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Original Research Paper

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A RARE ASSOCIATION OF GRAVES' DISEASE WITH SEIZURE DISORDER, MENINGOENCEPHALOCELE, AND IDIOPATHIC INTRACRANIAL HYPERTENSION: A CASE REPORT

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ABSTRACT

Background: Graves' disease is an autoimmune disorder and the most common cause of hyperthyroidism. Although neurological manifestations may occur secondary to metabolic derangements, the association of Graves' disease with structural brain abnormalities such as meningoencephalocele and idiopathic intracranial hypertension (IIH) is extremely rare. **Case Presentation:** We report the case of a patient presenting with recurrent seizures and features of raised intracranial pressure, who was subsequently diagnosed with Graves' disease. Neuroimaging revealed meningoencephalocele with radiological features suggestive of IIH. The patient was managed with antithyroid drugs, antiepileptics, and therapy directed toward intracranial hypertension, resulting in significant clinical improvement. **Conclusion:** This case highlights a rare and complex association between endocrine and neurological disorders, emphasizing the importance of a multidisciplinary approach and comprehensive evaluation in patients with atypical neurological presentations.

KEYWORDS : Graves' disease, hyperthyroidism, seizure disorder, meningoencephalocele, idiopathic intracranial hypertension

INTRODUCTION

Graves' disease is an autoimmune condition characterized by hyperthyroidism resulting from thyroid-stimulating immunoglobulins acting on the thyroid-stimulating hormone (TSH) receptor. Common clinical features include weight loss, palpitations, tremors, heat intolerance, and ophthalmopathy. Neurological manifestations such as seizures are uncommon and usually occur secondary to metabolic disturbances, thyrotoxic crisis, or associated autoimmune mechanisms.

Idiopathic intracranial hypertension (IIH) is a disorder defined by elevated intracranial pressure without an identifiable intracranial mass or hydrocephalus, most commonly affecting young individuals. Meningoencephalocele is a rare congenital or acquired defect characterized by herniation of meninges and brain tissue through a skull defect. The coexistence of Graves' disease, seizure disorder, IIH, and meningoencephalocele is exceedingly rare, with very few cases described in the literature.

We present this case to highlight this unusual association and to emphasize the importance of considering systemic and endocrine causes in patients presenting with seizures and raised intracranial pressure.

Case Presentation

An **8-year-old child** presented to our tertiary care hospital with a history of **recurrent seizure episodes for the past one year**. The seizures were characterized by **generalized tonic–clonic activity**, associated with **loss of consciousness and postictal confusion**, each episode lasting approximately **2–3 minutes**. There was no prior history of epilepsy, febrile seizures, or developmental delay.

In addition, the patient complained of **persistent, progressively worsening headache**, predominantly in the early morning hours, associated with **intermittent vomiting** and **blurred vision**, suggestive of raised intracranial pressure. Over the preceding few months, the child also exhibited symptoms suggestive of hyperthyroidism, including **unintentional weight loss despite preserved appetite, palpitations, excessive sweating, heat intolerance, and fine tremors**.

There was **no history of head trauma, central nervous system infection, or previous neurosurgical intervention**. The antenatal and perinatal history was unremarkable. Family history was non-contributory, with no known endocrine or neurological disorders.

Clinical Examination

On admission, the patient was **conscious, alert, and oriented**, with stable vital parameters except for **tachycardia**. General physical examination revealed **warm, moist skin** and **fine tremors of the hands**. Thyroid examination demonstrated **diffuse enlargement of the thyroid gland**, without tenderness or nodularity.

Neurological examination did not reveal any focal motor or sensory deficits. Cranial nerve examination was normal. **Fundoscopic examination showed bilateral papilledema**, consistent with raised intracranial pressure. No signs of meningeal irritation were noted.

Investigations

Laboratory Findings

Thyroid function tests were suggestive of hyperthyroidism:

- **Triiodothyronine (T3):** Elevated
- **Thyroxine (T4):** Elevated
- **Thyroid-stimulating hormone (TSH):** Suppressed
- **Thyroid receptor antibodies (TRAb):** Positive

Routine hematological and biochemical investigations, including complete blood count, serum electrolytes, liver function tests, and renal function tests, were within normal limits.

Neuroimaging

Magnetic resonance imaging (MRI) of the brain revealed the presence of a **meningoencephalocele**. Additional radiological features suggestive of **raised intracranial pressure** were noted, including **flattening of the posterior sclera and a partially empty sella**.

Other Investigations

- **Electroencephalogram (EEG):** Demonstrated epileptiform discharges, consistent with a seizure disorder.

- **Lumbar puncture:** Revealed **elevated opening cerebrospinal fluid pressure** with normal biochemical and cytological analysis, supporting the diagnosis of idiopathic intracranial hypertension.

Diagnosis

Based on the clinical presentation, biochemical evidence of hyperthyroidism, and radiological findings, a diagnosis of **Graves' disease with seizure disorder associated with meningoencephalocele and idiopathic intracranial hypertension** was established.

Management

The patient was managed through a **multidisciplinary approach** involving pediatric endocrinology, neurology, and neurosurgery. **Antithyroid therapy** was initiated with **carbimazole/methimazole**, along with **beta-blockers** for symptomatic control of hyperthyroidism. **Antiepileptic medication** was started for seizure control. **Acetazolamide** was administered to reduce intracranial pressure.

A neurosurgical consultation was obtained, and **conservative management with close clinical and radiological monitoring** was advised for the meningoencephalocele.

Outcome And Follow-Up

The patient showed **significant clinical improvement** following initiation of treatment. Seizure episodes were well controlled, headache frequency and severity decreased, and symptoms of hyperthyroidism improved with normalization of thyroid function tests. The child remains on **regular follow-up** with endocrinology and neurology services, with ongoing monitoring of neurological status and thyroid function.

DISCUSSION

Neurological manifestations in Graves' disease are uncommon and often under-recognized. Hyperthyroidism can lower the seizure threshold through metabolic and excitatory mechanisms. IIH has been reported rarely in association with endocrine disorders, including thyroid dysfunction, possibly due to altered cerebrospinal fluid dynamics.

Meningoencephalocele is a rare structural abnormality that can predispose patients to seizures and raised intracranial pressure. The coexistence of these three conditions presents a diagnostic challenge and underscores the importance of comprehensive evaluation in patients with unexplained seizures and systemic symptoms.

Early diagnosis and multidisciplinary management are crucial to prevent long-term neurological and endocrine complications.

CONCLUSION

This case represents a rare and complex association of Graves' disease with seizure disorder, meningoencephalocele, and idiopathic intracranial hypertension. Clinicians should maintain a high index of suspicion for endocrine abnormalities in patients presenting with seizures and raised intracranial pressure.

Patient Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying data.

Conflict Of Interest

The authors declare no conflict of interest.

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