

# Postpartem Psychosis with Sheehan's Syndrome: A Rare Case Report and a Brief Review of Literature

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**Abstract:** *We report a case of sheehan's syndrome due to postpartum psychosis. A 28 year old female G2 P2 L2 with a significant history of intrauterine fetal death (IUID), confusion, altered sensorium, shortness of breath, bilateral leg swelling and severe anemia. Early diagnosis and adequate medical treatment are crucial to reduce morbidity and mortality of the disease. We report unusual case with worse symptoms after IUID in sheehan's syndrome.*

**Keywords:** Sheehan's, hypopituitarism, post partem ischemic necrosis.

## 1. Introduction

Sheehan's syndrome is postpartum hypopituitarism caused by necrosis of the pituitary gland due to sudden hypovolemia. It is usually the result of severe hypotension or shock caused by massive hemorrhage during or after delivery. 40 years ago, it was estimated that the prevalence of sheehan's syndrome was about 100-200 per 1,000,000 women<sup>1</sup>. In 2009, retrospective nationwide investigation in Iceland reported that the prevalence of sheehan's syndrome was estimated to be 5.1 per 100,000 women<sup>2</sup>.

The criteria for diagnosis of sheehan's syndrome includes typical obstetric history of severe postpartum vaginal bleeding, severe hypotension or shock for which blood transfusion or fluid replacement is necessary, failure of postpartum lactation, failure to resume regular menses after delivery, partial or panhypopituitarism and empty sella on CT scan or MRI<sup>3</sup>. We report a unusual case with symptoms of sheehan's syndrome and postpartum psychosis.

## 2. Case Report

A 28 year old female G2 P2 L2 with 8 month ANC complaints of fever with chills, dry cough, breathlessness on exertion, vomiting, abdominal pain, malaise and loss of appetite since 15 days. She was admitted to other hospital and diagnosed as viral hemorrhagic fever with intrauterine fetal death where she was intubated and ventilated due to acute respiratory distress syndrome. She was treated with I.V. antibiotics, transfusion of blood products (packed cell volume, platelet). She undergone tracheostomy after 7 days due to prolong intubation.

On 10<sup>th</sup> day, patient was referred to us with tracheostomy tube in situ presented with confusion, shortness of breath, facial puffiness, bilateral leg oedema, anemia. Ultimately she was sent to emergency department and admitted in intensive care unit with hemorrhagic shock. A detailed history from relatives revealed that patient had excessive bleeding in the course of her first delivery at the age of 22 years. Patient's relatives noticed progressive increasing weakness, skin pallor and gradual loss of weight for past 1 month before she came to hospital.

Menstrual and Obstetric history showed Menarche at 16 year, regular cycle of 30+2 days with flow for 5-6 days. G2 P2 L2 with history of normal deliveries in past. The family history of similar symptoms and previous history of diabetes or hypertension were not found. Physical examination showed a thin, pale, middle-aged woman who appeared somewhat lethargic. Her face was expressionless. The skin was pale light-brown and of a smooth, delicate texture. Patchy pigmentation was seen. There was yellowish of skin, sclera and urine. Her breast tissue was normal but the areolae were depigmented. She had no pubic or axillary hairs.

The clinical examination on arrival confirmed the state of shock with a pulse rate of 80/min, blood pressure of 80/60 mm of Hg, respiratory rate 32/min, cold periphery and pale conjunctivae. Patient was conscious with eye opening, confused, not responding to verbal commands and was ill looking.



Figure 1 & 2: The patient at presentation.

Lungs showed bilateral basal crackles. Abdomen examination revealed ascites with hepatosplenomegaly. CNS examination revealed generalised muscle and fat wasting and delayed relaxation of the ankle reflexes. Fundus showed normal optic disc.

Laboratory examination revealed anemia with pancytopenia ( hemoglobin of 6.9 g/dl, total leucocyte count 3500/ mm<sup>3</sup>, platelet count was 60000/ mm<sup>3</sup>). Glucose in blood chemistry 68 mg/dl with deranged liver and kidney function tests ( total bilirubin 16.8mg/dl, D(B) 14mg/dl, SGOT 980 IU/L, SGPT 660 IU/L, bold urea 96mg/dl and serum creatine 2.6 mg/dl ), total protein 5.6g/dl and albumin 1.6g/dl. urinalysis shows trace albumin and 15-20 pus cells. Plasma electrolyte shows sodium 125 mEq/l, potassium 3.5 mEq/l.

