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CASE SERIES

Epileptic Psychosis-Endangering Human Life: Case Series and Review of Literature

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ABSTRACT

Epileptic psychosis is a cerebral dysfunction that occurs or is further classified in temporal relation to the occurrence of a seizure. These phenomena, also called 'epileptic mania', can last for days to months, not only increase the caregiver's burden, but also statistically add to the morbidity and mortality of an epileptic patient. Its symptoms can vary and fluctuate from a mild degree of confusion and delirium to a serious thought and perceptual disorder. The prevalence of psychosis increases drastically in patient with temporal lobe epilepsy or refractory epilepsy. Here we report seven such cases that have endangered human life in the form of self-harm or grievous injury to others.

Introduction

Psychosis refers to a mental status where a person's thought, emotions and perception are distorted to the extent where contact with reality is lost. The relation between psychosis and epilepsy has always been and still is a keen interest in a clinician's mind. Post-epileptic psychosis was mentioned in 1881 which can simply be a demented state, or there may be hallucinations, with irritability and even violence.[1] However, it was until the 20th century that the relation between psychosis and epilepsy was established and the term 'forced normalisation' came into existence.[2,3] Psychosis in epilepsy has been further classified into five various types which is in temporal relation with the seizure.[4,5] Some phenomena such as post ictal psychosis and ictal psychosis are well reported, and its spectrum is well studied and understood but others such as para-ictal, pre-ictal and inter ictal psychosis is not well studied. Ictal psychosis is more of a non-convulsive status epilepticus, usually of temporal and extra temporal in origin. Diagnosis is usually confirmed by EEG and treatment is usually directed to control of seizure.[6]

Post-ictal psychosis is the most common psychosis noted in epilepsy patient. These patients are usually precipitated by a cluster of seizure and usually occur between the temporal or extra-temporal structural etiology.[7] This phase, although transient, may last from around one day to months and in some cases goes into a chronic phase.[8] Although the symptoms resolve on its own, use of anti-psychotic may be necessary to reduce mortality and morbidity as extreme psychosis such as suicidal tendency has been reported.[9]

Para-ictal psychoses (the forced normalization phenomenon) was introduced long ago by Heinrich Landolt, who reported a group of patients having florid psychotic episodes with 'normalization' of the EEG but still forms a platform for debate. The term alternative psychosis or drug induced psychosis in epileptic patient was the better understood.[10] However, it is not a drug-specific phenomenon or an epilepsy specific syndrome but instead linked to the neurobiological mechanisms underlying seizure control.[11]

A complex network of circuit forms in the brain, especially due to a cumulative seizure occurrence, leads to interictal psychosis.[12] This psychosis has no clear temporal relation to seizure and undergoes a chronic unremitting course.[5]

The least common or understood psychosis in epilepsy is pre-ictal psychosis. Symptoms like derealization or depersonalization experiences, aura, déjà vu, jamais vu, anxiety, hallucinations or illusions occur hours to days before a seizure .[5] Rare schizophreniform phenomenology have also been reported in epilepsy psychosis.[14]

With this background, we are reporting seven cases of epilepsy psychosis and have tried to classify and understand the spectrum of epilepsy psychosis.

Cases Description

Seven cases are described below that we encounter in a tertiary referral centre in North East India over five years of follow up of our epilepsy cohort. Most of these patients were difficult to treat epilepsy requiring more than three anti-epileptic and other dietary modification as surgical option is not really available from this region of the country. A diagnosis was made on the basis of clinical semiology, EEG correlation and a 1.5 tesla MRI brain epilepsy protocol. Structural lesion was found only in five patients where medial temporal lobe was the site of involvement and two patient had calcifications.

