## Abstract

Contagious ecthyma is an acute, contagious and economically important viral disease of the skin of sheep, goat and a few other domesticated and wild ruminants around the globe. It is a nonsystematic skin disease having public health importance which causes economic loss due to deterioration of the skin of the animals. The present study was therefore aimed to estimate proportionate prevalence of contagious ecthyma in goat and investigate the distribution of contagious ecthyma according to different factors. The study also described the antibiotics used for the treatment of contagious ecthyma cases. About 217 goats admitted at SAQTVH with different diseases and disorders were included in this study. The proportionate prevalence of contagious ecthyma was 8.1%. The occurrence of contagious ecthyma was higher in December (10%) than January (9.3%) and February (5.2%). Younger goats were more commonly affected (47.06%) than older ones. Almost 53% of the male goats were positive. Jamunapari breed were mostly affected (41.17%). Although clinical signs indicate the orf disease, a laboratory based diagnosis is vital for confirmation and epidemiological investigations. The lesions of the disease often endanger the optimum productivity and reduce the market value of the meat, leather and wool besides this, disruption of the national and international trade of animal and animal products. Further, the zoonotic importance of the disease has added the importance of the disease to a replaceable dimension.

**Keywords:** Contagious ecthyma, orf, sore mouth, contagious pustular dermatitis, scabby mouth

## CHAPTER-I: INTRODUCTION

Contagious ecthyma is an infectious dermatitis of sheep and goats that affects primarily the lips of young animals (Tufani *et al*., 2009). The disease is usually more severe in goats than in sheep (Nandi *et al*., 2011). People are occasionally affected through direct contact.

The causal parapoxvirus is related to pseudocowpox (Pseudocowpox in Cattle) and bovine papular stomatitis (Papular Stomatitis in Large Animals). The virus is highly resistant to desiccation in the environment, having been recovered from dried crusts after 12 year. In the laboratory, it is also resistant to glycerol and to ether (Brett *et al*., 2015). Contagious ecthyma is found worldwide and is common in young lambs reared artificially and in older lambs during late summer, fall, and winter on pasture, and during winter in feedlots.

The primary lesion develops at the mucocutaneous junction of the lips and around erupting incisor teeth and may extend to the mucosa of the buccal cavity. Occasionally, lesions are found on the feet and around the coronet, where secondary bacterial infection with *Dermatophilus congolensis* commonly causes "strawberry foot-rot" (Boughton *et al*., 1934). Ewes nursing infected lambs may develop lesions on the teats extending onto the udder skin. The lesions develop as papules and progress through vesicular and pustular stages before encrusting. Coalescence of numerous discrete lesions often leads to the formation of large scabs, and the proliferation of dermal tissue produces a verrucose mass under them. When the lesion extends to the oral mucosa, secondary necrobacillosis frequently develops.

During the course of the disease (1–4 week), the scabs drop off and the tissues heal without scarring. During active stages of infection, more severely affected lambs do not eat normally and lose condition. Extensive lesions on the feet cause lameness. Mastitis, sometimes gangrenous, may occur in ewes with lesions on the teats.

The disease must be differentiated from ulcerative dermatosis, which produces tissue destruction and crateriform ulcer (Thurman *et al*., 2015). Ecthyma usually affects younger animals than does ulcerative dermatosis, although this criterion can only be used presumptively. Foot-and-mouth disease and bluetongue infection should be considered if morbidity is high and clinical signs include salivation, lameness, and fever. Staphyloccocal folliculitis affects the skin of the muzzle and surrounding the eyes. Direct demonstration of virus in scab material by electron microscopy has now been replaced by PCR as the diagnostic method of choice for ecthyma (Kottaridi *et al.*, 2006). Historically, positive differentiation could be obtained by inoculating susceptible and ecthyma-immunized sheep.

So, the objectives of the study was-

1) To estimate the proportionate prevalence of contagious ecthyma
2) To investigate the distribution of contagious ecthyma according to age, sex, breed, housing system of goat
3) To describe the antibiotics used against contagious ecthyma

# CHAPTER-II: MATERIALS AND METHODS

## Study area

The study was conducted at S. A. Quaderi Teaching Veterinary Hospital, CVASU from December to February, 2021.

## Preparation of questionnaire

Questionnaire was prepared including the different variables like age, sex, breed, housing system, vaccination history etc. The type of the questionnaire was open-ended.

## Data collection

The data was collected from "Clinical case investigation record sheet" and "Computer & network surveillance system" of S. A. Quaderi Teaching Veterinary Hospital, CVASU. The data which were recorded are age, sex, breed, housing system, disease occurring month, vaccination history, used antibiotics etc. These data were then inputted in Microsoft Excel to get the results.

