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Case Report

KAMPA (TANDAVA ROGA) AS UPADRAVA IN MADHUMEHA WSR TO CHOREA AS A PRESENTING SYMPTOM IN DIABETES MELLITUS: A CASE REPORT

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SUMMARY:

Diabetes mellitus is a long term disease with variable clinical manifestations, progression and number of complications but chorea as a presenting symptom in diabetes mellitus is very rare. In this paper an attempt has been made to highlight similar conditions explained in our classics. *Tandavaroga* explained by Sharangadhara has features similar to that of chorea. Hyperglycemia induced chorea can be understood as *vataja prameha (Madhumeha)* causing *Kampa* as *Upadrava*. This paper aims to convey proper differential diagnosis of involuntary movement disorders of new onset and emphasizes screening of diabetes mellitus in patients who develop sudden onset of chorea.

Key Words: *Ayurveda*, Chorea, Non-ketotic hyperglycemia, Diabetes mellitus, *Tandavaroga*, *Madhumeha*, *Kampa*

INTRODUCTION:

Chorea, a hyperkinetic movement disorder, is characterized by quasi purposeless involuntary movements that flit and flow from one body part to another and is caused by a wide variety of inherited / degenerative, autoimmune, infections, drugs or metabolic disorders affecting the basal ganglia.[1]

Diabetes is a chronic metabolic disorder in which homeostasis of glucose is impaired. As a consequence of hyperglycemia of diabetes, biochemical and structural alterations in every tissue and organ of body occurs which account for major complications in diabetes. Some of the acute metabolic complications are ketoacidosis, Non- Ketotic hyperosmolar state and few chronic complications are retinopathy, nephropathy and neuropathy. Hyperglycemia induced chorea is a medical condition that has been rarely described in the literature but reports and articles based on case studies that are available reveal a disease pattern with a consistent onset of symptoms, radiographic findings and limited course once treatment has been initiated. The majority of reported patients with movement disorders caused by non-ketotic hyperglycemia are of Asian ethnicity in woman between the ages of 50-80 years. [2]

Madhumeha is one among the *vataja pramehas* affecting almost all *dhatus* and *srotasas* with various complications. *Kampa* is explained as one among the *Upadravas* of *vataja prameha*. The word *Kampa* refers to tremor, shaking and trembling movements. [3]

The prevalence, cause and features of *Tandavaroga* explained in *Sharangadhara samhita* are similar to Chorea (Dancing). Root meaning of *Tandava* is dancing with violent gesticulation. [4]

Here, a case of *Kampa (Tandava roga)* with special reference to chorea as a presenting symptom in diabetes mellitus is described.

CASE HISTORY:

A 60 year old post-menopausal female patient, presented to the *kayachikitsa* outpatient department of SDMCA, Hassan on 10th November, 2013, with chief complaint of involuntary movements of right leg and arm since 4 days associated with loss of sleep and restlessness. The movements were of sudden onset, continuous in nature with progressive worsening and remittance during sleep. And by review of systems, the patient noted the recent onset of polyuria, polydipsia and loss of weight since 2 months.

The patient was a known case of hypertension since 12 years and that of ischemic heart disease since 5 years. She was on the following medications since 5 years: i.Tab Repace 50(0-0-ii.Tab Repace H (1-0-0) iii.Tab Aztor-10mg (0-0-1).There was no previous history of fever, head ache, epilepsy or trauma; no family history of Huntington's chorea or other neurological disorders in the family members.

On examination, the patient was well built, with normal memory, speech, orientation and mental status. Neurological examination revealed choriform involuntary movement of right upper and lower extremity with normal muscle tone and strength. Deep tendon reflexes and sensation were intact. Blood pressure was 160/100 mm of Hg and GRBS was 283.9 mg/dl. On the very next day following investigations were

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done. [Table: 1].

Table 1: Investigations done on 11/ 11/2013 with their results

S.NO	INVESTIGATIONS	RESULT
1	Hb%	11.8gm%
2	WBC	9000cells/cu.mm
3	ESR	48 mm in 1 hour
4	DC	N-77%, L-20%, E- 02%, M:01%
5	Platelet count	2.64 lakhs cells/CMM
6	**FBS**	**281.4 mg/dl**
7	**PPBS**	**320.1 mg/dl**
8	Blood urea	42.6 mg/dl
9	Serum creatinine	0.9 mg/dl
10	RBC count	4.99 millions/CMM
11	PCV	40.68%
12	MCV	81.8 Ft
13	MCH	28.1Pg
14	MCHC	34.3%
15	RDW	43.3Fl
16	Serum sodium	140.8 mmol/L
17	Serum potassium	4.5 mmol/L
18	Serum chloride	98.8 mmol/L
19	C.P.K –enzymes	59.0 IU/L
20	ECG	LBBB
21	Urine for ketone bodies	Absent
22	**FUS**	**2.0%**
23	**PPUS**	**2.0%**
24	HIV	Negative

The disease can be differential diagnosed with following condition as there are wide varieties of diseases characterized by chorea [Table: 2]

Table 2: Diseases characterized by chorea [5]

Inherited/ Degenerative	Huntington's chorea Wilson's disease Neuroacanthocytosis Benign hereditary chorea
Autoimmune (Post infection)	Systemic lupus erythematosus Antiphospholipid syndrome Hashimoto's chorea Sydenham's chorea
Infections	HIV Encephalopathy Creutzfeldt-Jakob disease
Drugs	Dopamine receptor blockers Levodopa Oral contraceptives Anticonvulsants
Metabolic	Hyperthyroidism Hyperglycemia Sodium disturbances Calcium, manganese and iron deposition disorders.

