Acute Megacolon (Ogilvie’s Syndrome) in Acute Cannabis Intoxication in a Ten-Month Old Infant

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Abstract

Aim of work: Cannabis is the most frequently abused illicit substance in Egypt. An increase in the number of cases of pediatric accidental cannabis poisoning has been documented. We described a case of accidental cannabis poisoning with acute mega colon in a ten month old infant in Zagazig University hospitals.

Findings: Clinical presentation included reduced level of consciousness, vomiting, severe abdominal distention, hypotonia, and shock. Abdominal scan showed severe colonic dilatation without mechanical obstruction. Tetrahydrocannabinol (THC) was detected by urine screening for cannabinoids and confirmed by HPLC. The patient was admitted to PICU and treated with supportive care. The patient recovered uneventfully and was discharged after 24 hours of admission. This case represents the first case of megacolon in accidental cannabis poisoning in previously healthy infant.

Keywords

Accidental poisoning; Acute megacolon; Cannabis; Infant

Introduction

Toxic megacolon is a life-threatening condition that can develop in any patient with a severe colitis regardless of etiology [1]. The causes of acute megacolon in infants are multiple; including inflammatory bowel disease, ischaemic colitis and infectious colitis [2]. Although many drugs and toxins are mentioned in standard texts as a cause [3], we have not been able to find any documented report linking cannabis poisoning with acute mega colon. We describe a previously healthy infant with acute cannabis poisoning who presented with reversible acute megacolon.

Case Presentation

Male boy aged 10 months presented to the emergency department of Zagazig University hospitals with a history of unintentional ingestion of unknown amount of cannabis (hashish) one hour ago as stated by his mother. The mother stated that her child began to suffer from progressive vomiting and decreased level of consciousness. On examination, he was drowsy, inadequate response to stimuli, agitated, hypotonic and had a soft, distended abdomen with diminished intestinal sounds. His vital signs showed: fever (temperature 38°C), tachycardia (heart rate; 168 beats/minute), slightly hypotensive (Blood pressure; 60/41 mmHg). Abdominal X-ray showed dilatation of the transverse and descending colon. A toxic megacolon (Ogilvie’s Syndrome) was diagnosed.

Complete blood count, biochemistry and acid-base status was performed on admission. Results were accepted except for the finding of metabolic acidosis (pH 7.3 and HCO3; 16 mmol/L) with slight hypokalemia (K 3.46 mmol/l). Abdominal scanning showed severe colonic dilatation without mechanical obstruction (Figure 1), enema was not ordered for fear of paralytic ileus as abdominal auscultation revealed minimal abdominal sounds.

Consistent support measures were established in securing the airway, oxygen and fluid therapy, administration of activated charcoal and insertion of nasogastric tube. Once supportive and symptomatic treatments necessary for stabilization of the patient done, urine screening was investigated qualitatively using radioimmunoassay and then confirmed by high performance liquid chromatography. 20 ml urine specimen was screened for cannabis, tramadol, morphone, cocaine, amphetamine, barbiturates, and benzodiazepines using multi-drugs one step test and for tramadol one step test (Dia Spot TRA) for qualitative detection of drugs or their metabolites, (Acon Laboratories Inc., and AbonBiopharm Hangzhou Co., Ltd. Drug Screen Test). Using high performance liquid chromatography, the level of tetrahydrocannabinol (THC) was greater than 50 ng / dl. HPLC 1100 (A Hewlett-Packard, Waldbronn, Germany) equipped with UV detector was used. Data acquisition and elaboration were processed by means of LC-Chemstation software.

The prognosis of the case was satisfactory, with resolution of symptoms and free abdominal scan (Figure 2) in less than 12 hrs, with discharge of the case after 24 hours of admission.

Discussion

Cannabis poisoning in infants is an uncommon form of acute poisoning [4], however, in Egypt recently a progressively higher prevalence of cannabis poisoning has been observed [5].

The major psychoactive component in cannabis sativa is Δ9-tetrahydrocannabinol (THC), its concentration is variable according the abused form; marijuana (3-5%), hashish (5-20%) or hash oil (16-43%). The most common route of intake is inhalation [6]. In children, cannabis poisoning is usually due to accidental ingestion of cannabis resin, marijuana cigarettes or pills. The effects in this way are slower, durable and variable [7].

Clinical presentation of cannabis poisoning is mostly neurological and range from lethargy to deep coma. Other common non neurological presentations include nausea, vomiting, thirst, pallor and conjunctival hyperemia. The most common cardiovascular effect is tachycardia, although higher doses may induce bradycardia [8].

Acute toxic megacolon (Ogilvie’s Syndrome) is diagnosed by presence of signs of developing toxic intestinal dilatation; pain, nausea, vomiting, tachycardia, fever, abdominal distension and tenderness. Plain abdominal X-rays demonstrate varying degrees of colonic dilatation with the right colon and cecum being most markedly distended. The clinical examination revealed tympanic...
abdomen with hypoactive intestinal sounds. The differential diagnosis should include Hirschsprung’s disease, fecal impaction, cecal or sigmoid volvulus, as well as other toxic ingestions e.g. leads, gold, methotrexate, etc [9].

In our case, the diagnosis was made through history, abdominal scanning that revealed severe colonic dilatation without obstruction, followed by toxins screen in urine by RIA. The confirmation is performed by HPLC, whose detection threshold is 15 ng/dl. Up to our best knowledge, this is the first reported case of cannabis induced toxic megacolon in an infant.

The treatment was mainly supportive measures including fluid maintenance and administration of activated charcoal which was done once after assurance of presence of intestinal sounds. Treatment also included conservative pharmacological treatment; ranitidine hydrochloride in a dose of 1.5 mg/kg IV (Zantac® vial, GlaxoSmithKline), neostigmine 0.5 mg intramuscularly (Amostigmine® ampoule, Amoun pharmaceutical co., Egypt), IV diazepam was administered to control agitation and irritability in a dose of 0.2 mg slow IV (Neuril® ampoule, Memphis, Pham. & chemical Ind. Co., Egypt).

Earlier study of Layman and Milton [10] reported that THC reduced the twitch response of the transmurally stimulated ileum of the guinea-pig, the response of the tissue to histamine was also reduced. THC reduced the output of acetylcholine, a 15 % reduction in acetylcholine output was produced by a concentration of THC at 1.75 × 10^{-6} M, and a 35% reduction by THC at 159 × 10^{-5} M. These findings were further explained by the discovery of the two G-protein-coupled cannabinoid (CB) receptors in the gut. Notably, CB1 receptor activation leads to the inhibition of acetylcholine release through prejunctional receptors located on myenteric cholinergic neurones, which ultimately results in the inhibition of contractility in vitro or an attenuation of motility in vivo [11-14].

The vast majority of cannabis poisoning in children discharged with disappearance of symptoms within hours after the establishment of supportive measures. However, there are cases that have been presented in the form of seizures, respiratory obstruction or coma, which have required intensive care unit admission [15].

The remarkable feature of the present case, however, is the surprising degree of colonic dilatation upon presentation and the remarkable return to normal, following symptomatic and supportive treatment. The high amount of cannabis in our community facilitates access to pediatric patients to this drug, which explains the increasing number of cases of accidental poisoning by this substance. Acute dilatation of the colon may not be uncommon in patients with cannabis poisoning but should be considered in those with abdominal distention.

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Compliance with Ethical Standards

This work was approved by the institutional review board-, faculty of Medicine, Zagazig University.

Conflict of Interest

The authors declare that they have no conflicts of interest.

References


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