Age	Sex	Seizure semiology	Duration of seizure	Type of psychosis Duration	Psychosis semiology	Eeg	Mri brain Ct brain	Treatment respond	Outcome
9	M	Focal with secondary generalisation	3 years	Inter-ictal 3-4 days	Aggressive, Assaultive and Self-harming behaviour, Bites family members	Cortical slowing	Multiple calcification	Good On 3 aed Anti-psychotic	Seizure free
14	F	Focal with dyscognitive feature	2 years	Post ictal 2 days	Delusion of persecution, Uncontrolled anger and assault to her neighbour (grevious injury)	B/l temporal spike With cortical slowing	Right Mtle	Good On 2 aed	Seizure free
25	F	Gtcs	6 years	Post ictal 1 day	auditory hallucination, Alleged history of homicide	Cortical slowing	Normal	Poor On 3 aed Anti psychotic	Seizure poor control
35	F	Focal with secondary generalisation	6 years	Post ictal psychosis >1 week	Hallucination and delusion of grandiosity, Aggressive and Disorganised behaviour	Cortical slowing	B/l mtle	Poor On 3 aed Anti-psychoyic	Seizure controlled
32	F	Focal with dyscognitive feature	6 years	Ictal psychosis/ Inter ictal psychosis >3 days	Hallucination-visual→ Delusion of religious content, Blasphemous thoughts and illogical thinking	Temporal spike left	Normal	Good On 2 aed Anti-psychotic	Sucide modified Rankin Scale (MRS)-5
40	M	Dyscognitive feature	New onset	Pre-ictal 6-8 hours	Depersonalisation, Déjà vu	Normal	Left hippocampal swelling	Good On 2 aed Anti-depressant	Seizure control
25	M	Focal with secondary generalisation	5 years	Post ictal 2-4 days	Wandersome behaviour Deliberate self harm, Visual and auditory hallucination	Focal left temporal spike with generalisation	Old calcified granuloma in left frontal gyrus	Discharge on 2 aed	Lost to follow up

Discussion

Psychosis in epilepsy is estimated to be around 2-7% of people living with epilepsy. Probably one on the oldest in literature; studied one hundred and fifty patients of epileptic psychosis from NIMHANS in the years 1886 showed that the epileptic psychosis ratio to epilepsy was 1 :23 and the epileptic psychosis ratio to psychosis was 1 :75.[13] later another study from India found 12 patients of epilepsy related psychosis among the 500 patients of epilepsy evaluated with an average age was 38 years.[14] Our case series also had younger age group affected individual among the epilepsy cohort of our institute.

Mild perceptual, behavioural, cognitive, motor, thought and affective symptoms can be a part or seen in most of our epilepsy patients be it post ictal or interictal or preictal phase. A difficult situation arises when this psychosis in epilepsy tends to endanger one's or another person's life. These are the certain situation where the psychosis needs to be targeted with necessary action like anti-psychotic, proper dose antiepileptic and sometime restrain or providing them a protective surrounding.The interictal or post ictal hallucination and delusion can be such a confusion and reacquires a combine approach from a neurologist and a psychiatrist to control it.[15] all our patient of epilepsy associated with psychosis was seen by both neurologist and psychiatrist as a combined approach.

Certain factors may act like risk factors which may include Family history of psychosis or affective disorder, Early age of onset of epilepsy, Left temporal epileptogenic focus, Hippocampal sclerosis and a history of status epilepticus.[16] Usually, a change of antiepileptic or an early withdrawal of AED, behavioural side effect of certain AED and seizure clusters are the usual precipitator.[17,18,19] out of the seven patients, three had seizure cluster and one had antiepileptic changed because of the desire to conceive. Hypoxic damage to the brain due to seizures, subclinical seizure discharges, frightening nature of auras, are also reported as possible factors to develop psychiatric disorders in epilepsy patients.[13]

The diagnosis is usually made by a good bed side history and neurological examination, EEG or a video EEG, neuroimaging showing a localising structural aetiology and a respond to the management. A temporal lobe focus, focal seizures with secondary generalization on EEG raises the chances of epilepsy psychosis.[14,20] Our patients, EEG was abnormal in 6 patients showing cortical slowing in three, focal with secondary generalisation in one and temporal transient in two patients (Figure 1,2). Epilepsy with psychosis results in a tougher clinical judgement when the EEG is normal.[21] We also here by report one patient with new onset seizures presenting with pre-ictal psychosis lasting for hours followed by unconsciousness. His EEG was normal so he was treated as an opioids withdrawal case till MRI Brain was reported abnormal and patient was started on conservative management. (figure 3).

