Outbreak Investigation on Mushroom Poisoning in Manang District, Nepal, 2022

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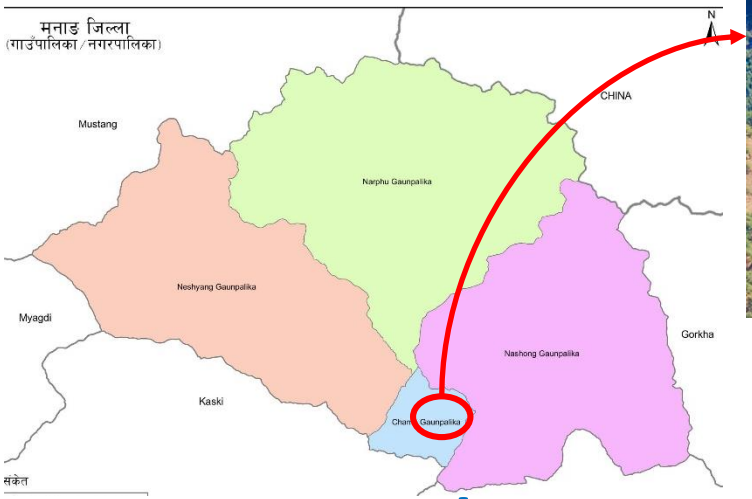
Mushroom poisoning in Nepal

- **Wild mushrooms species: 159 edible, 74 medicinal, 100 poisonous**
- **Incidents of accidental consumption of wild poisonous mushrooms: Very common**
- **Range of Symptoms: Gastrointestinal upset to serious organ damage to death**
- **In mountainous region – extensive use of wild mushrooms due to low level of awareness**

Manang district

- Mountainous remote district
- 250 km northwest of Kathmandu
- Health service - 26 service sites



Chame rural municipality

- Altitude – 2700 m
- Mushrooms found on soil, woods in coniferous forest

Notification of mushroom poisoning in Manang, 2022

- **On the evening of 15th August 2022, few people consumed mushroom curry in the evening**
- **In that night, some presented with symptoms like dizziness, headache, and vomiting in Manang District Hospital.**

Objectives

- To verify the outbreak due to mushroom poisoning in Manang district
- To characterize the extent of the poisoning by time, place, person
- To find out the type of mushroom that caused poisoning

Investigation design

Design

Retrospective cohort study

Population

People who consumed mushroom on the evening of 15th August 2022

Fieldwork - 17th January to 23rd January 2023

Operational definition of mushroom poisoning cases

- **Suspected Case**

  People who consumed mushrooms on the evening 15th August 2022 and had history of vomiting, diarrhea, and abdominal pain in Chame rural municipality, Manang

