



## CANNABIS RELATED SEIZURE - A CASE REPORT

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### ABSTRACT:-

**Introduction:** With more than 400years of usage and even finding a place as a prescription drug Cannabis, one of the most commonly abused drugs has very few reports of seizures associated with it, especially when taken with drugs which reduce seizure threshold. There are reports of Cannabis being used for Resistant Epilepsy. Herein we report a case of Cannabis related seizures. Only a few such cases have been reported in the literature.

**Case Abstract:** We describe a case of 22-year-old, previously healthy Indian male, a former drug abuser who developed seizures at home early in morning following a late evening sports. He was transferred to our institution with 3 episodes of seizures and impaired level of consciousness. Urine drug toxicology screening was positive for Cannabis. He was treated with supportive care in a calm and comfortable environment with intermittent bolus of benzodiazepines. He was discharged home after nearly one and a half weeks of hospital stay.

**Keywords:** Cannabis, CPK, Fever, Neuro-infection, Rhabdomyolysis, Seizures, Seizure threshold.

### I. CASE

A 22 year old, apparently healthy male was referred to our ER with a history of collapse at home followed by 3 episodes of GTCS within a period of 15min. He was initially treated in a local nursing home with anti-seizure medication and referred to our center. On arrival he was in post-ictal confusion. His Temp was 100.5F, HR-114bpm regular, Spo2 98% on room air and BP was 140/90mmhg.

His initial laboratory workup revealed a raised TLC and increased levels of serum CPK. CT brain plain was reported as mild cerebral edema. In view of the possibility of Neuro-infection he was started on antibiotics at meningitic dose with anti-epileptics and supportive care. In view of the initial high CPK he was dialysed.

The follow up investigations showed a normal CSF analysis, Dengue, Malaria antigen, Weil Felix, ANA profile and HbsAg serology were all negative. The investigations results are summarized in table 1. In spite of treatment patient continued to be drowsy and on detailed history from family members confirmed that he was into drugs/substance abuse (did not know the exact nature) earlier and they believed that he had quit off late. A urine drug screening was sent which was positive for Cannabis and Barbiturates.

All antibiotics were stopped and patient was continued supportive care in a calm and peaceful environment with intermittent doses of benzodiazepine. Over a period of 2 weeks days he returned to normalcy and was discharged home. His follow-up was uneventful.

### II. DISCUSSION

Cannabis is an extract of plant *Cannabis sativa* and some of its subspecies (*Cannabis Indica*, and *ruderalis*). The plant is unique in producing the chemicals known as cannabinoids, of which more than 61 have been identified. The pharmacology of most of these substances is unknown but the most potent psychoactive agent is *delta 9-tetrahydrocannabinol* (THC), which is probably of greatest importance in the recreational use of cannabis. In addition to cannabinoids, the plant contains approximately 340 other chemical compounds.<sup>[1]</sup>

Cannabis has been used for more than 4000 years, both therapeutic and recreational. The earliest documentation of the therapeutic use of marijuana is the 4th century B.C. in China from there it spread to India to North Africa, reaching Europe around 500 A.D. Marijuana was used as an intoxicant from the 1850s until the 1930s when the US Federal Bureau of Narcotics began to portray marijuana as a powerful, addicting substance.

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Currently, marijuana is the most commonly used illicit drug in the United States. A study by the Substance Abuse and Mental Health Services Administration reported that 95 million persons age 12 years and older (40% of that population) had tried marijuana at least once.<sup>[2]</sup>

The various extracts of Cannabis plant are given in Table 2. The term ‘‘marijuana’’ typically refers to tobacco-like preparations of the leaves and flowers. ‘‘Hashish’’ is the resin extracted from the tops of flowering plants and generally has a much higher THC concentration.

Cannabinoids are proposed for use in the management of many clinical conditions including resistant epilepsy but has only been approved for the control of chemotherapy-related nausea and vomiting that are resistant to conventional anti-emetics.<sup>[3]</sup> There are no controlled trials demonstrating that marijuana is "safe" or "effective" for the treatment of epilepsy.<sup>[4]</sup>

Cannabis is cultivated in 172 countries. Between 13300 and 66100 tons of herbal cannabis and between 2200 and 9900 tons of cannabis resin were produced in 2008. An estimated 6251 tons of herbal cannabis and 1136 tons of cannabis resin were seized worldwide in 2010. The production and use of Cannabis drugs in India is significant Table-3, though recent data is not available, as of 1957 this is the published data.<sup>[5]</sup>

