

# A Rare Case of Sheehan Syndrome With Cardiac Tamponade

Ahmer Zain<sup>1</sup>, Ashwin Sivakumar<sup>2</sup>, Ozo Akah<sup>3</sup>, Saher T. Shiza<sup>4</sup>, Ashwini Mahadevaiah<sup>5</sup>, Aadil Khan<sup>6</sup>

Review began 04/13/2022

Review ended 04/18/2022

Published 04/20/2022

© Copyright 2022

Zain et al. This is an open access article distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

1. General Medicine, Kempegowda Institute of Medical Sciences, Bangalore, IND 2. Internal Medicine, Angeles University Foundation, Angeles, PHL 3. Internal Medicine, Carnegie Mellon University, Houston, USA 4. Internal Medicine, Deccan College of Medical Sciences, Hyderabad, IND 5. Medicine, Jagadguru Sri Shivarathreshwara Medical University, Mysore, IND 6. Department of Surgery, Lala Lajpat Rai Hospital, Kanpur, IND

Corresponding author: Aadil Khan, mahmoodalam0064@gmail.com

---

## Abstract

Sheehan syndrome, also called postpartum hypopituitarism, is primarily caused by ischemic necrosis of the pituitary resulting from a complicated pregnancy. As the clinical presentations occur years after the complication, it is difficult to diagnose this condition. In this report, we discuss the case of a 35-year-old female with altered mental status, generalized edema, and loss of appetite. The condition was complicated due to the comorbidities of multiple medical conditions such as massive pericardial effusion and untreated jaundice. Her anorexic condition perfectly masked the malnourished appearance of the patient. After multiple laboratory tests and diagnostic imaging, the empty sella turcica of the patient propounded Sheehan syndrome. Replacement of the deficient hormones improved her condition after two weeks. Patients with complicated pregnancy history should be advised for diagnostic imaging early in life to appropriately manage Sheehan syndrome. A delay in diagnosis can have significant health and financial loss. Hormone replacement therapy is the only viable option as there is no cure to treat necrosed pituitary.

---

**Categories:** Internal Medicine, Neurology, Obstetrics/Gynecology

**Keywords:** sheehan syndrome, pericardial effusion, sella turcica, jaundice, hypopituitarism

## Introduction

Sheehan syndrome, also known as postpartum hypopituitarism, is primarily caused by ischemic necrosis of the pituitary. Necrosis occurs in reduced perfusion of the pituitary caused by childbirth-related hemorrhage. Although postpartum hemorrhage occurs in 3% of women who give birth, Sheehan syndrome is not commonly seen [1]. It is estimated to occur in five out of 100,000 childbirths [2]. Women who give birth in developing countries are at higher risk of Sheehan syndrome due to the increased incidence of postpartum hemorrhage and resource availability to treat hormonal imbalance. Sheehan syndrome manifests as a result of a decrease or absence of one or multiple pituitary hormones. The most affected hormones are prolactin and growth hormone owing to their position in relation to the blood supply of the pituitary. Some of the common predisposing risk factors for Sheehan syndrome include pre-existing vascular conditions for vasospasm and thrombosis, small sella turcica, and other genetic factors. Placental conditions and type 1 diabetes have been known to complicate Sheehan syndrome. Sheehan syndrome has a wide range of symptoms, ranging from mild to severe. Inability to produce milk, fatigue, metrorrhagia, amenorrhea, and hot flashes are a few widely known symptoms [2]. Usually, symptoms appear years after delivery, but they occur acutely and become life-threatening in rare instances. Sheehan syndrome is diagnosed with clinical examination for its symptoms, blood tests for hormones and sugar levels, and magnetic resonance imaging (MRI) of the sella turcica. The difficulty in diagnosing Sheehan syndrome is accounted for by its occurrence long after delivery and its silent nature [3]. Hormonal therapy and monitoring is the current treatment as there is no viable option to cure necrosed parts of the pituitary. In this report, we discuss the case of a 35-year-old female who presented with altered mental status, generalized edema, and loss of appetite. In this case, the diagnosis of this condition was complicated by other non-associated medical conditions.