Huntington's disease and benign hereditary chorea are excluded as there was no family history. There was no history of acute/chronic hepatic disease and no pigmented ring at the outer margin of the cornea hence Wilson's disease is excluded. There were no neuropsychiatric symptoms/ fall in cognition/ seizures and blood picture was normal hence neuroacanthocytosis is excluded. Sydenham's chorea is excluded as there was no history of rheumatic fever in childhood/ rheumatic heart disease. There was no history of taking drugs causing chorea.

The patient was found to be Hyperglycemic with absence of ketone bodies in urine. The case was finally diagnosed as chorea (Hemiballism-proximal chorea restricted to one side of the body) caused due to non-ketotic hyperosmolar hyperglycemia secondary to previously undiagnosed diabetes mellitus.

It has been reported that there was resolution of symptoms with the establishment of glycemic control. [6, 2] The Patient was referred to allopathic diabetic centre for fixing insulin dosage with close monitoring.

DISCUSSION:

The pathogenesis of chorea associated with non ketotic hyperglycemia is poorly understood. Several proposed hypothesis for hyperglycemia as a cause of these movement disorder are put forward.

a) The presence of serum hyperosmolarity and hyperglycemia induces mild ischemia in the putamen via hypo perfusion. The combination of hyperglycemia, hyperviscosity and ischemia may then create an environment favoring in competence of the blood brain barrier, leading to small petichial hemorrhages in the basal ganglia, producing involuntary movements.

b) Hyperglycemia creates an energy state at the cellular level favoring anaerobic metabolism, which in turns depletes gamma-amminobutyric acid (GABA), due to the fact that acetoacetate, A GABA substrate, is quickly depleted in anaerobic state. The depletion of GABA can contribute to the development of chorea via it's interaction with dopamine. Hence the hyperglycemia induced inhibition of GABA may create a hyperactive dopaminergic state, giving rise to the onset of choric movements.

c) Post-menopausal woman are in a state of relative dopamine hypersensitivity secondary to the loss of estrogen, and as such are more likely to be susceptible to a hyperactive dopaminergic state. This may explain why the majority of cases have been reported in women between the ages of 50-80 year. [7]

For confirmation of diagnosis, CT/MRI/SPECT imaging plays an important role. CT shows hyper dense putamen and/or caudate nucleus.T1-weighted MRI shows hyper intense lesions without significant T2 signal alteration at the basal ganglia. SPECT (single – photon emission CT) shows hypo perfusion at corresponding areas. [8]

Required investigations in this type of movement disorder, where chorea as presenting symptom in DM is listed:

1. Serum glucose
2. Hba1c – usually significantly elevated
3. Arterial PH- > 7.3
4. Serum/urinary ketones- Negative
5. CT/MRI/SPECT

Tandavaroga explained in *Sharangadhara samhita* bears features similar to that of chorea. Etiological factors such as chronic diseases, severe loss of strength, awakening at night time, chronic constipation, *krimi*(infection), psychological factors like sever anxiety and excitements, spinal cord injury, irregular menstrual cycles in females are mentioned.[9]Directly or indirectly all these etiological factors will lead to *vata vruddi* and *dhatu kshaya*. *Vata vruddi* in terms of *chala gunataha vriddi* will lead to *Kampa*(movements) of different body parts and presenting in the form of *Tandava nrutya*(dance with violent gesticulation-frantic dance of Shiva and his votaries) and the disease is known as *Tandavaroga* which is continuous and *Kampa* will subside only at the time of sleep. This disease is known to specially occur in females and old aged individuals.

Madhumeha is a type of *vataja prameha*. *Vata* may be provoked either directly or indirectly by its etiological factors, *avarana* to its path or by continuous depletion of *dhathus*. *Madhumeha* may be *dhathu kshaya janya* or *avarana janya*. [10] Complications of *Madhumeha* described in our classics can be classified as general and specific complications. Specific complications are mentioned according to dominant *dosha* as *kaphaja*, *pittaja* and *vataja prameha Upadravas*. *Kampa* is one among the *vataja prameha Upadravas* [11, 12] which develops due to excessive vitiation of *vata* caused by the extensive *dhatukshaya*. The *chala gunataha vruddi* of the *vata* is responsible for *Kampa.* In the present case, *Kampa* is in the form of *Tandavaroga* caused due to *dhatukshaya janya Madhumeha*.

The *chikitsa* of *Tandavaroga* involves *brimhana, rechana* (purgation), *agnibalavardhana* and *nidana parivarjana*. [13]

CONCLUSION:

Hyperglycemia induced chorea is a medical condition that has been rarely described in the literature. But the articles and reports that are available reveal a disease pattern with a consistent onset of symptoms, radiographic findings and limited course once treatment has been initiated. Screening of all patients who present with involuntary movements, for hyperglycemia, even in patient without a previous history of diabetes is important. *Tandavaroga* as mentioned in our classics is similar to chorea. Chorea as a presenting symptom in diabetes mellitus can be understood as *Kampa* occurring as *Upadrava* in *Dhatukshayajanya Madhumeha (vataja prameha).* Early recognition of hyperglycemia induced movement disorders is important, as hyperglycemia is an easily treatable disorder and carries a good prognosis.

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