

# OUTBREAK OF MUSHROOM POISONING AMONG MALAYSIAN SOLDIERS IN PERAK, MARCH 1980

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## SUMMARY

*Two outbreaks of mushrooms poisoning involving 3 and 9 soldiers respectively with one death on 9 March 1980 in Perak are described. The symptoms were compatible with muscarine [a neurotoxin] poisoning which was detected in the stomach contents of the dead soldier and the mushrooms consumed by one group.*

## INTRODUCTION

Mushroom poisoning in Malaysia has not been reported in the medical literature. In the United States, only one outbreak affecting one individual in 1976, 5 outbreaks involving 14 persons in 1977 (Center for Disease Control, August 1979) and one outbreak in a home involving 7 persons with no deaths in 1978 were reported (Center for Disease Control, November 1979). This report describes two separate outbreaks on 9 March 1980 among soldiers of a Ranger battalion in Perak.

## BACKGROUND

The outbreaks occurred among soldiers of a muliracial Ranger battalion based in Ipoh. The soldiers were deployed in jungle areas of Tanah Hitam, Chemor area, Perak on operational duties. 'B' Company (Coy) of 28 men was located in Area A and 'D' Company of 20 soldiers in Area B, one mile apart. From these forward bases, small groups of 6 to 8 soldiers go for patrol in the mornings and return by night fall. Food is in the form of dry rations, which the soldiers cook themselves and eat. Fresh rations are a welcome relief. Mushrooms grow wild in

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these jungle areas and since it is a delicacy the soldiers picked them and cooked it with their meals.

## MATERIALS AND METHODS

Two separate outbreaks affecting 3 soldiers from 'B' Coy and 9 from 'D' Coy respectively were involved. Both the groups operated independently and on the day of the incident had no contact with each other. The soldiers collected the mushrooms separately and later cooked and ate with rice. The 3 soldiers (all Malays) from 'B' Coy cooked individually with cabbage and/or ikan bilis and ate for lunch. The 9 soldiers from 'D' Coy divided themselves into two groups of 5 and 4 and cooked the mushrooms and ate for dinner. The group of 5 (3 Ibans and 2 Malays), boiled the mushrooms with ikan bilis, onions and "ikan kuah tomato" (fish curry). The other group of 4 (3 Ibans and 1 Indian) cooked the mushrooms with some meat.

## RESULTS

All the 12 - 100% attack rate - who consumed the mushrooms, however cooked, came down with symptoms of sweating, followed by vomiting and abdominal pain with loose watery stools. In addition, 8 (all 3 from 'B' Coy and 5 from 'D' Coy) of the 12 had dimness of vision. None of the cases had delirium or hallucinations and the mental faculties were unaffected. The incubation period ranged from 10 minutes to 2 hours, with a mean of 55 minutes. The incubation period and symptoms are compatible with mushroom poisoning.

One of the 9 from 'D' Coy died (mortality rate of 8.3%) the following day (10 March 1980) due to the effects of the toxin while in the operational area, 15 hours after consuming the mushrooms. The certified cause of death was mushroom

poisoning. All were flown out to Ipoh the following day and treated at General Hospital, Ipoh, with atropine sulphate intramuscularly, which is a specific antidote for muscarine intoxication (Becker *et al.*, 1976) and other supportive therapy, where indicated. 9 were hospitalized for a day except two for 2 and 5 days respectively. The soldier who spent 5 days developed renal complications which cleared up completely within the week. None others had any complications.

The ages of the soldiers ranged from 18 to 31 years with a mean of 23.5 years. All were healthy adult males and have served with the army from 6 to 13 years.

Chemical analysis of the mushrooms eaten by 'B' Coy and the stomach contents of dead soldier by the Ipoh Chemistry Department detected muscarine, a neurotoxin but could not be confirmed due to non-availability of standard reagents. (Personal communication). The clinical features are in favour of muscarine poisoning.

## DISCUSSION

Mushrooms are fungi and there are about 2,000 species of them. Most species are edible while fewer than 50 are poisonous. (Buck, 1961). To differentiate one from the other, there is no reliable method known. Rules of thumb such as the inability to tarnish a silver spoon during cooking, the peelability of the surface layer of the pileus and/or the failure to turn colour when broken are inaccurate. (Chang, 1970). It is, therefore, advisable never to eat or taste any mushrooms found growing anywhere. In this group of 12, all gave a history of eating similar type of mushrooms in the past without any ill-effects. However, they were wrong as the ones they had picked proved to be a poisonous variety.

The severity and the time of onset of symptoms varied widely and this is most likely to be due to the amount ingested. Severity of symptoms is said to depend on the season, the state of the mushrooms when picked and eaten and the location where they are picked besides the quantity consumed. (Buck, 1964). Cooking has

no effect on the toxins (Becker *et al.*, 1976), of which there are several and cause four different types of effects - cell destruction (e.g. amanita toxins), neurological effects (e.g. ibotenic acid, psilocin), enteritis type (unknown presently) and alcohol intolerance (e.g. disulphiram - like constituent) (Bryan, 1976).

Attempts to identify the mushroom failed. Morphological identification is difficult as it is often disturbed by handling. Retrospective collection is also unreliable as poisonous ones are known to grow side by side with non-poisonous ones with similar appearance. (Becker *et al.*, 1976). As the aetiological agent is muscarine, the plant involved may be *Amanita muscaria* or other related species (Bryan, 1976).

In these outbreaks, one occurred in the afternoon and the other in the late evening. Early communication with the Coy Headquarters or between the two bases could have possibly prevented the evening episode, and the single death. The poisoning also inconvenienced the operation as well as incurred heavy costs for flying and unnecessary hospitalization. Military personnel have now been informed of the dangers of consuming mushrooms of doubtful origin, hopefully to prevent similar episodes in the future.

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