Thyroid profile shows very low levels of T3 , T4 and undetectable TSH (<0.0001) suggestive of secondary hypothyroidism. Hormone profile revealed low levels of serum cortisol and serum ACTH. Her chest radiograph showed resolving pneumoniae and USG abd showed ascites.

On the basis of history, examination and investigation, we suspect of sheehan's syndrome with multiorgan failure. The brain magnetic resonance imaging (MRI) showed a diminutive pituitary and an empty sella turcica. There was no evidence of hemorrhage, intracranial mass, or aneurysm.

Clinical suspicion of sheehan's syndrome due to postpartum psychosis was confirmed. Immediate care involved vascular expansion with colloids by central venous catheter followed by I.V. antibiotics, I.V. fluids, transfusion of blood products. After 2 weeks, tracheostomy closure was done along with removal of central venous catheter. She was put on tab. Thyroxine 100ug/day and tab. Prednisolone 10mg/day along with oral iron and multivitamins.

Patient improved completely in 1 month with a given treatment and was discharged and regular follow up. Patient was followed for 6 weeks after which a complete haematological recovery was noted with a eucortisolemic and euthyroid state. In fact the haematologic abnormality dramatically improved. Her haemoglobin was 11g/dl,

leucocyte count was 6500/ mm<sup>3</sup> and platelet count was 220000/mm<sup>3</sup>, all within the normal range.

This case has been presented with a view to highlight the unusual case with worse symptoms of sheehan's syndrome due to postpartum psychosis.

### 3. Discussion

Sheehan's syndrome refers to postpartum hypopituitarism as a result of pituitary necrosis occurring during severe hypotension or shock secondary to massive bleeding during or just after delivery. Though first described by HL. Sheehan in 1837, it was known as Simmond's disease until 1939 when Sheehan described the disease was due to postpartum necrosis of the anterior pituitary following postpartum haemorrhage<sup>4</sup>.

In his own most recent review Sheehan stated that whereas only 65 cases were described in the medical literature from 1908 to 1939, 104 cases and 154 cases were reported between the years 1939 to 1949 and 1949 to 1953, respectively<sup>5</sup>. Adenohypophyseal ischaemic necrosis following hypoperfusion is the most common cause of adenohypophysal insufficiency.

The underlying process leading to Sheehan's syndrome is the infarction of the physiologically enlarged pituitary gland, particularly anterior lobe, secondary to the grossly decreased blood supply during intra-partum or postpartum events. Though vasospasm, autoimmunity, small sella size, and disseminated intravascular coagulation may also have role in the development of Sheehan's syndrome, none has been conclusively proven<sup>6</sup>.

The clinical presentation of Sheehan's syndrome from long-standing non-specific features such as weakness, fatigue, and anaemia to profound abrupt hypopituitarism resulting in coma and death<sup>7</sup>. The mean duration between postpartum bleeding and the subsequent development of symptoms varies from 1 to 33 years<sup>8</sup>. Characteristic manifestations include failure to lactate or to resume menses, genital and axillary hair loss, asthenia and weakness, fine wrinkles around the eyes and lips, signs of premature aging, dry skin, hypopigmentation and other evidence of hypopituitarism<sup>9,10</sup>. Uncommonly, it can present acutely with circulatory collapse, severe hyponatremia, diabetes insipidus, hypoglycemia, congestive cardiac failure or psychosis<sup>11,12</sup>.

The extent of anterior pituitary dysfunction varies in different series<sup>13</sup>. The main involvement was the secretion of growth hormone (GH) and prolactin (90–100%), while deficiencies in cortisol secretion, gonadotropin and thyroid stimulating hormone (TSH) ranged from 50 to 100%<sup>14</sup>. Lactation failure is a very common clinical feature and the lack of prolactin response to administration of thyrotropin releasing hormone (TRH) has been suggested as a sensitive procedure for screening of patients suspected to have SS<sup>15</sup>.

