A case report on KLUVER - BUCY SYNDROME - A Dreadful Sequelae of Herpes Simplex Encephalitis

MOHAMMED NAJEEB
Department of General Medicine,
THANJAVUR MEDICAL COLLEGE

Abstract: A 15-year old male presented with fever, headache, vomiting and photophobia. Based on the clinical profile, laboratory investigations, neuro imaging and CSF analysis, he was diagnosed as a case of herpes simplex (HSV) encephalitis and was treated with parenteral acyclovir and other supportive measures. After a transient period of initial improvement, he started exhibiting abnormal behavioural changes such as aggressiveness, hyper sexuality, emotional dampening and increased oral exploratory behaviour. A diagnosis of Kluver-Bucy Syndrome secondary to herpes simplex encephalitis was made and confirmed after MRI Brain imaging which showed lesions in bilateral temporal region.

Keyword: Kluver-Bucy Syndrome, HSV Encephalitis, MRI Brain.

INTRODUCTION:
Kluver-Bucy Syndrome is a rare behavioural disorder that occurs when both right and left antero-medial temporal lobes of brain malfunction. The amygdala has been particularly implicated brain region in the pathogenesis of this syndrome. In 1930s, Kluver and Bucy gave their name to an intriguing cluster of behavioural changes that were noted after a bilateral removal of the anterior temporal lobes in primates. This syndrome is characterized by: 1. Placidity – characterized by diminished fear responses, 2. Dietary changes and/ or hyperphagia - characterized by eating inappropriate objects and/ or over eating, 3. Hyper orality - characterized by oral tendency or compulsion to examine objects by mouths, 4. Hyper sexuality – characterized by heightened sex drive or a tendency to seek sexual stimulation from unusual or inappropriate objects, 5. Visual Agnosia – characterized by inability to recognize familiar objects or people.

Here we are reporting a case of Kluver - Bucy syndrome secondary to sequelae of Herpes Simplex Encephalitis.
CASE REPORT

A 15-year-old male, presented in the emergency department with fever of five day duration followed by headache, vomiting, photophobia for three day duration. Fever was high grade, intermittent, not associated with any chills and rigor. Headache was bifrontal, present throughout the day, no diurnal variation and no aggravating and relieving factors. This was associated with vomiting, which was projectile in nature. Initially he was treated in peripheral hospital for five days and then he was referred to our hospital. There was no history of cough with expectoration. No history of evening rise of temperature. No history of any seizures, loss of consciousness, any visual disturbances or hearing impairment. Past history reveals that he was born to non-consanguinous parents, full-term normal delivery, no history of any birth asphyxia, neonatal infections. His developmental milestones were normal. No history of any seizure disorder, congenital heart disease or any other significant medical illness in the past. No history of any trauma or head injury. No history of any drug or substance abuse.

On examination at the time of admission, he was conscious, oriented but irritable, answering to simple oral commands. There was pallor, no icterus, cyanosis, clubbing, generalized or localized lymphadenopathy. Facial grimacing and forward and backward movements of head noticed intermittently during examination. Central nervous system examination showed patient conscious, oriented, irritable, answering to simple oral commands. There was no focal neurological deficits, no signs of meningeal irritation. Fundus examination showed hyperemia with blurred disc margins bilaterally. Other system examination were normal.

Laboratory investigations showed Hb: 8 gm%, TC: 7000 cells/mm³, DC: P 59, L 38, E 3, RBCs 2.8 million cells/mm³, Platelets 1.7 lakh cells/mm³, PCV 25%, ESR 25 mm/1st Hour, Random blood glucose 96mg%, and normal serum electrolytes and renal function test and liver function tests. Chest X-ray normal, ECG normal, Sputum AFB negative, Widal negative, Blood culture negative, HIV I & II non reactive, Ultra sonography of abdomen was normal study. CSF analysis revealed 25cell/mm³ (70% polymorphs and few RBCs and lymphocytes); protein: 148 mg%, sugar: 55 mg%. CSF for PCR confirmed a positive infection with Herpes Simplex Virus type 1. CT scan shows hyper dense lesion in the left temporal lobe and left sylvian fissure. Neurophysicians opinion obtained, and opinion given as a case of HSV encephalitis, they suggested EEG and MRI Brain with MR Angiogram (MRA) and MR Venogram (MRV). We proceeded with EEG and MRI Brain with MRA and MRV. EEG showed normal activity. MRI Brain showed hyper intense signals in left temporal (predominantly) and right temporal lobe in T2 weighted images, thus...
An Initiative of The Tamil Nadu Dr. M.G.R. Medical University
University Journal of Medicine and Medical Sciences