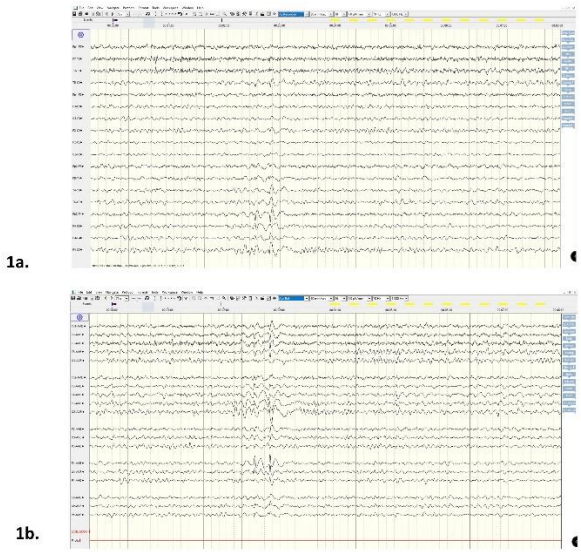

Figure 1: Abnormal EEG showing focal transient with secondary generalisation

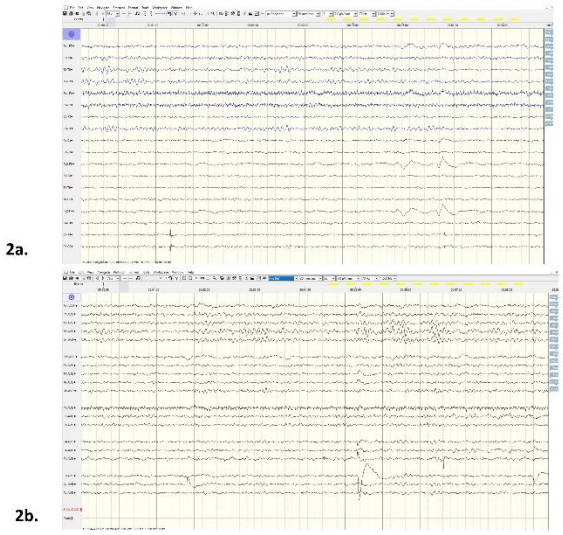

Figure 2: Abnormal EEG showing left temporal transient

Delusion is a common perception defect of the mind usually encounter with epilepsy. It can be a part of the illness or a side effect of the medication. Delusion of prosecution[21] is a common finding and so is reported in one of our patients who in turn caused a grievous injury to the neighbour.

Post ictal psychosis can pose a danger to self and danger to others. A fluctuating combination of thought disorder, auditory and visual hallucinations, delusions, paranoia, affective change, and aggression including violent behaviours is known but well directed violent attacks in reported among 22.8% of post ictal psychosis.[22,23,24]

