Primary Hypoparathyroidism Presenting with New Adult Onset Seizures in Family Practice

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ABSTRACT

Hypoparathyroidism commonly presents with paresthesias, fatigue, anxiety, muscle cramps and infrequently with seizures due to hypocalcaemia. Here, we present a case of 27-year-old adult female presenting with new onset convulsions who was subsequently diagnosed to have primary (congenital) hypoparathyroidism.

Keywords: Adult onset seizures, family practice, primary hypoparathyroidism

Introduction

Congenital or primary hypoparathyroidism presenting with new onset seizures in an adult is an infrequent phenomenon.[1] However, it is a treatable cause of recurrent adult onset seizures. Seizures in general are common presentation to family physicians in their routine practice. There is a tendency for solo practitioners in India to feel apprehensive about adult patients presenting with new onset seizures. The immediate response is to give an injectable anti-epileptic drug and refer without considering further evaluation. These patients very rarely come back for follow-up to them. It is important to have an approach to adult, first onset seizure in family practice. It would benefit the patient and it would in the long term earn respect for the family practitioner in the community. The following case report highlights how looking for causes of first onset seizures enabled the diagnosis of congenital hypoparathyroidism to be made, a condition which is treatable and reversible, in a primary care family practice.

Case Report

A 29-year-old female patient presented to our urban health center with a history of recent onset abnormal movements of upper limb and eyes for the duration of 2 months. She did not have previous history of seizures, but her family members noted the abnormal movements occurred on standing. These abnormal movements were not associated with tongue biting, up rolling of eyes or loss of consciousness. She had been to local practitioners who had started her on anti-epileptic drugs and anxiolytics. She had a cataract surgery for her right eye 4 years ago. She also had a history of treatment for tuberculous lymphadenitis at the age of 13 years. A documented treatment for carpopedal spasm was noted during the treatment for tuberculous lymphadenitis in the local DOTS center. She had not been investigated earlier for the early onset of cataract or for the carpopedal spasms.

She is the second of four siblings and was unmarried due to episodes of “weakness” as perceived by her family. There was no family history of seizures, diabetes, hypertension, thyroid disorders or any other endocrine disorders. She earned a living by rolling “beedis” at home.

Physical examination revealed a thinly built woman, weight of 45 kg, blood pressure of 110/60 mmHg in right upper limb at sitting position, pulse rate of 112/min. She did not have pallor, icterus, cyanosis, pedal edema or generalized lymphadenopathy. She had a mature cataract in her left eye and intra-ocular lens was in situ in the right eye. She was supported to walk into the consultation room and on standing developed abnormal posturing (pedal spasms) during which time she was conscious and conversing with the examining physician. Her cardiovascular and respiratory system was normal. Chovstek’s sign and Trousseau sign were negative. The central nervous system examination was normal.

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The investigations showed:
1. Hemoglobin: 12.4 g%
2. Serum calcium: 5.4 mg% (normal values: 8.3-10.4 mg%)
3. Serum phosphorous: 5.6 mg% (normal values: 2.5-4.6 mg%)
4. Thyroid stimulating hormone: 1.54 mIU/ml
5. Serum cortisol, random: 13.56 µg%
6. Serum parathyroid hormone: <3 pg/ml (normal values: 8.0-74 pg/ml).

Her blood sugar levels, renal function tests, other serum electrolytes and liver function tests were normal. No imaging investigations were done in this initial evaluation. An electroencephalography (EEG) was not done since the history and presence of seizures were convincing.

On initial clinical evaluation, the diagnosis of metabolic disorder was considered because of the presentation of cataract in young age and carpopedal spasms. The diagnosis of primary hypoparathyroidism was made after review of the initial investigations and in consultation with the endocrinologist in the tertiary hospital to which the family practice center is attached. As the diagnosis was clear and there were no benefits to be gained, further imaging was deferred. She was started on monthly injections of Vitamin D₃ (cholecalciferol) and daily oral calcium and Vitamin D₃ tablets amounting to 2.4 g of calcium and 500 IU of Vitamin D₃ per day. Her symptoms improved remarkably and she did not have any further episodes seizures. Her serum calcium (8.5 mg%) and phosphate (3.1 mg%) became normal in 2 months and continues to be normal. The plan for continuity of care was to administer monthly injections of Vitamin D₃ lifelong with oral calcium tablets and monitor urine calcium once a year to monitor for risk of renal stones.

**Discussion**

The incidence of new adult onset seizures is not well documented in India. However, a community based study states that the average annual incidence rate of epilepsy is 42.08 per 100,000 per year.[⁶] A longitudinal study done in an urban population however quotes the average annual incidence rate to be 27.3 per 100,000 per year.[⁷] Seizures account for 2.1% of adult emergency department visits in a tertiary hospital in India.[⁸] The number of patients who present with seizures to a general practitioner (GP) in India is not documented even though GP is usually the first health worker who sees the patient with seizures. There are currently practice guidelines for first onset seizures in adults available in developed countries but not one uniformly accepted and practiced in India. As a result many adults who develop first onset seizures are managed symptomatically, but reversible causes are not investigated or looked for. There is also a lack of continuity of care for these patients.

In primary care clinical practice, the work up of any adult who presents with history of seizures consists of two processes: Classifying the seizure type and determining the causes.[⁹] They have to initially be classified whether the seizures were, generalized or focal or absent. EEG is helpful only even the history of seizure itself is not convincing or in absence seizures.[⁹] When an adult patient presents with first onset of seizures an accurate history from patient and/or family members and the eye witnesses should be elicited. A meticulous physical examination will often point to a cause, as in this patient who had mature cataract in an eye and a history of cataract removal in the other eye.

Once the presence of seizures, is established then the investigatory workup begins. Partial or focal seizures need imaging studies and an infective workup as early as possible. According to the guidelines for the management of epilepsy in India imaging is indicated in focal seizures and in evaluation of seizures in acute situations like head injury, cerebrovascular injury or encephalitis.[⁹] For those with generalized seizures, investigations for possible provoked seizures are serum electrolytes including calcium, liver function tests, renal function tests, infective screen (lumbar puncture) if indicated and breath test for alcohol. As this patient had severe hypocalcemia she was investigated for endocrine abnormalities.

In the management of this patient, since a step-wise approach was used, many fancy and “routine” investigations such as scans and EEGs were avoided. This reduced the costs of health care to this family considerably.

Family physicians are usually the first point of contact in health care for seizures. A step wise approach to a person with adult onset seizures, which incorporates meticulous history, a detailed physical examinations and relevant investigations, will help the family physicians to manage these patients. This will enable the family physicians to be cost-effective too.

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