## Case Presentation

A 35-year-old female was brought to the emergency department due to altered mental status and loss of appetite for 10 days. She also complained of fever, irregular menstrual cycles, shortness of breath, weakness and pain in extremities, and dizziness. Her medical history showed admission to the emergency department three years ago for severe iron deficiency anemia with complaints of lower backache, hypotension, headache, failure of lactation, and weight loss. She was discharged after a week with some medication. The patient had two children, a nine-year-old son and a six-year-old daughter. She also had pregnancy loss six years before, following which she developed irregular menses, weakness, and loss of appetite.

On physical examination, the patient had a malnourished appearance with facial puffiness, alopecia, and bilateral edema of the lower extremities, along with a hoarse voice. Her vitals recorded showed that she was hypotensive with raised jugular venous pressure. The patient's hematological and biochemical parameters are shown in Table 1 and Table 2, respectively.

### How to cite this article

Zain A, Sivakumar A, Akah O, et al. (April 20, 2022) A Rare Case of Sheehan Syndrome With Cardiac Tamponade. Cureus 14(4): e24329. DOI 10.7759/cureus.24329

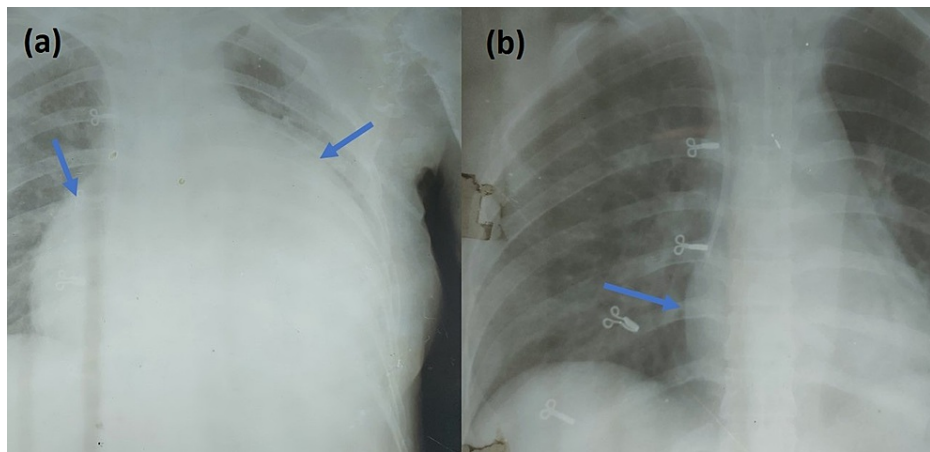
| Parameter   | Reference range | Day 1   | At discharge |
|---|-----------------|---------|--------------|
| Hemoglobin, g/dL                                  | 12–16.5         | 10.5    | 10           |
| Lymphocytes, %                                    | 20–40           | 14      | 5            |
| Platelet count, lac cells/mm <sup>3</sup>         | 1.5–4.5         | 0.79    | 0.38         |
| Mean cell volume, fL                              | 80–100          | 62.2    | 72.5         |
| Mean corpus hemoglobin, pg                        | 27–32           | 25.6    | 23.8         |
| Mean corpus hemoglobin concentration, g/dL        | 32–35           | 41.1    | 32.9         |
| Red blood cell distribution width                 | 11.5–14.5       | 23.6    | 21           |
| Red blood cell distribution width absolute volume | 37–54           | 69.8    | -            |
| Packed cell volume, %                             | 36–46           | 25.6    | 30.6         |
| Neutrophils/mm <sup>3</sup>                       | 1.2–8           | 6.5–103 | 11.5–103     |
| Lymphocytes/mm <sup>3</sup>                       | 0.5–5.0         | 0.6–103 | 0.4–103      |

**TABLE 1: Hematological parameters of the patient.**

| Parameter                                     | Reference range | Day 1 | At discharge |
|---|-----------------|-------|--------------|
| Serum sodium, mmol/L                          | 137–150         | 142.1 | 137.2        |
| Serum potassium, mmol/L                       | 3.5–5.3         | 3.58  | 2.23         |
| Serum calcium, mg/dL                          | 1–5.5           | 3.6   | 2.32         |
| Serum total bilirubin, mg/dL                  | 0–1.2           | 2.7   | -            |
| Serum direct bilirubin, mg/dL                 | 0–0.2           | 1.5   | -            |
| Serum indirect bilirubin, mg/dL               | 0.2–0.7         | 1.2   | -            |
| Serum protein, g/dL                           | 6.0–8.3         | 6.4   | 5.8          |
| Serum glutamic-oxaloacetic transaminase, IU/L | <40             | 74    | 33           |
| Serum glutamic pyruvic transaminase, IU/L     | <34             | 12    | 63           |
| Serum alkaline phosphate, IU/L                | <240            | 406   | 220          |