## CHAPTER-III: RESULTS

The overall statistics of contagious ecthyma is given in Table 1

**Table 1:** Overall statistics of the parameter associated with contagious ecthyma

| Parameter | Mean | SE | P-value | Significance | % of Positive case |
|---|---|---|---|---|---|
| No of the case | 2.60 | 0.463 | 0.109 | NS | |
| Age (M) | 3.29 | 0.469 | 0.252 | NS | |
| Sex | 2.30 | 0.279 | 0.165 | NS | |
| Breed | 7.21 | 1.146 | 0.000 | *** | 7.8 |
| Housing system | 13.5 | 28.981 | 0.000 | *** | |
| Month of the disease | 2.50 | 0.113 | 0.024 | * | |
| Vaccination history | 2.37 | 0.169 | 0.104 | NS | |
| Antibiotics used | 15.56 | 17.524 | 0.000 | *** | |

* = Significant ($p<0.05$), **= Significant ($p<0.01$), ***= Significant ($p<0.001$)

NS = Not significant ($p>0.05$)

Among the four breeds, Jamunapari were mostly affected. The animals reared in semi-intensive housing system were more affected than reared in intensive housing system. The prevalence of the disease was more in the month of December than January and February. The antibiotic used mostly against contagious ecthyma was ceftriaxone.

### 3.1. Overall proportionate prevalence of contagious ecthyma is presented below

The overall proportionate prevalence of contagious ecthyma was 8.1%. The prevalence of contagious ecthyma in goat was 10% in the month of December, 9.3% in the month of January, 5.2% in the month of February (Table 2).

**Table 2:** Proportionate prevalence of contagious ecthyma at SAQTVH, CVASU according to months.

| **Month** | **No. of cases** | **No. of contagious ecthyma cases** | **% of cases** | **Overall proportionate prevalence of contagious ecthyma (%)** |
|---|---|---|---|---|
| December | 46 | 5 | 10 | 8.1 |
| January | 75 | 7 | 9.3 | |
| February | 96 | 5 | 5.21 | |
| **Total** | 217 | 17 | 24.51 | |

### 3.2. Occurrence of contagious ecthyma in goat according to different factors

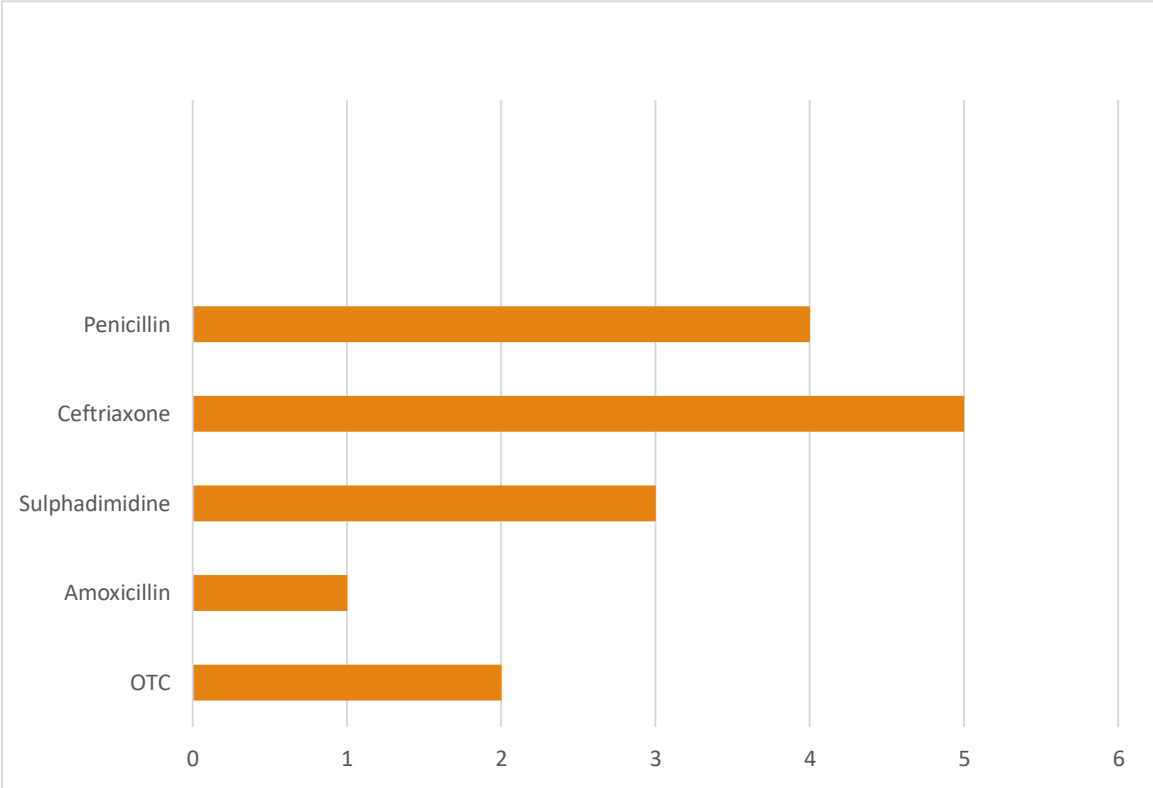
Younger goats (29%) were more commonly affected than older goats (23.53%). Almost 53% male goat had contagious ecthyma. About 42% Jamunapari breed were affected. Almost 59% goats were affected by contagious ecthyma rearing in semi-intensive housing system.