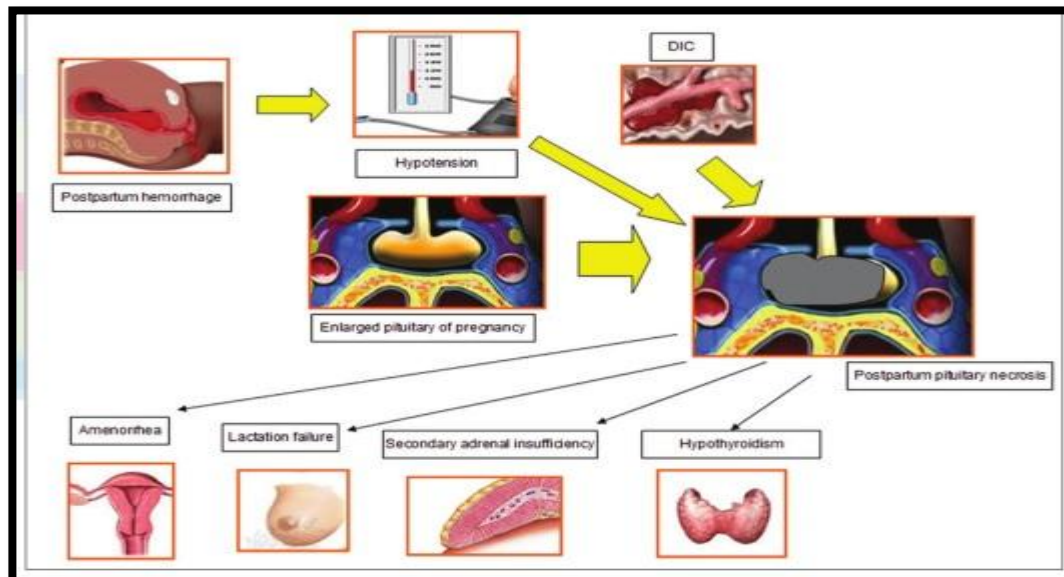


Figure 3: Pathophysiology of Sheehan's syndrome

Hyponatremia is the most common electrolyte disturbance occurring in 33-69% of all cases<sup>16</sup>. Hypothyroidism and glucocorticoid deficiency by decreasing free water clearance independent of vasopressin cause hyponatremia<sup>17</sup>. Syndrome of inappropriate antidiuretic hormone secretion (SIADH) and volume depletion are the other factors leading to hyponatremia<sup>18</sup>. Clinical diabetes insipidus is apparently an uncommon complication of postpartum pituitary necrosis occurring in about 5% of all cases<sup>19</sup>. Hematological abnormalities are common and include normocytic normochromic anemia, pancytopenia, and acquired factor VIII and von Willebrand factor (aFVIII-VWF) deficiency<sup>20</sup>. In a study of 40 patients with SS, anemia, thrombocytopenia and pancytopenia were described in 87%, 60% and 15%, respectively<sup>21</sup>.

Anemia is well recognized as a feature of hypopituitarism. Gokalp et al. have recently reported hematological abnormalities in 65 patients with Sheehan's syndrome, 80% of whom presented with anemia, compared with 25% of controls<sup>22</sup>. Many hormonal deficiencies, such as hypothyroidism, adrenal insufficiency and gonadal hormonal deficiency, can explain normochromic anemia in hypopituitarism<sup>23</sup>. Pancytopenia as a result of an anterior hormone deficiency has not been clearly investigated. It is a consequence of the loss of effect of pituitary hormones on metabolic reactions to hematopoiesis, which is related to hypopituitarism<sup>24</sup>.

The presence of anti-pituitary antibodies (APAs) has been demonstrated in some patients with SS, suggesting that an autoimmune pituitary process could be involved in this syndrome<sup>25</sup>. It is proposed that sequestered antigens due to tissue necrosis could trigger autoimmunity and may cause delayed hypopituitarism in these patients<sup>26</sup>.