Investigation team

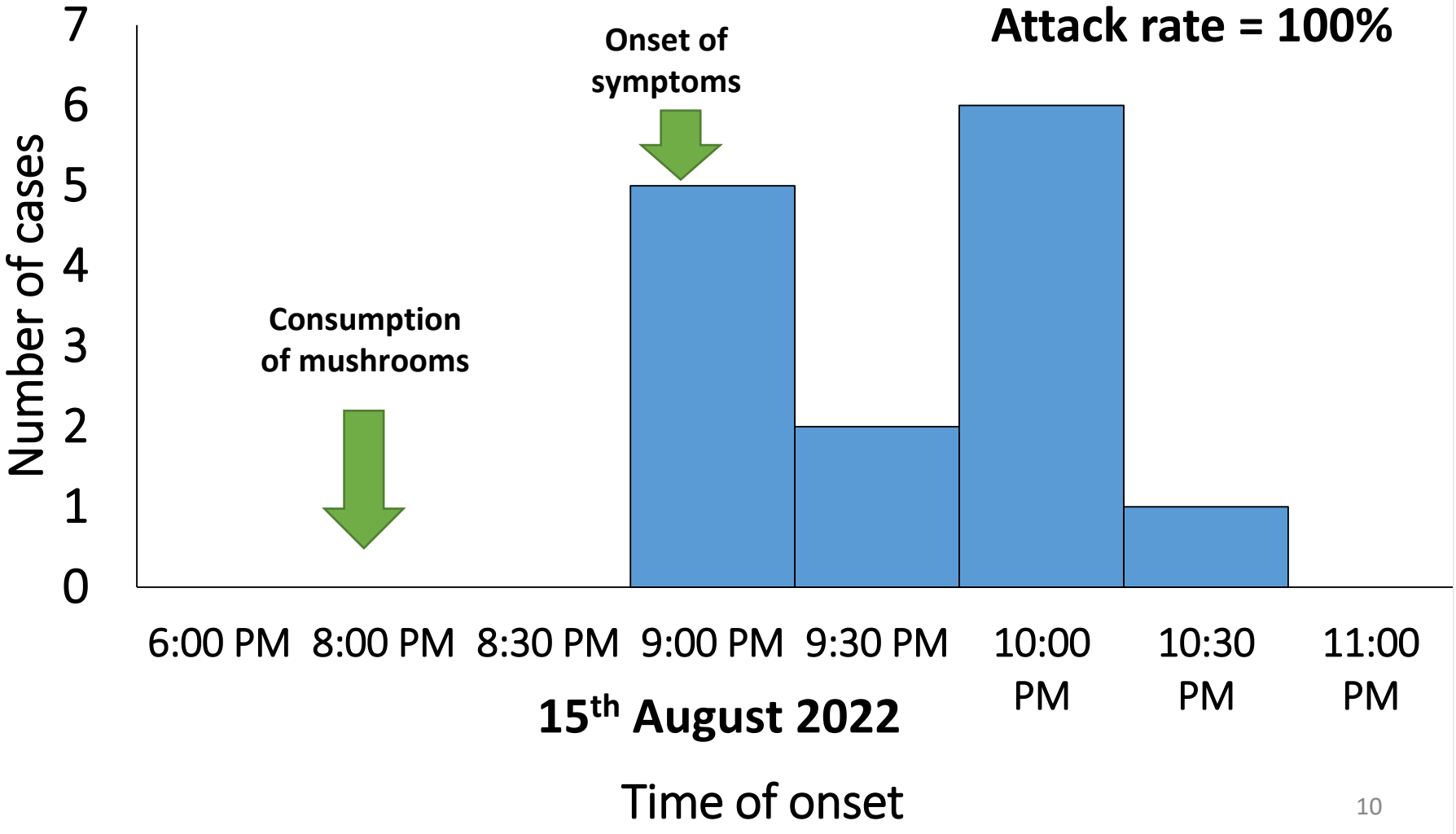
- **Physician**
- **Senior Public Health Officer**
- **Laboratory persons**
- **District Forest Officer**
- **Community people**

Data collection and analysis

- **Technique**
  - **Face to face interviews**
  - **Hospital record reviews**
  - **Field investigation with expert from district forest office, Manang**

- **Tools**
  - **Questionnaire**
  - **Semi structured questionnaires**

Distribution of patients by time of onset (Epicurve) , Manang, 2022 (N=14)



Age wise distribution of mushroom poisoning cases, Manang, 2022 (N=14)

Age group (years)	Number (%)
< 20	1 (7)
20-39	11 (77)
>40	2 (14)

Gender wise distribution of mushroom poisoning cases, Manang, 2022 (N=14)

Gender	Number (%)
Female	3 (21)
Male	11 (79)

Symptoms of the cases of mushroom poisoning in Manang, 2022 (N=14)

*Signs/ Symptoms	Number of cases	Percentage
Vomiting	13	93
Loose stool	13	93
Myalgia	10	71
Abdominal pain	10	71
Dizziness/ Vertigo	9	64
Headache	9	64
Others**	6	43

* - multiple response

** - fever, salivation, blurred vision, palpitation, lacrimation, sweating, dehydration, muscle cramp

Outcomes of the cases of mushroom poisoning in Manang, 2022 (N=14)

Hospitalization	**100 %**
Case fatality	**0 %**
Length of hospital stay	**1-2 days**
Treatment received	**100%**
Severity	**0 %**

Type of mushrooms eaten by the intoxicated cases of poisoning in Manang, 2022

Type of mushrooms eaten by the intoxicated cases of poisoning in Manang, 2022

Galerina marginata

Mode of consumption of mushroom

- **Cooked for 15 minutes**
- **Most of them (78%) consumed 1 bowl mushroom curry, the rest consumed 2 bowls**

Knowledge about poisonous mushrooms

- **All the migrant workers did not know about the availability and effects of poisonous mushroom**

Limitations

- **Clinical data was collected from available medical records only**
- **Recall bias**
- **Couldn’t test the samples for toxin**

Conclusion

- **Misidentification of inedible mushroom led to the poisoning event**
- **Acute food poisoning due to consumption of poisonous mushroom**
- **The toxic mushroom was *Galerina marginata***

Recommendations

- **Awareness on mushroom and its toxic symptoms identification to local people and migrants**
- **Mushroom identification and use should be documented and published with pictures and description (Atlas)**

Public health actions

नेपालमा पाइने अति विषालु च्याउहरू

वैज्ञानिक नाम: *Amanita virosa* Bertill.
वानस्पतिक परिवार: Amanitaceae
भौगोलिक क्षेत्र: मध्य पहाड
बासस्थान: उतिस, कटुस, चिलाउनेको वन

