serum evening cortisol (ng/ml)	9.4	13.1	17.0	12.5
11	Serum FSH (mIU/ml)	1.3	3.4	2.8	6.5
12	Serum LH (mIU/ml)	11.8	9.9	10.7	2.4
13	Serum estrogen (pg/ml)	22.1	16.6	23.0	36.1
14	Serum creatinine (mg/dl)	1.01	0.8	0.96	1.2
15	Serum electrolytes mmol/L	Na 117	Na 130	Na 113	Na 134
		K 4.4	K 4.9	K 4.5	K 3.7
		Cl 98	Cl 111	Cl 99	Cl 103
16	MRI brain with attention to pituitary fossa	Empty sella	Empty sella	Partially empty sella	Normal sella

Table 2: Summary of clinical presentation and treatment of the cases

Case number	Age at diagnosis	Time from event to diagnosis	Presentation	Endocrine abnormality	Treatment
Case 1	40 years	13 years	Refractory anemia, hyponatremia	secondary adrenal insufficiency, secondary hypothyroidism	Hydrocortisone and Thyroxin
Case 2	38 years	10 years	Incidental diagnosis	adrenal insufficiency, hypothyroidism, hypoprolactinemia and hypogonadism	Hydrocortisone and Thyroxin Gonadal hormone was not replaced
Case 3	37 years	6 years	Recurrent hyponatremia	adrenal insufficiency, hypothyroidism, and hypogonadism	Hydrocortisone and Thyroxin and combined oral pill
Case 4	26 years	4 years	Major Depressive Disorder and severe constipation	adrenal insufficiency, hypothyroidism, and hypogonadism	Hydrocortisone and Thyroxin and gonadal hormone replacement was under consideration

Table 3: Summary of clinical features of endocrine insufficiency

Case	Prolactin	FSH &LH		TSH	ACTH
Case 1	Lactational failure after event	Amenorrhoea after event	Infertility after event	Cold intolerance and refractory anemia	Hypotension, recurrent hyponatremia
Case 2	Lactational failure after event	Amenorrhoea after event	Infertility after event	Lethargic, occasionally hypothermic	Hypotension, poor stress tolerance
Case 3	Lactational failure after event	Normal menstruation with OCP*	Unknown as she was on OCP*	Apathy, coarse dry skin	Hypotension, recurrent hyponatremia
Case 4	Lactational failure after event	Amenorrhoea after event	Infertility after event	Severe constipation, cold intolerance	Lethargy

**OCP- Oral Contraceptive Pills*

Discussion

The reported cases of Sheehan's syndrome (SS) are likely to represent only the tip of the iceberg, particularly in underdeveloped communities where the true burden remains under-recognized. Diagnosis can be challenging for two main reasons.[5] First, the history of postpartum hemorrhage (PPH) and shock- often crucial for diagnosis, may be forgotten or overlooked by the patient or family, especially as clinical features typically emerge many years after the inciting event.[3] In this case series, the average time between the hemorrhagic event and clinical presentation was eight years. Second, the clinical manifestations of SS are often diverse and nonspecific, making diagnosis elusive. Among the four patients in this series, the first one presented with refractory anemia, the third one with recurrent hyponatremia, and the fourth one with severe constipation and major depressive disorder.[6]In the second case, SS was revealed only after evaluation for acute abdominal pain, which was ultimately attributed to cholelithiasis. Although all the cases in this series presented late, acute presentations of Sheehan's syndrome (SS) due to sudden anterior pituitary hormone insufficiency have also been reported.[7]While most documented cases focus on anterior pituitary failure, there are occasional reports of SS associated with diabetes insipidus as well.[8]

Lactational failure, resulting from prolactin deficiency, is often the earliest and most consistent manifestation[4], as observed in all the cases in this series. Growth hormone (GH) deficiency contributes to symptoms such as depression, anxiety, generalized weakness, and physical signs including thin skin, perioral and peri-ocular wrinkling, and hypoglycemia. Although these nonspecific features were evident in all patients, GH levels could not be confirmed biochemically due to testing limitations.