**Table 3:** Distribution of contagious ecthyma cases at S.A. Quaderi Teaching Veterinary Hospital according to different factors

| Factors | Categories | Frequency | % of cases |
|---|---|---|---|
| Age (year) | <1 | 5 | 29 |
| | <2 | 8 | 47.06 |
| | <3 | 4 | 23.53 |
| Sex | Male | 9 | 52.95 |
| | Female | 8 | 47.06 |
| Breed | Black Bengal | 5 | 29 |
| | Jamunapari | 7 | 41.17 |
| | Indigenous | 2 | 11.76 |
| | Hariana | 2 | 11.76 |
| | Totapuri | 1 | 5.8 |
| Housing system | Intensive | 7 | 41.17 |
| | Semi-intensive | 10 | 58.82 |

### 3.3. Description of antibiotics used to treat contagious ecthyma at S.A. Quaderi Teaching Veterinary Hospital

Different antibiotics were prescribed for the treatment contagious ecthyma. Commonly used antibiotics in contagious ecthyma at S.A. Quaderi Teaching Veterinary Hospital were Penicillin, Amoxicillin, Oxytetracycline, Sulphadimidine, Ceftriaxone. Among them mostly used antibiotics about 30% was ceftriaxone (Graph 1).




**Graph 1**: Antibiotics used in contagious ecthyma

## CHAPTER- IV: DISCUSSION

Contagious ecthyma is an acute, contagious and economically important viral skin disease of sheep, goat and some other domesticated and wild ruminants which is worldwide in distribution.The overall proportionate prevalence of contagious ecthyma was 8.1%. The occurrence of contagious ecthyma was higher in December than any other months especially in January, February which is similar to previous studies (Nandi *et al*., 2011). The findings that the proportionate prevalence of contagious ecthyma was higher in those animals having age range from one year to two year is an agreement with the findings of another research (Nandi *et al*., 2011).

The present study also identified that male goats were commonly affected by contagious ecthyma which is also similar to previous study (Nourani *et al*., 2006).

This study reveals that animals reared in semi-intensive housing system were more likely infected by contagious ecthyma. But previous study says that intensive housing system acts as more risk factor than that of semi-intensive housing system (Hussain *et al*., 1989). Because in intensive housing system, animals get more opportunity to remain close enough and the virus can transmit from one animal to another animal easily.

## LIMITATIONS

The time was limited to conduct this study. So it was not possible to conduct the study with large sized population. An ongoing pandemic also limited to collect data. Some "Clinical case investigation record sheets" were not filled with confirmative diagnosis; that's why few cases is not included in this study. There was no specific fund available to conduct the study at a large scale. The study can be performed with larger population size in future.

## CHAPTER-V: CONCLUSION

Contagious ecthyma was seen more commonly in younger animal compared to adult one. Male goats were commonly affected by contagious ecthyma. The prevalence of the disease was more in December than that of January and February. Jamunapari breed was mostly affected by contagious ecthyma. The majority of the antibiotics used in contagious ecthyma was ceftriaxone.

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## Biography

The author is Sagor Ahammed, son of Md. Mokter Ali and Suraia Parvin. He passed his Secondary School Certificate in 2012 (G.P.A-5.00) followed by Higher Secondary Certificate in 2014 (G.P.A-5.00) from Cumilla Cadet College. He enrolled for Doctor of Veterinary Medicine (DVM) degree in Chattogram Veterinary and Animal Sciences University (CVASU) in the session of 2015-2016. He is very enthusiastic to be a researcher and eager to be a skilled veterinarian in future.