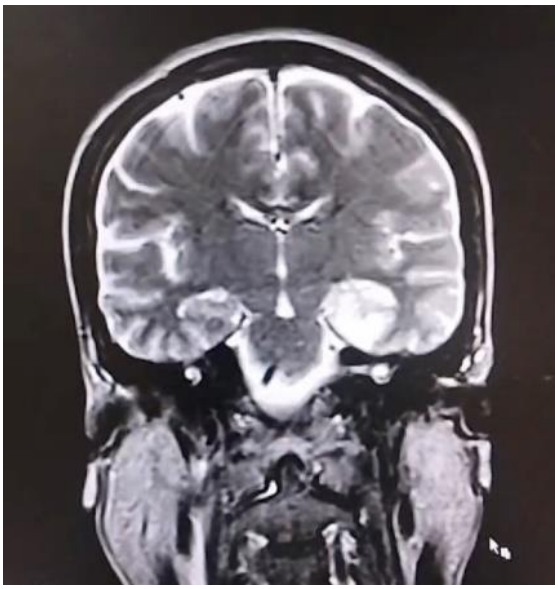

Figure 3: CEMRI suggestive of left hippocampal and mesial temporal lobe lesion

Logs Dail and Toone's diagnostic criteria[25] for post ictal psychosis needs to be understood and kept in mind

1. Episode of confusion or psychosis immediately after a seizure; often there is a lucid period after the seizure followed by development of psychosis within hours up to one week;
2. Psychosis lasting 24 h to 3 months;
3. Some combination of disorientation, delirium, hallucinations, and delusions; although these may be present with 'clear consciousness';
4. No evidence of interictal psychosis, anti-epileptic drug (AED) toxicity, nonconvulsive status epilepticus, head trauma, or alcohol/drug intoxication or withdrawal

Homicide during postictal psychosis has been reported in literature [22], we also report two extreme case of post ictal psychosis, one presented with self-amputation[23] (figure -4) and the other with alleged history of homicide.

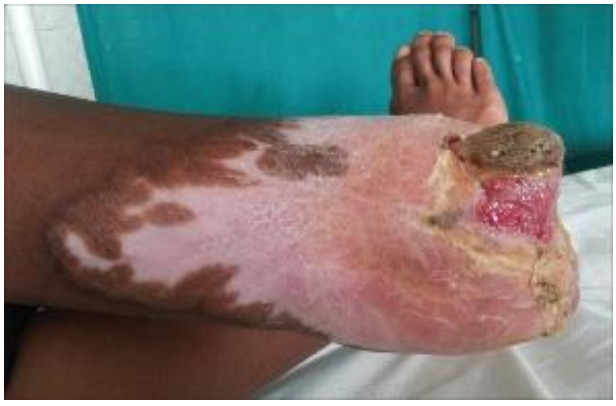

Figure 4: Amputated stump of left ankle joint with burn marks over the overlying skin

Suicidal ideation and tendency tend to occur among epilepsy patients and is very important in follow up of epilepsy patients. A prevalence of up to 25% is

reported among patients living with epilepsy.[26] Risk factors may include socio-demographic, genetic, age and gender, and psychiatric comorbidities, iatrogenic causes resulting from pharmacotherapy with antiseizure drugs or epilepsy surgery. Here we report one patient who was living with epilepsy, ictal and inter ictal psychosis which mainly comprise of delusion and hallucination of religious affairs and blasphemous thoughts landed up with complete suicide. Her clinical seizure semiology and EEG was suggestive of temporal lobe epilepsy but her MRI brain was negative for structural lesion.

In one patient we had marijuana abuse but literature has well documented that marijuana used had no positive or negative effect on epilepsy and perse, aggressive behaviour is rarely reported.[27,28] Management of psychosis in epilepsy is usually tailored by the clinician experience and case based. Second-generation antipsychotics, especially risperidone, has a low drug–drug interactions and a low risk of seizures is usually the first line option. [5]

Prevention of epileptic psychosis cannot be really addressed, however identification of risk factors as discussed, education of family members, management of seizure cluster by emergency home management such as intranasal midazolam can be tried. Furthermore, education among medical professional about psychosis in epilepsy, its various presentation and management will be beneficial and more important.

Conclusion

Epilepsy with psychosis may range from a mild confusion, run amok to firm false delusion or vivid hallucination to personality changes or just affect changes; needs to be recognised and understood for proper management these patients. A need to use ant-psychotic in certain case scenario where the psychosis although related to epilepsy may be so severe to endanger the patients or the care giver life.

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