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## Mushroom Poisoning: A Case Report from Jordan

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**Abstract:** An eight years male child with his family ate fresh mushroom at lunch time from back garden at their home in a village in the North of Jordan. By the evening approximately six hours later all started feeling nausea, abdominal cramps and vomiting they rushed to nearest primary health care center. After getting general medical medication they were transfer to a referral hospital at city of Irbid. The boy got deteriorated with diarrhea in addition to the previous gastrointestinal complains and died on third day. The message from this case is to ascertain in the public opinion that unknown type of mushroom even eaten previously could be poisonous and fetal.

**Key words:** Mushroom poisoning, children fatal, Jordan

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### INTRODUCTION

Euripides was the first to report on mushroom poisoning in 430 B.C. when he told the story of the death of his wife and his three children after eating mushroom cited by \ (2007).

The number of mushroom species on earth is estimated to be 140000 and only 14000 of them are known of which approximately 50-100 are known to be poisonous to humans whereas, only 200-300 varieties have been clearly established to be safely edible. Other authors report mushrooms are ubiquitous, they can be found in the yards, wood, along the roadside and mostly are displayed on our grocery store shelves (Berger and Guss, 2005a; Adenipekun and Gbolagade, 2006; Salhab, 2007; Eren *et al.*, 2010; Buah *et al.*, 2010; Shin *et al.*, 2007).

There is almost a universal agreement that it is difficult to discriminate with certainty between poisonous and non poisonous mushroom (Berger and Guss, 2005a; Ambali *et al.*, 2008; Jan *et al.*, 2008; Huang *et al.*, 2009; Ramkumar *et al.*, 2010; Eren *et al.*, 2010).

There is a variation in the reported cases of mushroom poisoning worldwide. In 2002 the American

Association of poison control centers reported 8722 cases (Berger and Guss, 2005a), it is rare in some parts of England (Riordan *et al.*, 2002). In Nepal medically unpublished small epidemics of mushroom poisoning take a heavy death annually (Das *et al.*, 2007). In Poland is common and is associated with traditional wild mushroom picking and cooking (Satora *et al.*, 2006). In Jordan it is not considered a serious problem due the limited forest areas and scarce rain seasons (Salhab, 2007). In Turkey it is considered as one of the main portion of plant toxicities which represented 10.9% of poisoning cases (Eren *et al.*, 2010). Reports of severe and fatal mushroom poisoning have increased worldwide especially in china and far east (Huang *et al.*, 2009). Almost all toxic mushroom fall into one of eight categories with some overlap. They are: cyclopeptide, orellanine, monomethylhydrazine, disulfiram-like, hallucinogenic indoles, muscarinic, isoxazole and gastrointestinal (GI)-specific irritants (Berger and Guss, 2005a).

Mushroom poisoning occurs mainly among four main groups of persons: young children who ingest mushrooms inadvertently, wild mushroom foragers, individuals attempting suicide or homicides and those looking for hallucinatory high (Eren *et al.*, 2010).

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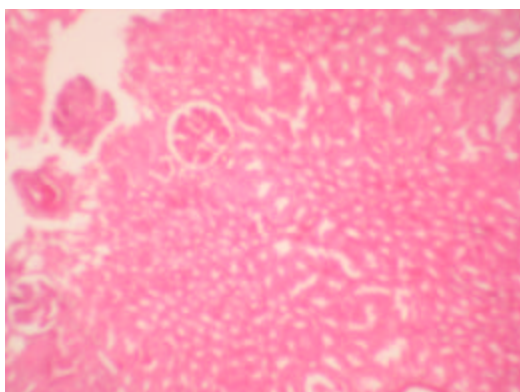


Fig. 1: Kidney shows normal glomeruli and tubules

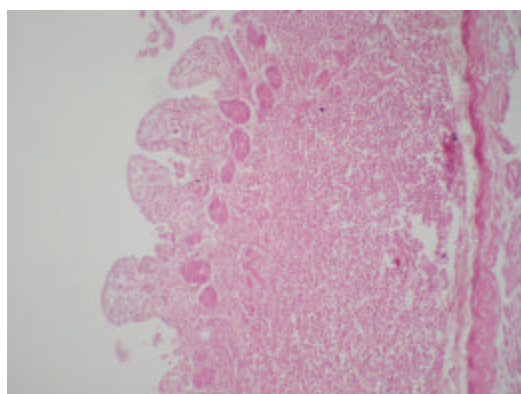


Fig. 2: Small intestine showing mid mucosal acute inflammation with hyperplasia of the lymphoid tissue

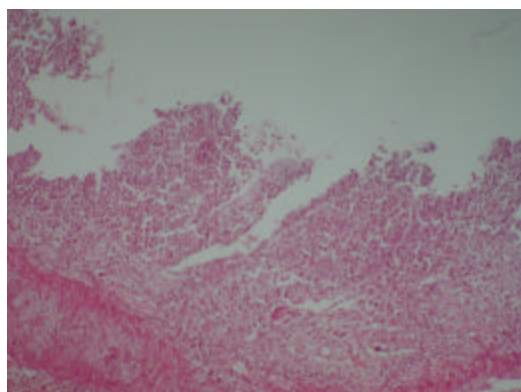


Fig. 3: Small intestine showing extensive mucosal acute inflammation with superficial mucosal ulceration

Mushroom poisoning is a medical emergency with spectrum of clinical manifestation that range from mild GI

features to sever organ failure even death (Eren *et al.*, 2010). The prognosis in children is less favourable than in adults (McPartland *et al.*, 1997; Das *et al.*, 2007; Berger and Guss, 2005b; Cakir *et al.*, 2007; Mrvos *et al.*, 2007; Sultana and Qureshi, 2007; Jan *et al.*, 2008; Eren *et al.*, 2010).