**TABLE 2: Biochemical parameters of the patient.**

Her chest X-ray revealed a bilateral enlarged cardiac silhouette which raised suspicion for pericardial effusion (Figure 1). Her subsequent echocardiography showed massive pericardial effusion with tamponade physiology dimensions of anterior 1.3 cm, lateral 3.1 cm, and posterior 2.3 cm, along with normal valve and chamber size. The left ventricular ejection fraction was 55%. We performed pericardiocentesis and drained almost 850 mL of fluid. Pericardial fluid microscopy revealed moderate cellularity with few lymphocytes, few polymorphs, and mesothelial cells/macrophages in the background of red blood cells. No malignant cells were seen, and it was negative for any acid-fast bacilli, bacteria, and anti-nuclear antibodies. We ruled out all possible causes of pericardial effusion; however, owing to her finding of facial puffiness, lower extremity edema, and loss of appetite, we suspected hypothyroidism could be because of pericardial effusion. Moreover, the thyroid function test confirmed that she was in severe hypothyroidism (Table 3).

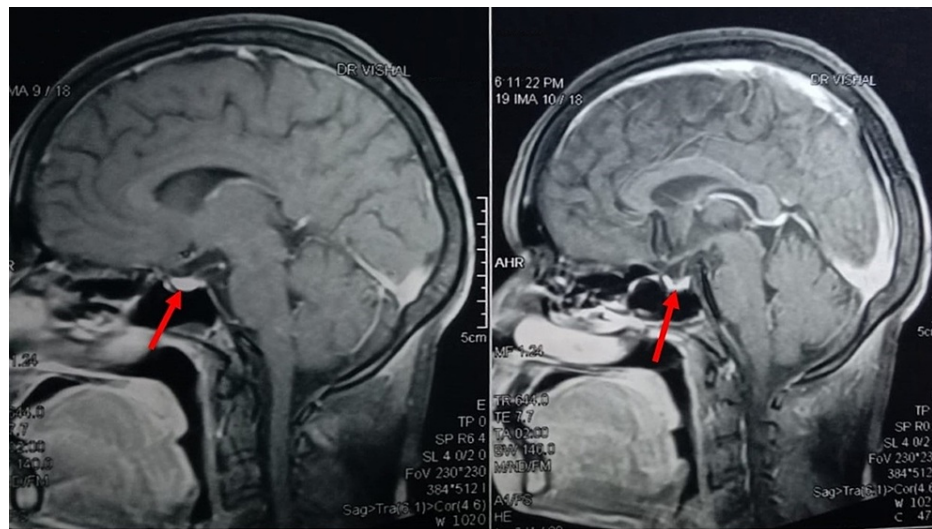


**FIGURE 1: Chest X-ray showing bilaterally enlarged cardiac silhouette (a) and cardiac silhouette after pericardiocentesis (b).**

| Hormones                     | Reference range |         |
|------------------------------|-----------------|---------|
| Adrenocorticotrophic hormone | 0–46 pg/mL      | Below 5 |
| Prolactin                    | 4.79–23.3 ng/mL | 0.689   |
| Thyroid-stimulating hormone  | 0.35–5.5 uIU/mL | 0.63    |
| Free T3                      | 2.30–5.0 pg/mL  | 1.28    |
| Free T4                      | 12–32 pmol/L    | 0.82    |

**TABLE 3: Hormone levels of the anterior pituitary.**

After managing most of the immediate concerns, the patient’s vitals started responding to the treatment of hypothyroidism. Based on her thyroid level, irregular menstrual cycle, and the nature of the last pregnancy, an MRI of the head and hormones level of adrenocorticotrophic hormone and prolactin were ordered, suspecting Sheehan syndrome. The MRI showed thinning of the pituitary gland with partially empty sella turcica with normal stalk, confirming our suspicion of Sheehan syndrome with below normal anterior pituitary hormone levels (Figure 2). She was started on a drug regimen (Table 4). A follow-up two weeks later showed improved symptoms except for an irregular menstrual cycle but a good prognosis overall.



