hypothyroidism, hyperthyroidism is exceptionally rare. These conditions cause enlargement of the gland thereby obstructive symptoms. With treatment size decreases, but surgical excision may become necessary in some cases.

Although most of the available literature state the incidence of ectopic thyroid tissue in presumed thyroglossal duct cyst is 1-2% [7]. Gupta, *et al*. [8] reported in their series that when screened by pre-operative ultra sound, this incidence is substantially less. Neverthless to prevent inadvertent removal of only functioning thyroid tissue and subsequent complications, they proposed routine preoperative USG in suspicious thyroglossal duct cyst.

This case demonstrates clinical difficulty in differentiation of ectopic thyroid tissue with a thyroglossal duct cyst. Hence such suspected cases as TGDC should have thyroid function tests, ultrasonography and ^{99} Tc thyroid scan to locate additional functioning thyroid tissue which avoids subjecting the patient to inappropriate surgery and subsequent sequelae.

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Continuous Glucose Monitoring System for Congenital Hyperinsulinemia

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Blood glucose monitoring is a way of testing the concentration of glucose in the blood. The most recent advance is the development of continuous glucose monitoring system (CGMS) which gives 24 hour trend of blood sugar levels thus helping both the patient and the physician in achieving better glycemic control. CGMS in pediatric population is generally used for those on insulin pumps and those who are having fluctuating blood glucose levels. This case highlights the use of CGMS for a child with congenital hyperinsulinemia. It helped in close monitoring of blood glucose levels thereby identifying recurrent hypoglycemia, leading to a better control of blood glucose levels.

Key words: *Blood glucose, Management, Monitoring.*

One of the advancements for monitoring glycemic status is the development of continuous glucose monitoring system (CGMS) which gives 24 hour trend of blood sugar levels. The CGMS unit consists of a glucose sensor, inserted into the subcutaneous tissue which senses the interstitial fluid glucose levels electrochemically every 10 seconds and records an average value every 5 minutes, thus giving 288 values per day. The sensor can be left *in situ* for upto 72 hours. Compared to CGMS, finger-stick blood glucose values are indicative of point of time values only rather than the real time measures. Studies have demonstrated that patients with continuous sensors experience less glycemic variability and a better glycemic profile.

There are no studies in the literature where CGMS has been used for recurrent hypoglycemia. Its use in patients with congenital hyperinsulinism has also not been much reported. In this report, we present our experience with CGMS in an infant with congenital hyperinsulinism.

CASE REPORT

A 2-month-old female infant weighing 4.2 kg at birth, delivered full term by caesarean section, was referred to the pediatric endocrine unit with the history of recurrent hypoglycemia following birth. On 5th day of life, she developed seizures – hypoglycemia was documented at that time (17 mg/dL by glucometer and 20 mg/dL in venous blood). There was no history of diabetes in either of the parents. She continued to have hypoglycemic episodes despite incremental dextrose infusions. Diazoxide (10 mg/kg/day) and octreotide (upto 15 mcgm/kg/day) were started in view of persistently low sugar levels. Inspite of ongoing treatment, recurrent hypoglycemic seizures persisted.

Growth hormone, cortisol, ACTH, free fatty acids, beta-hydroxy butyrate, calcium and C-reactive protein were within normal limits. At the time of hypoglycemic episode, serum insulin and c-peptide levels were 200 pmol/L and 7 ng/mL, respectively which led to a suspicion of congenital hyperinsulinism. Genetic sequencing confirmed the diagnosis of congenital hyperinsulinism. 18 fluro-L-Dopa PET scan done revealed diffuse variety of congenital hyperinsulinism.

Internal jugular central venous line was inserted to give higher percentages of dextrose (between 17-25%). Due to parental wishes to decrease the frequency of finger prick glucose monitoring, CGMS (Medtronic) was initiated as an off-label use for monitoring her glucose levels. CGMS helped in better titration of the dextrose concentration and the drugs being given to maintain her blood sugar levels. 24 hour trends were available which helped in better dosing time of diazoxide and octreotide so as to minimize the number of hypoglycaemic episodes.

During the intervening period while awaiting surgery, the infant was continued on CGMS and medical management. The frequent and severity of hypoglycemic events was reduced and hypoglycemic seizures were prevented. The infant was referred for near total pancreatectomy in view of the diffuse congenital hyperinsulinism.

DISCUSSION

Continuous glucose monitoring provides information about the direction, magnitude, duration, frequency, and causes of fluctuations in blood glucose levels. Compared with conventional intensified glucose monitoring, defined as three to four blood glucose measurements per day, continuous monitoring provides much greater insight into glucose levels throughout the day. Continuous glucose readings that supply trend information can help identify and prevent unwanted periods of hypo- and hyperglycemia.

In cases like ours, where frequent finger prick measurements are the only means of identifying hypoglycemias, CGMS can be an option to identify hypoglycemic episodes, especially in younger population in whom the symptoms of hypoglycaemia are difficult to recognise and can be potentially life threatening. Our experience with CGMS in our case of congenital hyperinsulinism has shown that it helps in early recognition of hypoglycemic attacks leading to prompt intervention so as to prevent seizures. Further, the timing of hypoglycemic events in relation to feeding may help in modifying the timings of anti-hypoglycemic medications.

Conrad, *et al*. [1] evaluated the sensitivity and specificity of the CGMS for reference capillary blood glucose levels <60 mg/dL in five children and infants with hypoglycemic disorders. They reported a sensitivity of 65%, a specificity of 91%, and a false-positive rate of 43%.

Some shortcomings are its prohibitive cost and a possibility of increasing mismatch between the values of finger prick method and CGM values as the sensor becomes old. As observed in our case, the values displayed by CGMS system corelated well for the first 36 hours with that of the values obtained by glucometer but gradually the values start demonstrating discrepancies with prolonged usage. However, meta-analysis have demonstrated that using the sensor for upto seven days can give relatively accurate results [2].

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