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Unusual Manifestation of Empty Sella Syndrome as Schizophrenia: A Case Report

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Abstract

Background: Empty Sella Syndrome (ESS) is a condition where the Sella Turcica, containing pituitary gland, appears empty or partially empty on imaging studies. Secondary ESS can result from various underlying conditions, one of them being Sheehan's Syndrome. It is characterised by the presence of a hypophyseal necrosis due to severe postpartum haemorrhage and hypovolemic shock which rarely presents with psychotic disorders.

Case Description: Here, we present a case of 60-year-old female presented with history of second- and third-person auditory hallucination, delusions of reference and persecution of 25 years duration with post-partum onset secondary to Empty Sella Syndrome.

Discussion: Our case supports the role of hypothalamic-pituitary-adrenal (HPA) axis involvementand hormonal dysfunction hypothesis in manifestation of psychosis.

Conclusion: Our case is an unusual presentation of Schizophrenia secondary to Sheehan's syndrome. This case brings awareness of neuropsychiatric manifestations of Empty Sella Syndrome.

Keywords: Empty Sella Syndrome; Sheehan's Syndrome; Hypothalamic-pituitary-adrenal axis; Schizophrenia.

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INTRODUCTION

Empty Sella is defined as herniation of subarachnoid space into the Sella Turcica (arachnoidocele).[1] This radiological finding occurs when the depression in the sphenoid bone, known as the Sella turcica and housing the pituitary gland at the base of the brain, flattens or shrinks and becomes filled with cerebrospinal fluid (CSF). It can be categorized as partial if less than 50% of the sellar space is occupied by CSF, or complete if CSF fills more than 50% of the space and the thickness of the pituitary gland is less than 2mm.[2]

Empty Sella syndrome can be classified as primary if there is no preceding pathological condition in the sellar region leading to pituitary damage, or as secondary if it results from a specific pathological process or treatments that affect the sellar region such as pituitary tumours, pituitary infection, surgery or radiation therapy of the gland, Sheehan's syndrome and traumatic brain injury.

Sheehan syndrome, initially described by the English pathologist Harold Leeming in 1937, is alternatively referred to as postpartum hypopituitarism. It characterised by the presence of a hypophyseal necrosis due to severe postpartum haemorrhage. Vasospasm, thrombosis, and compression of the hypophyseal arteries are also considered potential contributors to the syndrome.[3] During antenatal period, pregnant women experience an increase in both the volume and cell count of the pituitary gland. Despite this growth, the blood supply to the anterior pituitary gland does not proportionally increase to meet the heightened nutritional and metabolic demands. Consequently, anterior pituitary operates at relatively low pressure. This mechanism is believed to render the pituitary cells more vulnerable to ischemic events.[4] Sheehan's syndrome typically presents with symptoms of agalactorrhea and amenorrhea, hypothyroidism and adrenal failure, but rarely presents with psychotic disorders. We report a case of schizophrenia which was developed probably secondary to Sheehan syndrome and treated with hormonal therapy and antipsychotic medications.

CASE DESCRIPTION

Mrs S, 60-year-old female presented with history of second and third-person auditory hallucination, delusions of reference and persecution since age of 35 years. She developed these symptoms following the delivery of her child andshe was diagnosed as Schizophrenia for which she was treated with antipsychotics. Consequently, she developed various other medical ailments such as diabetes mellitus, hypertension, hypothyroidism, bronchial asthma, osteoporosis. MRI brain revealed pituitary necrosis hence diagnosis of Sheehan's Syndrome was made. She was treated with oral thyroxine 125 µg/day, hydrocortisone 15 mg/day, telmisartan 40mg/day along with calcium supplementation by the endocrinology team. Her psychotic symptoms were under control with Tablet Amisulpride 600mg, Tablet Aripiprazole 30mg and Tablet Quetiapine 50mg. During follow up assessments she showed substantial improvement in her psychotic symptoms.

DISCUSSION

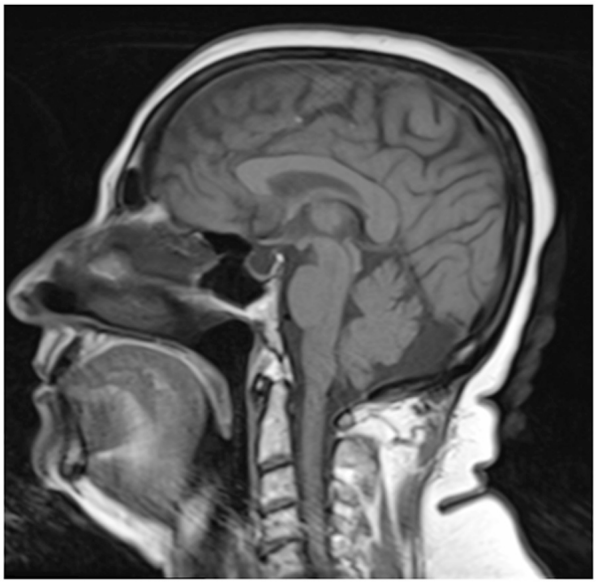

Fig. 1: MRI-Brain of patient showing Empty Sella

The anterior pituitary gland releases several hormones that may be deficient in individuals with Sheehan's syndrome. The symptoms of Sheehan syndrome vary widely due to the presence of multiple hormonal deficiencies. In an Indian study, which represents a developing nation, an examination of 18 patients diagnosed with Sheehan's syndrome revealed the following findings: 22.2% experienced complications such as hyponatremia, hypotension, or vomiting; 16.7% presented with symptoms of asthenia and weight loss; 11.1% were diagnosed with hypothyroidism; 94.4% of patients experienced lactational failure; and 72.2% had amenorrhea following their last delivery.[5]

The prevalence of Sheehan's syndrome has been decreasing over time due to advances in obstetric care although it is still relatively frequent in developing countries. In India, the estimated prevalence among women over 20 years old who have given birth is approximately 2.7–3.9%.[6] Very few studies have found psychosis as a late manifestation of Sheehan Syndrome.[7] However, our patient had postpartum onset of Schizophrenia secondary to Empty Sella Syndrome.

Psychotic disorders are among the associated conditions in hypopituitarism. The positioning of thyroid hormone receptors within the limbic system, a pivotal region for emotional and behavioural regulation, is believed to contribute to the effects of psychotic disorder.[8] Furthermore, research has also highlighted the impact of dysthyroid status on the

imbalance of tyrosine hydroxylase in the anterior locus coeruleus.[9]

The hypothalamic-pituitary-adrenal (HPA) axis becomes activated in response to both physical and psychological stressors. Elevated cortisol levels plays a central role in the development of depressive symptoms, cognitive impairments, and psychotic symptoms.[10]

In our case, psychotic symptoms are likely attributed to hormonal imbalances resulting from hypopituitarism. However, it is important to note that these findings cannot be generalized being a case reports.

CONCLUSIONS

This case supports role of hypothalamo-pituitary-adrenal axis in case of psychotic disorder. Hence comprehensive management is required for a case where medical pathology and psychotic disorders coexist.

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