**FIGURE 2: MRI of the mid-sagittal section of the brain showing partially empty sella turcica with a normal stalk (arrows).**

| Dosage form | Drug                         | Titration                  |
|-------------|------------------------------|----------------------------|
| Tablet      | Cefuroxime axetil            | 250 mg twice a day         |
| Tablet      | Esomeprazole                 | 40 mg once a day           |
| Tablet      | Iron-folic acid              | 50 mg + 1.5 mg twice a day |
| Tablet      | Methylprednisolone           | 4 mg twice a day           |
| Tablet      | Vitamin B complex            | Twice a day                |
| Tablet      | Fludrocortisone              | 0.1 mg once a day          |
| Tablet      | Ondansetron                  | 4 mg three times a day     |
| Tablet      | Levothyroxine                | 25 µg once a day           |
| Syrup       | Aptivate                     | 10 mL twice a day          |
| Syrup       | Mutivitamin and multimineral | 10 mL thrice a day         |

**TABLE 4: Drug regimen of the patient.**

## Discussion

Although our understanding of Sheehan syndrome has greatly improved since its discovery, a clear understanding of the prognosis and associated risk factors is still a far cry. Due to limited literature and its rarity, Sheehan syndrome is receiving less attention in the medical field. Yet, it is the sixth most frequent cause of growth hormone deficiency and even more frequent in regions with compromised prepartum care [4]. The life-threatening nature of hypopituitarism is evident because when compared with the general population, patients with hypopituitarism have reduced mortality and an increased possibility of experiencing cardiovascular complications [4]. Predicting whether a group of women would develop Sheehan syndrome well before pregnancy involves more speculation as having a postpartum hemorrhage does not completely predispose an individual, and women with a small sella turcica are not relatively safe.

Improvement in obstetric care is expected to yield a better outcome as developed countries have a lower incidence. Developed countries also have lesser diagnostic delays than developing countries. The mean diagnostic delay in a study conducted in France was  $9 \pm 9.7$  years which is six years lesser than the mean diagnostic delay obtained from a similar study in India of  $15.35 \pm 6.74$  years [5,6]. Moreover, the classic underreporting of cases can be seen in the study from India; only 33% of the subjects presented with the typical symptoms of amenorrhea, while 72.2% did not menstruate after the last delivery. It is challenging to record cases with lactational failure; although it is seen in 94.4% of the subjects, no patient showed up with

a complaint of isolated lactational failure.

According to a study by Dökmetaş et al. (2006), the most common symptoms included 70% of the patients who lacked postpartum milk production and presented with amenorrhea post-delivery. According to the hormone levels measured in patients, 90% of the patients had secondary hypothyroidism, 55% had an adrenal failure, and almost all of the patients had hypogonadism, prolactin, and growth hormone deficiency. Hyponatremia was present in 35% of the patients [7]. Our patient had amenorrhea, no electrolyte imbalance, and severe secondary hypothyroidism, which caused a pericardial effusion. Hypothyroidism causes pericardial effusion in 3% to 37% of cases and can progress to cardiac tamponade [8].

Our case is noteworthy due to its atypical presentation. Even though some case reports have reported a change in mental status and psychosis as chief complaints of Sheehan syndrome, there is no literature explaining the psychological aspects of Sheehan syndrome [9]. These psychiatric symptoms highly deviate from the typical symptoms. Few pituitary disorders that render the gland non-functional are associated with decreased quality of life and patient well-being [10]. Because there is a deficiency of growth hormone in patients with Sheehan syndrome, studies administering growth hormone replacements for patients presenting with Sheehan syndrome and altered mental status have shown significant improvement in cognitive functioning when measured with an event-related potential device and lipid profile [11]. Finding alternative methods to assess this syndrome clinically may help us diagnose the disease early and provide appropriate treatment. One such ingenious clinical method to screen patients with Sheehan syndrome is to note the prolactin generation response after administering thyrotropin-releasing hormone [4]. Providing hormone therapy early in treatment will prevent the secondary damage caused by Sheehan syndrome. Adding all the newly discovered presentations can help physicians diagnose the condition early. A delay in diagnosis can have significant health and financial loss.