वैज्ञानिक नाम: *Amanita verna* Bull. ex Lam.
वानस्पतिक परिवार: Amanitaceae
भौगोलिक क्षेत्र: मध्य, उच्च पहाड
बासस्थान: गुरांस, कटुस, चिलाउने, खसु, सल्लोको वन

वैज्ञानिक नाम: *Amanita concentrica* T. Oda, C. Tanaka & Tsuda
वानस्पतिक परिवार: Amanitaceae
भौगोलिक क्षेत्र: मध्य, उच्च पहाड
बासस्थान: कटुस, चिलाउने, खसुको वन

वैज्ञानिक नाम: *Galerina marginata* (Batsch) Kühner
वानस्पतिक परिवार: Hymenogastraceae
भौगोलिक क्षेत्र: तराई, उच्च पहाड
बासस्थान: साल, सिसौ, गुरांस, कटुस, चिलाउने, खसु, सल्लोको वन

वैज्ञानिक नाम: *Amanita longistriata* S. Imai
वानस्पतिक परिवार: Amanitaceae
भौगोलिक क्षेत्र: मध्य पहाड
बासस्थान: कटुस, चिलाउने, खसु, सल्लोको वन

वैज्ञानिक नाम: *Mycena pura* (Pers.) P. Kumm.
वानस्पतिक परिवार: Mycenaceae
भौगोलिक क्षेत्र: उच्च पहाड
बासस्थान: गुरांस, कटुस, खसु, सल्लोको वन

वैज्ञानिक नाम: *Amanita phalloides* (Vaill. ex Fr.) Link
वानस्पतिक परिवार: Amanitaceae
भौगोलिक क्षेत्र: मध्य, उच्च पहाड
बासस्थान: कटुस, चिलाउने, खसु, सल्लोको वन

वैज्ञानिक नाम: *Paxillus involutus* (Batsch) Fr.
वानस्पतिक परिवार: Paxillaceae
भौगोलिक क्षेत्र: मध्य, उच्च पहाड
बासस्थान: गुरांस, कटुस, चिलाउने, खसु, सल्लोको वन

वैज्ञानिक नाम: *Amanita subglobosa* Zhu L. Yang
वानस्पतिक परिवार: Amanitaceae
भौगोलिक क्षेत्र: तराई, उच्च पहाड
बासस्थान: साल, सिसौ, गुरांस, कटुस, चिलाउने, खसु, सल्लोको वन

च्याउ चिनेर मात्र खाऔं, अमूल्य जीवन जोगाऔं

नेपालमा करिब १३०० प्रजातिका जंगली च्याउहरू पाइन्छन् । जसमा १०० वटा विषालु छन् । अधिकांश विषालु च्याउहरू हेर्दा अति आकर्षक रङ र बनोटका कारण टिपेर खाउँ खाउँ लाग्ने खालका हुन्छन् । प्रायजसो विषालु च्याउको छातामा काँढा वा गिर्खा, ढोडमा औंठी र फेदमा कचौरा वा थैलो जस्तो भाग हुन्छ । विशेषतः वर्षायाम शुरु भएपछि विषालु च्याउ खाएका कारण नेपालमा वर्षेनी औसत २०–२५ जनाको मृत्यु हुने गरेको र सयौंको संख्यामा गम्भीर बिरामी हुने गरेको पाइन्छ ।

विषालु च्याउ खाएमा देखिने लक्षणहरू

च्याउको प्रजाति अनुसार लक्षणहरू पनि फरक फरक हुन्छन् । मुख्यतः निम्न असरहरू देखिन सक्छन्:

- थकान, वान्ता आउला आउला जस्तो हुनु, वान्ता हुनु, पेट दुख्नु,
- आँखा तिर्मिर हुनु, होस गुमाउनु र नसा सेवन गरे जस्तो हुनु,
- हातखुट्टा बाउडिनु, ज्याल चुहाउनु, कालो पिसाब गर्नु, पिसाब थोरै मात्र गर्नु,
- मुटुको चाल असामान्य हुनु, रक्तचाप कम हुनु ।

रोकथाम तथा उपचार विधि

- प्रष्ट पहिचान नगरी जंगली च्याउहरू संकलन, मिसावट र खाने काम नगरौं ।
- खान हुने च्याउ पनि एकै पटक धेरै मात्रामा नखाऔं ।
- विषालु च्याउलाई सुकाएर, अमिलो हालेर वा अन्य घरेलु विधिबाट च्याउमा भएको विषलाई कम गर्न सकिँदैन । तसर्थ, विषालु च्याउ खाएको शंका वा लक्षण देखिने बित्तिकै नजिकैको स्वास्थ्य केन्द्रमा जाऔं ।

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