The pharmacological effects of Cannabis usage are many and complex, and exerted through CB1 receptors in CNS and CB2 in peripheral system.<sup>[6]</sup> Acute cannabis use is associated with subjective symptoms of euphoria, continuous laughter and talkativeness, sedation, lethargy, intensification of ordinary sensory experiences, perceptual distortion, and social withdrawal. Physical signs of conjunctival hyperemia, increased appetite, food consumption, dry mouth, increased blood pressure and tachycardia, and acute bronchodilator effect shave been reported. Heart rate increases by 20-50% within a few minutes to a quarter of an hour have also been reported; this effect lasts up to 3 hours.<sup>[7]</sup>

Cannabis withdrawal occurs in frequent users who quit without seeking treatment. The diagnostic criteria for withdrawal are irritability, anger, or aggression; nervousness or anxiety; sleep difficulty (insomnia); decreased appetite or weight loss; restlessness; depressed mood; and physical symptoms causing significant discomfort, such as stomach pain, shakiness/tremors, sweating, fever, chills, and headache. The onset and time course of these symptoms appear similar to those of other substance withdrawal syndromes.

Cannabis associated seizures have been reported very rarely. There are many anecdotal reports of beneficial effects in humans (*Starting from Charlotte Figi- called the ‘‘Charlotte’s Web’’*) with epilepsy but research data are virtually non-existent. Two single case reports in 1967 (*Keeler and Reifler et al*) and 1975 (*Consroe et al*) give rise to suspicion of cannabis associated seizures. There are multiple forums where it is found that people have reported seizures when Cannabis was taken after a long period of abstinence, and they typically found to be Grand Mal attacks.

In our case, he returned home late after a sports event and also he was away from Marijuana for a long time. The urine was tested by Rapid Qualitative Immunoassay screening test for potential drug of abuse (Trade name INSTANT VIEW Multi Drug of Abuse Urine Test), which has exhibited more than 90% agreement with the selected analytical methods(GC/MS and HPLC) and for each analyte, it varied from 92% to 98%. Urine tests positive at concentrations of 20ng/ml THC. Passive inhalation rarely raises the concentration above 12ng/ml.<sup>[8]</sup>

### III. CONCLUSION

Though we do not like to say this as a case of Cannabis induced seizures the possibility of a Cannabis related seizure cannot be negated. The occurrence of seizures secondary to Cannabis is quite rare but is known to occur when combined with drugs which reduce seizure threshold<sup>[9]</sup> and also in multiple animal studies. It should be kept in mind that if suspected as the cause of seizures, a detailed history, an early drug screening and supportive care goes a long way in helping the patient.

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	Days from admission	DAY 1	DAY 3	DAY 4	DAY 5	DAY 8	DAY 10	DAY 12	
1	Hemoglobin	15.65 g/dL		13.5		12.89		13.57	
2	PCV	46.08%		40.10		38.19		45.59	
3	TLC	14430 cells/cumm		14140		10310		7250	
4	Platelet count	231700 cells/cumm		197000		150000		272580	
5	ESR	2 mm/hr				69		62	
6	Serum Creatinine	1.1	0.9	1.2	0.8			0.9	
7	BUN	13.5							
8	Uric Acid	6.6							
9	Sodium	130.4	135	142	138.1	138.6	133.5	133.7	
10	Potassium	4.4	4.2	3.7	5.2	3.5	3.3	4.3	
11	Chloride	98	104	103	102.6	103.5	94.6	95	
12	CPK	<b>26900</b>	<b>13050</b>		<b>10800</b>	<b>5450</b>	<b>2600</b>	<b>1170</b>	
13	T.Bilirubin	0.5							
14	Direct	0.2							
15	T.Protein	7.2							
16	Albumin	4.5							
17	AST	295							
18	ALT	84.5							
19	Alk Phosphatase	90.9							

**Table 1: Laboratory Investigations**

Form	Source	THC content(app values since they are variable)
<b>Marijuana (US) Cannabis (UK) Herbal Cannabis</b>	Dries Leaves Stalks/flowers/Seed  Traditional cigarette (reefer) of 1960s and 1970s Modern cigarette (joint) of 1980–90s, result of intensive cultivation, and more potent subspecies (sinsemilla, skunkweed, Netherweed, and others)	1–3% THC (10 mg/reefer)  6–20% THC (60–150 mg/joint, more than 300 mg if laced with hashish oil)
<b>Hashish (US)</b>	<i>Resin secreted by plant</i>	
<b>Cannabis resin (UK)</b>	Bricks, cakes, slabs	10–20% THC
<b>Hashish oil</b>	Product of extraction by organic solvents	15–30% THC (sometimes up to 65%)

**Table 2 - Preparations of cannabis**

**Table 3 - Total consumption of Cannabis in India**

1912-13	1934-35	1950	1954
1,993,592 lb (906,178 kg)	1,031,496 lb (468,862 kg)	983,565 lb (447,075 kg)	924,051 lb (420,007 kg)