**Fig 1**, MRI Brain showing hyper intense signals in left and right temporal lobes in T2 weighted image

**Fig -2**, coronal section MRI Brain showing hyperintense signals in left and right temporal lobes in T2 weighted image

**Fig-3**, CT Scan brain (plain) showing hyper dense lesion in the left temporal lobe and left sylvian fissure

Patient was treated with injection acyclovir 10-15 mg / kg body wt 8th hourly, injection ceftriaxone 1gm i.v 12th hourly, injection dexamethasone 4 mg i.v 8th hourly, injection mannitol 20% 100 ml i.v 12th hourly and other supportive measures. Patient was shifted to intensive care unit. Patient showed marked improvement clinically and shifted back to ward after 15 days of intensive care treatment. Five days later patient developed one episode of generalized tonic clonic seizures (GTCS), following this he started showing signs of behavioural changes and cognitive decline in the form of aggressive behaviour like slapping people, inappropriate behaviour in the form of spitting in the ward; increased oral exploratory behavior; hyperphagia and ingestion of inappropriate objects (pica); altered emotional behaviour, particularly placidity; hypersexuality in the form of excessive genital fondling and exhibitionism; and lapses in memory. There was a regression in his behaviour to that of a child. Neuro physicians review and psychiatrist opinion were obtained. After a thorough neurological and psychiatric evaluation, a diagnosis of post herpes simplex encephalitis sequelae – Kluver Bucy syndrome was made and he was started on T. Sodium Valproate 200 mg tds, T. Carbamazepine 200 mg tds, T. Haloperidol 1.5 mg bd, T. Trihexyphenidyl 2mg bd and clonazepam 0.5 mg 1 hs along with other supportive measures. After 2 weeks of treatment, patient showed significant improvement in symptoms and there was no recurrence of seizure. Hematological and biochemical investigations were repeated and the results were within normal limits. MRI brain and EEG were repeated, which did not show any fresh changes. Patient discharged after 2 weeks and was followed – up in medicine and neurology OPD. He continuous to show improvement in his behaviour with minimal improvements in his amnesia as he slowly recollecting the past events and recognizing his family members and friends.

**CASE DISCUSSION**

Herpes simplex encephalitis (HSE) is the most commonly identified cause of acute sporadic encephalitis. The age distribution appears to be bi-phasic, with peaks at 5-30 and > 50 years of age. HSV-I causes > 95% of cases. The primary HSV infection may result in encephalitis via neurotropic spread from periphery via the olfactory bulb. It is a potentially treatable viral infection of the nervous system.
Mortality in un-treated cases almost 70 per cent\(^{(4)}\). There is a predilection for the frontal and temporal lobes of cerebrum. HSV encephalitis results in acute necrotizing encephalitis. It presents with fever, headache, vomiting along with focal (especially temporal lobe) signs such as dysphasia, seizures, memory loss, behavioural abnormality and hallucinations. Poor prognostic markers includes age more than 30 years, long duration of illness, deep coma before initiation of therapy, and delay or non-use of acyclovir. Demonstration of anti-herpes antibody titres in the CSF is significant but more important is the polymerase chain reaction (PCR) which detects the viral DNA in the CSF and has a sensitivity of 96% and a specificity of 99% (equal to or more than brain biopsy)\(^{(5)}\).

Early diagnosis and treatment with acyclovir is mandatory to prevent dreadful complications and sequelae of herpes simplex encephalitis. The recommended antiviral treatment for HSV Encephalitis is 10-14 day course of acyclovir given i.v, in a dose of 10 mg/kg 8\(^{th}\) hourly. To prevent the relapse and sequelae, a higher dosage and long duration of acyclovir, viz., 14-21 days is more appropriate. In our patients, probably the delay in diagnosing HSV encephalitis in peripheral hospital and delay in starting acyclovir therapy lead to this dreadful sequelae. Kluver-Bucy syndrome is a rare neurobehavioural disorder associated with bilateral destruction of anterior part of the temporal lobes of the brain. This removes not only, the portions of temporal cortex but also of the amygdalas that lie inside these parts of the temporal lobe. Normally amygdala can influence the hormonal and somatomotor aspects of the behaviour and emotional states (eating, drinking and sex) of the individuals. This syndrome was named after Heinrich Kluver and Paul Bucy. They discovered a peculiar behaviour in monkeys who underwent bilateral temporal lobectomy. The six points of difference that Kluver recorded were: visual agnosia, an increased tendency to explore items by mouth, hypermetamorphosis, dampening of emotional expression, altered sexual behaviour and differences in diet. The monkeys had normal vision and motor skills, but exhibited “psychic blindness”, an inability to recognize “the emotional importance of events”.

The first case of Kluver–Bucy syndrome was reported in a 22-year-old male patient with bilateral temporal lobe damage due to herpes simplex meningoencephalitis\(^{(6)}\). The complete syndrome is rarely seen in humans. There have been many case reports from India where an association between Kluver-Bucy syndrome and other central nervous system disorders like head trauma, encephalopathy, encephalitis, subarachnoid haemorrhage, Alzheimer’s disease, Pick’s disease, Huntington’s disease, juvenile neuronal lipofuscinosis, meningo-encephalitis, toxoplasmosis, neurocysticercosis\(^{(8)}\), acute intermittent porphyria, adrenoleukodystrophy, hypoglycemia, carbon monoxide poisoning and cerebrovascular diseases, heat stroke\(^{(7,9,10)}\)

There is no cure for Kluver-Bucy syndrome. The disorder is not life threatening, but the patient can be difficult to manage. Treatment for Kluver-Bucy syndrome is symptomatic and supportive, and may include drug therapy. It can be partially controlled with carbamazepine and other anti-epileptic drugs and also with medroxyprogesterone acetate\(^{(10)}\), which decreases the sexual drive. With treatment,
the symptoms may slowly decline. A limited study of 19 cases of herpes simplex encephalitis revealed 50% mortality with one-third of the survivors developing severe neurological deficits like Kluver-Bucy syndrome and Korsakoff’s psychosis\(^{(11)}\).

**CONCLUSION:**
This case report describes a patient with a unique constellation of limbic abnormalities following herpes simplex encephalitis that resulted in one of the most dreadful complications of herpes simplex encephalitis – Kluver-Bucy syndrome. Delay in early diagnosis and treatment of herpes simplex encephalitis may lead to the development of this dreadful sequelae, which can be prevented with early administration of acyclovir.

**REFERENCE**


