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## Buffalopox: A professional hazard

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### Abstract

Buffalo pox is a rare disorder associated with significant morbidity and mortality. There are only few published case reports. With the presence of few sporadic cases among milkers even today, the case presentation of buffalo pox infections since 2013-2014 is highly pertinent. A case series of individuals presenting with buffalo pox like lesions at different parts of the body with or without added symptoms of body ache, fever, myalgia, lymphadenopathy is presented. Here interesting is dermatologist {author} contracted the infection from patient. Due to the limitation of accessibility to differential diagnosis labs in rural India and due to the rare incidence of the disease, early recognition of signs and symptoms can prevent the spread of the disease. Sharing of specific experience of medical practitioner and timely interventions are crucial in preventing the spread of harmful zoonosis.

**Keywords:** Buffalo pox lesions, signs and symptoms, rural India

### Introduction

Buffalo pox is a rare disorder with significant morbidity and less mortality. There are only few published reports of cases available. Based on our search for key word “buffalo pox” in PubMed, there are four case presentations<sup>[1-4]</sup> and few articles on outbreak of buffalopox<sup>[5-6]</sup>. From 2013-2014 we witnessed an increase in the number of cases of buffalo pox virus in a rural community among milkers. Milkers developed pox-like lesions on the skin of their fingers, hands, forearms, forehead, ears and face, along with pyrexia, malaise and axillary lymphadenitis and lymphadenopathy<sup>[6]</sup>. There are few sporadic cases even today. In this case series, we share our suspected experience of infection from human to human which is not reported till today. The study emphasizes on the proper preventive measures among milkers as well as physicians.

All patients were evaluated clinically, all of them were having history of contact with infected buffalo. One of the patients was investigated for histology and the findings were suggestive of buffalo pox viral infection.

### Case History

#### Clinical presentation and symptoms

Since the period we came across many patients of buffalopox. Here we are sharing nine cases as representative amongst them. Patients presented with lesions over skin. On examination papulovesicular rash was present mainly over fingers and hands. Few were having central crust mimicking pox. They were tender on palpation. All nine patients were having fever and body aches. Half of them presented with regional lymphadenopathy in addition. All patients were having history of contact with infected buffaloes. Only one patient was infected from sibling in family. The clinical information of patients who presented with specific skin lesions are narrated below under each case id.

Human to human spread is not clearly known. Here in this the author himself suffered from single painful pustule over dorsum of left hand. (Figure 2) History of infection from sibling in one of the patient provoked to think of buffalopox.

#### Differential diagnosis

Patient presentation with fever and vesicular lesions on hands can give specific differentiating points as against Hand-foot-mouth disease, herpetic whitlow and Anthrax.

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**Table 1:** Patient characteristics and clinical presentations

Case id	Patient information	Clinical presentation	Specific comments/lesion characteristics
1	A 15-year-old boy	Lesions over nose and right wrist for 6 days Fever accompanied with body ache for a week	On examination vesiculopustular lesions were present on dorsum of hands. They were painful. Regional lymph nodes were large with minimal tenderness. Complete blood count was in normal limits.
2	30-year-old male	Yellowish tender peanut sized pustules over right hand and knee since a week. Right axillary lymphadenopathy was present. fever with myalgia with the appearance of rash.	
3	50-year-old male	Lesions over hands and few lesions on palm High degree fever with body ache	No lymphadenopathy on examination.
4	24-years-male, occupation- milker.	Multiple vesicular and pustular lesions over hands since a week. Few lesions were also present on right forearm. Few lesions were centrally crusted.	There were h/o similar eruptions in buffaloes. On histopathology reticular degeneration with eosinophilic intracytoplasmic inclusion bodies were found.
5	26-years male	Painful ulcer over lower lip. Vesicles on dorsum of hands.	No lymphadenopathy.
6	A 24 years' man	Small papules and fluid filled painful lesions on fingers and face vesiculopustular lesions on hands. They were painful Fever was present along with rash.	No lymphadenopathy.
7	A 20-year-old boy	Yellowish popular eruption on fingers and face. On examination pustular lesions were present on fingers, neck and mandibular lesions.	Regional lymphadenopathy.
8	40-year-old farmer	Swelling over rt forearm was the main complaint. Papulopustular rash over right forearm and dorsum of hand, Few lesions on left forearm.	Right axillary lymphadenopathy was present. His blood counts were normal, nondiabetic.
9	A 30-year-old male milker by occupation	Pustular lesions in web space and palm.	The lesions were tender, no lymphadenopathy. Routine blood investigations were normal.