Adrenal insufficiency may present with low blood pressure, poor stress tolerance, muscle weakness, fainting, fatigue, abdominal pain, vomiting, diarrhea, hypoglycemia, and hyponatremia, all of which were prominent in the affected patients in this series. Gonadal hormone deficiency can manifest as amenorrhea, infertility, fatigue, weakness, breast atrophy, loss of body hair, and decreased libido. Thyroid hormone deficiency may present with a puffy face, anemia, cold intolerance, weight gain, edema, hoarseness, apathy, depression, lethargy, coarse dry skin, amenorrhea, bradycardia-typically without goiter.[1,9] In this series, all of the women were subfertile, and three experienced amenorrhea, likely due to hypogonadotropichypogonadism. Although overt clinical signs of hypothyroidism were absent, biochemical testing confirmed hypothyroidism in all cases.

The diagnosis of Sheehan's syndrome is often straightforward once clinical suspicion is raised. A background history of postpartum hemorrhage (PPH) followed by lactational failure, amenorrhea, secondary infertility, and symptoms corresponding to specific hormone deficiencies typically prompts further evaluation through hormonal assays and brain MRI. In the majority of cases, MRI reveals an empty sella. Approximately 70% of patients show a completely empty sella, while about 30% present with a partially empty sella.[1] However, in some cases, particularly those presenting earlier, pituitary imaging may appear normal. This was observed in one patient in this series, who presented four years after the inciting event. Anterior pituitary hormone levels alone are often insufficiently reliable for diagnosing SS, which is why assessment of target gland hormones is essential. Findings such as low free T4 with inappropriately low or normal TSH, low morning cortisol (typically <3 μg/dL, strongly suggestive of adrenal insufficiency), and reduced estrogen levels all indicate deficiencies of both the target hormones and their corresponding trophic pituitary hormones.[2] Stimulation tests are used selectively to further evaluate pituitary reserve, including the insulin tolerance test (ITT) for assessing growth hormone and ACTH reserves, the ACTH stimulation test for adrenal function, and the GnRH stimulation test for evaluating LH and FSH secretion. It is particularly important to note that TSH levels in SS may appear normal or in the low-normal range; thus, hypothyroidism may go undetected unless free T3 and T4 levels are specifically measured.[7] The diagnosis of SS is rarely mistaken for other conditions, though theoretical differentials include pituitary

adenomas, autoimmune hypophysitis, and infiltrative diseases such as tuberculosis or sarcoidosis.[10] Supportive investigations typically include a complete blood count to assess for anemia, thrombocytopenia, or pancytopenia; serum electrolytes to detect hyponatremia; blood glucose levels to screen for hypoglycemia; bone mineral densitometry to evaluate for osteoporosis; and a lipid profile to assess for dyslipidemia. These tests help identify systemic effects of hormone deficiencies and support the overall clinical picture.[5,11]

Although the primary focus of this article was not the treatment of SS, all patients received initial management with hydrocortisone at a daily dose of 15–20 mg, divided throughout the day, as each exhibited some degree of adrenal insufficiency. Secondary hypothyroidism, was managed with levothyroxine replacement based on serum free T4 levels, but only after adequate cortisol replacement to avoid precipitating an adrenal crisis. Growth hormone (GH) replacement was not administered, as GH levels were not assessed. Similarly, estrogen replacement was not provided, except in one patient who was already taking oral contraceptive pills. All patients were educated about the signs and symptoms of adrenal crisis and were given clear guidance on increasing steroid doses during periods of illness, surgery, or physical stress.

Conclusion

Maternal Mortality Rate (MMR) and Neonatal Mortality Rate (NMR) are two important maternal health indices in Bangladesh and many other developing countries. However, this case series emphasizes the need to address conditions like Sheehan's syndrome, which impose a significant burden of morbidity as a consequence of inadequately managed postpartum hemorrhage. This series is intended as a call to action for raising awareness at all levels to ensure the provision of appropriate peripartum services, even in remote areas of the country. A high index of clinical suspicion is essential for physicians, and a detailed patient history remains the most invaluable tool in diagnosis. In this context, the well-known quote in Medicine may be retold for Sheehan's syndrome as: 'Listen to your patient- she is telling you the diagnosis'.

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