## Conclusions

Neglecting the importance of diagnosing and treating Sheehan syndrome at an earlier stage due to its rarity can lead to unfavorable health and financial outcomes. Diagnosing it early and providing hormone replacement therapy have been shown to reduce the impact of the condition. Approaching the condition with a fixed list of expected presentations will lead the physician in the wrong direction when patients present with diverse symptoms. Our case has shown that patients may present with rare complications such as altered mental status and massive pericardial effusion. Physicians should integrate multiple facets such as pregnancy history and an MRI in diagnosing the condition.

## Additional Information

### Disclosures

**Human subjects:** Consent was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

## References

1. Marshall AL, Durani U, Bartley A, et al.: The impact of postpartum hemorrhage on hospital length of stay and inpatient mortality: a National Inpatient Sample-based analysis. *Am J Obstet Gynecol*. 2017, 217:344.e1-6. [10.1016/j.ajog.2017.05.004](https://doi.org/10.1016/j.ajog.2017.05.004)
2. Schury MP, Adigun R: Sheehan syndrome. StatPearls Publishing, Treasure Island, FL; 2022.
3. Karaca Z, Laway BA, Dokmetas HS, Atmaca H, Kelestimur F: Sheehan syndrome. *Nat Rev Dis Primers*. 2016, 2:16092. [10.1038/nrdp.2016.92](https://doi.org/10.1038/nrdp.2016.92)
4. Soares DV, Conceição FL, Vaisman M: [Clinical, laboratory and therapeutics aspects of Sheehan's syndrome]. *Arq Bras Endocrinol Metabol*. 2008, 52:872-8. [10.1590/s0004-27302008000500020](https://doi.org/10.1590/s0004-27302008000500020)
5. Ramiandrasoa C, Castinetti F, Raingeard I, Fenichel P, Chabre O, Brue T, Courbière B: Delayed diagnosis of Sheehan's syndrome in a developed country: a retrospective cohort study. *Eur J Endocrinol*. 2013, 169:431-8. [10.1530/EJE-13-0279](https://doi.org/10.1530/EJE-13-0279)
6. Sanyal D, Raychaudhuri M: Varied presentations of Sheehan's syndrome at diagnosis: a review of 18 patients. *Indian J Endocrinol Metab*. 2012, 16:S300-1. [10.4103/2230-8210.104067](https://doi.org/10.4103/2230-8210.104067)
7. Dökmetaş HS, Kılıçlı F, Korkmaz S, Yonem O: Characteristic features of 20 patients with Sheehan's syndrome. *Gynecol Endocrinol*. 2006, 22:279-83. [10.1080/09513590600630504](https://doi.org/10.1080/09513590600630504)
8. Chahine J, Ala CK, Gentry JL, Pantalone KM, Klein AL: Pericardial diseases in patients with hypothyroidism. *Heart*. 2019, 105:1027-33. [10.1136/heartjnl-2018-314528](https://doi.org/10.1136/heartjnl-2018-314528)
9. Webb SM, Crespo I, Santos A, Resmini E, Aulinas A, Valassi E: Management of endocrine disease: quality of life tools for the management of pituitary disease. *Eur J Endocrinol*. 2017, 177:R13-26. [10.1530/EJE-17-0041](https://doi.org/10.1530/EJE-17-0041)
10. Tanriverdi F, Unluhizarci K, Kula M, Guven M, Bayram F, Kelestimur F: Effects of 18-month of growth hormone (GH) replacement therapy in patients with Sheehan's syndrome. *Growth Horm IGF Res*. 2005, 15:231-7. [10.1016/j.ghir.2005.03.005](https://doi.org/10.1016/j.ghir.2005.03.005)

11. Golgeli A, Tanriverdi F, Suer C, Gokce C, Ozesmi C, Bayram F, Kelestimur F: Utility of P300 auditory event related potential latency in detecting cognitive dysfunction in growth hormone (GH) deficient patients with Sheehan's syndrome and effects of GH replacement therapy. *Eur J Endocrinol.* 2004, 150:153-9. [10.1530/eje.0.1500153](https://doi.org/10.1530/eje.0.1500153)