DERMATOLOGICA SINICA 33 (2015) 191–195

Contents lists available at ScienceDirect

Dermatologica Sinica

journal homepage: http://www.derm-sinica.com

ORIGINAL ARTICLE

Investigation of the complications and incidences of orf disease during and after the Feast of the Sacrifice period

Handan Saçar [1], Belkız Uyar [1,*], Tuncer Saçar [2], Arzu Duran [3]

[1] Department of Dermatology, Sifa University, Izmir, Turkey
[2] Oztan Hospital, Uşak, Turkey
[3] Department of Microbiology, Sifa University, Izmir, Turkey

ARTICLE INFO

Article history:
Received: Apr 24, 2014
Revised: Feb 10, 2015
Accepted: Mar 12, 2015

Keywords:
ecthyma contagiosum
orf
parapoxvirus

ABSTRACT

Background/objectives: Orf is not an endemic disease. However, it causes epidemics after the Feast of the Sacrifice in Muslim countries because it is transmitted from animals. This study investigates orf disease incidences during and after the Feast of the Sacrifice period in Izmir. The study seeks to detect the association between various occupations and orf, as well as the rate of disease-related complications.
Methods: This retrospective study included 168 orf patients and 352 control patients selected from among 68,723 patients who applied to our dermatology polyclinic between 2006 and 2012. The patients were grouped according to their occupation, residential area, and the time at which they acquired the disease (either before or after the Feast of the Sacrifice).
Results: Orf disease was detected most commonly in butchers (24.4%) before the Feast of the Sacrifice and in slaughterers (40.5%) after the Feast of the Sacrifice. When the sum of all groups was inspected, the group most exposed to the disease was the group that fed and slaughtered the animals (45.2%). A male preponderance (30.4%) was found in this group before the Feast of the Sacrifice, whereas a female preponderance (32.7%) was found in this group after the Feast.
Conclusion: The high rate of orf detected (168/68,723) in our research is connected with an increase of population, sacrifices, and animal husbandry regions.

Introduction

Orf, otherwise known as ecthyma contagiosum, contagious pustular dermatitis, infectious labial dermatitis, sheep pox, soremouth, and scabby mouth, is a self-limiting, zoonotic, epitheliotropic skin infection caused by a parapoxvirus within the DNA virus group.[1,2]

The infection was defined by Walley[3] in 1890 and further detailed in clinical cases by Newson and Cross in 1934.[4] The disease can be observed in animals of all ages and species, especially in lambs and goats, although animals younger than 10 months are typically more susceptible. Natural diseases in sheep and goats generally occur in the spring and summer. However, it has been reported that the possibility of disease is typically higher in the summer and autumn of a drought year. In addition, the hardening of rangeland grass in arid periods can predispose yearlings to diseases due to the forming of scratches and injuries on their lips.[5]

Transmission of the disease occurs either directly from animal to animal or through the protection of the infectious ability of viruses in shells on the ground in winter. The skin lesions that appear on the lips, mouth, nostrils, and oral mucosa of sick animals are proliferative lesions and cause feeding difficulties that can lead to a decline in weight and death, which in turn leads to economic losses. Although the orf virus usually infects sheep and goats, it can also be seen in other animals, such as horses, dogs, rabbits, and some species of deer. The virus can also infect humans who come in contact with active lesions or their products (e.g., wool, meat, etc.). Orf is a resistant virus and can maintain a presence within farm materials and the ground for months or even years, although it cannot be transmitted from person to person. Groups at risk are shepherds, abattoir workers, butchers, veterinarians, and people in close contact with animals.[6]

Generally, the virus causes individual papules, nodules, and crusted lesions on the contact area, and can sometimes lead to further complications. It does not create viremia. In rare cases, it

Conflicts of interest: The authors declare that they have no financial or non-financial conflicts of interest related to the subject matter or materials discussed in this article.

* Corresponding author. 35240 172/2 Fevzipaşa Bulvarı Basmane, Izmir, Turkey.
E-mail address: belkisuyar@gmail.com (B. Uyar).

http://dx.doi.org/10.1016/j.dsi.2015.03.003

can also cause laboratory infections. In humans, the virus leads to individual lesions that are mainly seen on the dorsum of the hands, wrists, and arms, as well as sometimes on the face. These can also be seen on the perianal region, as well as the neck, eye, and pinna regions.[6,7]

In humans, orf passes through six clinical stages, which each last roughly 1 week. In the first stage (the maculopapular stage), an erythematous papule emerges. In the target stage, a target-like nodule forms that is red at the center, white in the surrounding area, and surrounded by a red ring. In the acute stage, the lesion grows, along with further exudation, and during the regeneration period, crust forms on the lesion. In the papillomatous stage, a papillomatous nodule develops, and finally, during the regressive stage, a thick crust develops on the lesion before it regresses without any trace.[8]

Complications such as pain, itchiness, secondary bacterial infections, regional lymphadenopathy, eythema multiforme, and pemphigoid can develop due to orf. In rare cases, recurrent lesions may appear on individuals with impaired immune systems, including large orf nodules, atypical lesions, and systemic symptoms.[1,7,9]

Knowledge of contact with infected sheep and goats, histories of slaughtering, the appearance of lesions, and epidemiological data are important for the diagnosis of the disease. However, anamnesis is the most useful tool for diagnosis. A certain diagnosis is established by finding the virus in a sample of the lesion via electron microscopy, viral culturing, histopathological examination of biopsy materials, immunofluorescence antibody tests, and other serological examinations.