Each figure panel represents the lesions observed among the corresponding nine cases reported.



**Fig 1:** Clinical images of patients

**Diagnosis**

Buffalopox can be diagnosed clinically based on history of contact with an infected animal or humans presenting with a typical distribution of pock like lesions. Confirmation is achieved through additional laboratory investigations involving electron microscopy of isolated virus particles, serological tests using specific antibodies directed against buffalo pox virus and PCR based approaches.

**Histopathological study (figure 3)**

- Vacuolated cells in the stratum Malpighi with multilocular vesicles.
- The rete ridges were elongated, and a scant mononuclear infiltrate was found around dilated blood vessels.
- Prominent reticular degeneration, eosinophilic intracytoplasmic inclusion bodies are present, a

valuable feature to distinguish from herpes infection.



**Fig 2:** A professional hazard to Dermatologist



**Fig 3:** A Representative histopathological confirmation of buffalo pox.

### Management

Buffalopox is a self-limiting disease with a due course of two to three weeks. It is incredibly important to maintain infected individuals and persons in isolation to stop the spread. Application of antiseptics to pox lesions helped curtail the spread of secondary infections. Treatment is symptomatic without any specific therapy. As a prevention strategy, it was recommended to practice improved dairy practices like wearing gloves while milking to prevent the further spread other animals and humans.

### Treatment outcomes

All patients were treated with Amoxicillin and clavulanic acid combination with ibuprofen and paracetamol combination. Treatment was continued for five to ten days depending upon the requirements based on lingering signs and symptoms.

### Summary

All cases were having typical lesions and history of contact with infected animals, but the author himself as a patient clues the professional hazard. Despite the non-availability of serological tests in labs, histopathological findings and existing references from veterinary journals could support the diagnosis<sup>[1]</sup>.

### Discussion

In the contemporary era, there is an alarming realization of the spread of emerging viral infections that poses great challenge to the health professionals. Buffalopox, a zoonotic viral infection is one among such threats that is associated with significant morbidity and mortality<sup>[2]</sup>.

Buffalo pox is a rare disorder that could pose a possible threat of spread among individuals coming in close contact with the infected animal and person. Since 2013 to 2014, at our center we witnessed an increase in the incidence of buffalo pox infections that was endemic to a small rural area in India. Despite being a rare disorder and working within the limitations of not having a differential diagnosis possible, doctor's experience in early recognition of signs and symptoms and directed treatment with antibiotics and analgesics helped combat further spread of the infections. Humans in close contact with buffaloes are susceptible to buffalopox; with the cessation of the smallpox vaccine in 1980, humans do not develop an antibody titer against the Poxviridae, and as a result have become even more susceptible to viruses like buffalopox<sup>8</sup>. We feel it is pertinent to share the knowledge and experience due to the

existing prevailing threat of such zoonotic viral infections to the human community.

Recognizing the need of the hour to share the valuable knowledge and experience, we would like to publish our clinical findings and management of buffalo pox case series. This article provides valuable information pertaining to the clinical diagnosis of buffalopox based on the presenting lesions and symptoms. We managed to provide a representative histopathological confirmation of the buffalo pox virus infection (case 1). Based on this experience, the rest of the cases were diagnosed and treated. This emphasizes the importance of clinical diagnosis when access to differential diagnosis is limited. The frequency and dose of the antibiotic regime along with analgesics had a significant outcome in all (100%) the patients. In a small proportion of patients there was a requirement to extend the dosage by few additional days. More importantly, there was no spread reported among their family members, neighbors or friends during the treatment period. Hence, early diagnosis, specific experience of medical practitioners and timely interventions are crucial in preventing the spread of harmful infections posing a threat to our community.

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