The criteria for the diagnosis of SS are as follows:

- (1) typical obstetric history of intrapartum or postpartum bleeding,
- (2) hypotension or shock,
- (3) agalactia,
- (4) failure to resume regular menses after delivery,
- (5) hypopituitarism,
- and (6) empty sella on CT or MRI<sup>27</sup>.

The diagnosis of Sheehan's syndrome is based on the features of hormone deficiency, a suggestive obstetric history, and decreased basal hormone levels (freeT3, free T4, TSH, cortisol, ACTH). The diagnosis can be made reliably in the presence of lactational failure, prolonged amenorrhea and hypoglycaemic crises<sup>28</sup>. The finding of a normal pulse rate in the presence of significant postural drop was noteworthy as she had coexisting hypothyroidism and hypocortisolism. The delay in diagnosis was probably due to her vague symptoms and inadequate obstetric history<sup>29</sup>.

The main radiological finding of SS is the image of an empty sella (around 70% of patients) or partially empty sella (30%). These findings on MR imaging characterize SS and provide early confirmation of the clinical diagnosis<sup>30</sup>. Kaplun et al<sup>31</sup> reported that sequential MRI demonstrates evidence of ischemic infarct in the pituitary gland with enlargement, followed by gradual shrinkage to pituitary atrophy.

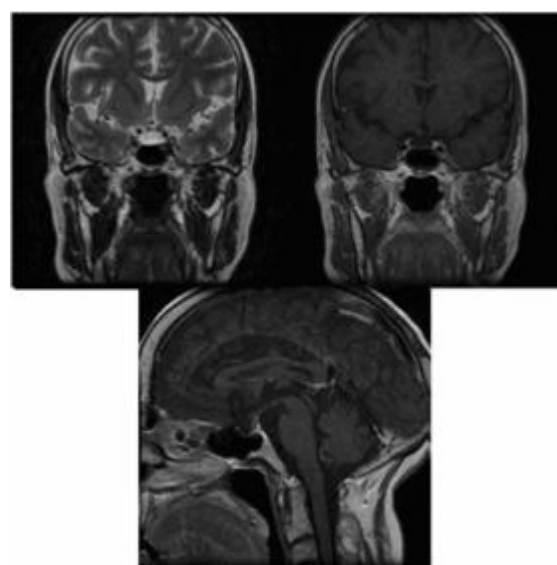


Figure 4: MRI showing an empty sella turcica

Komatsu et al<sup>32</sup> reported that serum antipituitary antibodies were positive in 70% of patients with empty sella and



suggested that antipituitary antibodies might be related to the development of pituitary atrophy and the consequent empty sella.

The goal of therapy is to replace deficient hormones. Treatment is important not only to correct endocrine abnormalities, but also to reduce mortality due to hypopituitarism<sup>33</sup>. The treatment of Sheehan's syndrome is replacement of the deficient hormones. ACTH and TSH deficiencies should be replaced with glucocorticoids and thyroxin respectively. Gonadotropin deficiency and hypogonadism should be treated with a hormone replacement therapy. Patients who wish to become pregnant may be directed to the service of fertility for ovulation induction followed by successful pregnancy<sup>15</sup>. Patients with diabetes insipidus, treatment of choice is 1-desamino-8-D-arginine vasopressin or desmopressin (DDAVP). Replacement of GH should be considered in patients with GH deficiency. See et al. reported that spontaneous pregnancy could bring partial recovery of pituitary function in the patient with Sheehan's syndrome<sup>34</sup>.

#### 4. Conclusion

Diagnosis of postpartum psychosis may be missed in a case of multiorgan failure or in a case of sheehan's with dyselectronemia. There is a great need for increased awareness of postpartum hypopituitarism as a relatively common sequela of pregnancy complicated by hemorrhage. Adequate measures should be taken to combat severe bleeding during delivery. History of postpartum hemorrhage, failure to lactate and cessation of menses are important clues to the diagnosis. A simple replacement therapy with thyroid and cortisol hormones results in complete recovery. Early diagnosis and appropriate treatment are necessary to reduce the morbidity and mortality of patients. The patient can look forward to a normal life expectancy.

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