**Case report:** An eight year male child with two sisters one is ten years and the oldest fourteen years old along with their parents they all were rushed to the nearest primary health care center in a village in north of Jordan. On December last year they all complained of gastrointestinal symptoms mainly abdominal pain, vomiting and diarrhea after four hours of ingestion a backyard mushroom which usually grow during the winter seasons and the family have eaten many times from it uncooked and cooked and experience no complain in the past years. The general physician after getting the necessary information referred them to the nearest hospital where they got admitted and treated. The next day, both parents and their two daughters were discharged while the condition of the boy despite fluid replacement and management didn't improve and died on the third day.

The postmortem examination showed bloody froth in the trachea and its branches. Esophagus, stomach and part of the small intestine showed superficial mucosal hemorrhagic erosions. There was no renal pathology (Fig. 1). The rest of the organs were congested. The histopathologic microscopic examinations of the tissues taken showed variable degree of acute inflammation along with superficial ulceration of the esophagus, stomach, small intestine and part of the large intestine (Fig. 2, 3). The forensic science laboratories tests on the body fluids were negative for substance or chemicals including the sample taken from water and food in the house. There was no history of such death in the area.

## DISCUSSION

We believe to the best of our knowledge it is the first reported fatal case due to mushroom poisoning of a child in North of Jordan concerning mushroom poisoning. There are points which are consistent and agreed upon in the literature (McPartland *et al.*, 1997; Nordt *et al.*, 2000; Das *et al.*, 2007; Chodorowski *et al.*, 2002; Berger and Guss, 2005b; Satora *et al.*, 2006; Cakir *et al.*, 2007; Erguven *et al.*, 2007; Mrvos *et al.*, 2007; Cakir *et al.*, 2009; Huang *et al.*, 2009).

First: Toxicity occurs mostly in children, Second: The most clinical presentation is that which causes gastrointestinal complains and pathological changes (Raff *et al.*, 1992; McPartland *et al.*, 1997;

Nordt *et al.*, 2000; Das *et al.*, 2007; Riordan *et al.*, 2002; Muller, 2003; Berger and Guss, 2005b; Cakir *et al.*, 2007; Mrvos *et al.*, 2007; Jan *et al.*, 2008; Hori *et al.*, 2008; Eren *et al.*, 2010; Huang *et al.*, 2009).

Third: Almost all reported cases of different types of mushroom poisoning occur during the cold and rainy seasons of autumn and winter and some of spring and rare in summer (Das *et al.*, 2007; Berger and Guss, 2005b; Satora *et al.*, 2006; Adenipekun and Gbolagade, 2006; Cakir *et al.*, 2007; Erguven *et al.*, 2007; Salhab, 2007; Huang *et al.*, 2009; Eren *et al.*, 2010).

Fourth: The difficulty in reaching true identification and differentiation between poisonous and non poisonous mushroom with definitive diagnosis besides the commercial mushroom is almost an established reality. The main reasons responsible for this point were due to numerous species without uniform clinical picture and the involvement although, rare of the brain, renal failure, vascular and hepatic failure, lack of laboratory techniques and personal capable of diagnosing the suspected cases and the non feasibility of providing skilled technical staff with very expensive equipments in most health care facilities (Nordt *et al.*, 2000; Das *et al.*, 2007; Chodorowski *et al.*, 2002; Berger and Guss, 2005a, b; Kurokawa *et al.*, 2005; Satora *et al.*, 2006; Jan *et al.*, 2008; McClintock *et al.*, 2008; Eren *et al.*, 2010; Huang *et al.*, 2009).

Therefore, the emphasis of most reports was on: (1) obtaining proper history, (2) taking samples of the ingested mushroom and (3) early hospitalization with rapid management especially gastric decontamination.

It is also of almost similar opinion among the mushroom experts that the clinical picture varies and this variation largely depends on age, individual susceptibility even with same person at different times, amount ingested type of mushroom, the purpose of ingestion, but the fortunate remark is that minority of mushroom species are toxic and also the unintentional childhood mushroom toxicity are usually mild and if proper awareness of its existence among physicians with early management the outcomes is usually full recovery.

Our reported case differs from other published reports in its uniqueness that the mushroom which the family ingested they were used to eat it fresh and cooked and never according to the history of the surviving ones got toxic with four family members got cured and the boy child deteriorated and died despite all the efforts of hospital staff. In one report (Das *et al.*, 2007) a family of five members consisting of 55-year old woman with two daughters aged 18 years and 23 years and one 20-years old son and 9-years old granddaughter collected wild

mushroom from the jungle and had soup presented with spectrum of gastrointestinal symptoms while the daughters developed jaundice and renal failure and both died after 48 and 72 h. The granddaughter and son died of fulminate hepatic and renal failure on the 2nd and 5th day of hospitalization while the 55-year old mother survived although they all had mushroom soup at the same time.

In order to reduce the morbidity and mortality with the lack of expensive equipment and specific antidote should aim primary prevention and share information with local regional and international poison centers. Also, create public awareness that mushroom ingestion may be fatal with banning picking and ingestion wild mushrooms and one advise to the public is to know that previously edible mushroom may be come toxic at future times “people can enjoy hunting for mushroom but should not eat such a strange mushroom even if it looks beautiful and tasty (Huang *et al.*, 2009).

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