Histopathological findings vary according to the clinical stage of the disease. In the second stage of the disease, diagnostic findings will include paleness and vacuolization appearing in the upper epidermis cells, eosinophilic intracytoplasmic inclusion bodies in vacuolated cells, and mononuclear cell infiltration.[10,11] A polymerase chain reaction method is the most reliable method for determining the viral genome in samples, regardless of the stage of the disease. In differential diagnosis, milker's nodules, pyoderma, skin cancer, pyogenic granuloma, herpes lesions, keratoacanthoma, and cutaneous anthrax should be considered.

Orf is a worldwide disease, although there is little information on the disease, due to its specific geographical distribution. Orf is not an endemic disease, but it causes epidemics after the Feast of the Sacrifice in Muslim countries. In this study, we investigate the orf disease incidences during and after the Feast of the Sacrifice period in Izmir.

Materials and methods

This retrospective study included 168 patients who had orf disease and 352 control patients who were chosen from among of 68,723 patients who presented to our dermatology polyclinic between 2006 and 2012. The patients were grouped according to their occupation, sex, residential area, and the time at which they acquired the disease, either before or after the Feast of the Sacrifice. A 1.5-month period following the Feast was defined as the “after the Feast of the Sacrifice” period, and a 10.5-month period before the Feast was defined as the “before the Feast of the Sacrifice” period. During each year, these periods were set to 10 days earlier for each time zone to align various geographic locations. We studied four occupational groups: butchers, animal feeders and slaughterers, animal husbandry workers, and others. A Chi-square test and SPSS Version 20 were used for statistical evaluations. The correlations of the parameters were evaluated using bivariate Pearson correlation analysis. Multinomial logistic regression analysis was performed to see the multiple factors affecting the development of orf disease before or after the Feast of the Sacrifice periods. The test was conducted at a 95% confidence interval, and $p < 0.05$ was considered to be statistically significant.

Symptomatic treatments were performed using patient therapy.

Results

The demographic data regarding the orf patients and the control group, including their age and sex distributions, are shown in Table 1. Among the patients with orf disease, the distribution of occupations, lesion distribution, sex, and whether they contracted the disease before or after the Feast of the Sacrifice are shown in Table 2. All patients with a diagnosis of orf had a history of trauma. There were no significant differences regarding age, sex, and time between the orf patients and the control group ($p = 0.467$, $p = 0.991$, and $p = 0.990$, respectively). In the control group, there were only two butchers (0.56%), eight animal husbandry workers (2.27%), and four slaughterers and feeders (1.13%). Statistically,

Table 1 Demographic data of patients and control group, including age and sex distribution.

Age	Orf patients			Control patients		
	Female, $n = 65$	Male, $n = 103$	Total, $n = 168$	Female, $n = 136$	Male, $n = 216$	Total, $n = 352$
Mean ± SD	38.7%	61.3%	100%	38.63%	61.36%	100%
	34.71 ± 6.45	34.73 ± 7.94	34.73 ± 7.40	33.80 ± 10.45	34.16 ± 12.04	34.02 ± 11.44
Minimum	22	18	18	18	18	18
Maximum	48	67	67	63	70	70

$p = 0.160$.
SD = standard deviation.

Table 2 The distributions regarding occupations, lesion distribution, sex, and whether the disease was contracted before or after Feast of Sacrifice among patients with orf.

Occupations	Butchers		Animal husbandry		Slaughterers and feeders		Total, F/M, n (%)
Time	Before	After	Before	After	Before	After	
RA							
Hand, F/M, n (%)	2/38 (1.19%/22.61%)	4/22 (2.38%/13.09%)	2/8 (1.19%/4.76%)	2/10 (1.19%/5.95%)	6/3 (3.57%/1.78%)	24/12 (14.28%/7.14%)	40/93 (23.80%/55.33%)
Forearm, F/M, n (%)	0/0 (0.0%/0.0%)	0/0 (0.0%/0.0%)	0/2 (0.0%/1.19%)	0/2 (0.0%/1.19%)	0/0 (0.0%/0.0%)	25/3 (14.88%/1.78%)	25/7 (14.88%/4.16%)
Facial, F/M, n (%)	0/0 (0.0%/0.0%)	0/0 (0.0%/0.0%)	0/0 (0.0%/0.0%)	0/0 (0.0%/0.0%)	0/0 (0.0%/0.0%)	0/2 (0.0%/1.19%)	0/2 (0.0%/1.19%)
Genital, F/M, n (%)	0/0 (0.0%/0.0%)	0/0 (0.0%/0.0%)	0/0 (0.0%/0.0%)	0/0 (0.0%/0.0%)	0/0 (0.0%/0.0%)	0/1 (0.0%/0.59%)	0/1 (0.0%/0.59%)
Total, F/M, n (%)	2/38 (1.19%/22.61%)	4/22 (2.38%/13.09%)	2/10 (1.19%/5.95%)	2/12 (1.19%/7.14%)	6/3 (3.57%/1.78%)	49/18 (29.16%/10.71%)	65/103 (38.69%/61.30%)

After = after the Feast of Sacrifice; Before = before the Feast of Sacrifice; F = female; M = male; RA = residential areas of orf.