

A Case Report On Milker's Nodules; An Occupational Infectious Disease

Archana Suresh^{1*}, Arya Narayanan², Dr Arya M S³, Prof. Dr. Shaiju S Dharan⁴

1. Archana Suresh, Pharm D Intern (Department of Pharmacy Practice, Ezhuthachan College of Pharmaceutical Sciences, Marayamuttom, Thiruvananthapuram, Kerala, India)

2. Arya Narayanan, Pharm D Intern (Department of Pharmacy Practice, Ezhuthachan College of Pharmaceutical Sciences, Marayamuttom, Thiruvananthapuram, Kerala, India)

3. Dr Arya M S, Assistant Professor (Department of Pharmacy Practice, Ezhuthachan College of Pharmaceutical Sciences, Marayamuttom, Thiruvananthapuram, Kerala, India)

4. Prof. Dr. Shaiju S Dharan, Principal/HOD (Department of Pharmacy Practice, Ezhuthachan College of Pharmaceutical Sciences, Marayamuttom, Thiruvananthapuram, Kerala, India)

Submitted: 09-06-2023

Accepted: 19-06-2023

ABSTRACT

The cylindrical parapoxvirus that causes milker's nodules is most frequently endemic in cattle. People who come into contact with animals that are carrying the virus are affected. We describe a 28-year-old male milkmaid who appeared with painful nodules over both hands for one week. There was no sign of lymphadenopathy. Diagnosis was made as milker's nodules by considering the occupation of the patient. Since milker's nodules is a self-limiting condition, the patient was advised to wear gloves and practise good hygiene. For the treatment of secondary infection, the patient was treated with a course of antibiotics.

I. INTRODUCTION

Milker's nodule is a disease caused by pseudocowpox virus of the genus Parapoxvirus. It is the infection of bovine source, typically involving infected teats and mouth of cattle^[1]. The incubation period ranges from 5 to 14 days. This virus is found in the spittle, nasal secretions and skin lesions of affected cattle and its transmission to humans occurs through direct contact with the lesions or indirectly through fomites^[2]. The most common sites affected are hands, forearms and occasionally face^[3]. The condition typically manifests initially as elevated red papules on the fingers. These develop into papulovesicles, which eventually transform into painful, blue nodules. The lesion is surrounded by an erythematous zone^[4].

A thorough history of the patient was required to determine the diagnosis. Milker's nodule and ORF are very similar diseases but caused by different viruses, even though they belong to the same family and genus. Cattle are the hosts of Milker's nodule, while goats and sheep hosts ORF^[5]. Therefore, a differential diagnosis of ORF was taken into consideration^[6]. Histopathological changes are not diagnostic. Serological tests including visualization of the virus by electron microscope, tissue culture and polymerase chain

reaction technique help to distinguish it from the other Parapoxviruses^[3].

II. CASE HISTORY

A 28-year-old male patient, milkmaid by occupation and working in a cow farm was presented to the Dermatology department with complaints of painful nodules over both hands for one week. Cutaneous examination showed reddish blue firm nodules over the hands and there was a ring of erythema present around the lesion with central umbilication and crust formation. He initially developed an erythematous papule on the right hand's finger. This lesion quickly grew, becoming a nodule, in addition to the appearance of a small pustule in the central portion of the lesion. On examination, the patient was afebrile and there was no lymphadenopathy. By considering the occupation and cutaneous examination, diagnosis was made as milker's nodules.

Since milker's nodules is a self-limiting disease, patient was counselled for using gloves and maintain proper hygiene by using antiseptics while handling cows. For the treatment of secondary infection T. HHA mclav (Amoxicillin and Potassium Clavulanate) 625mg, PO, BD and Mupirocin cream (Mupirocin), L/A, BD were given.

III. DISCUSSION

Milker's nodule is an infection caused by the Paravaccinia virus, a DNA virus of the genus Parapoxvirus and poxvirus family^[5]. It is considered as an occupational viral skin disease of universal distribution. Milker's nodules are most commonly seen in persons whose occupation brings them regularly in contact with cattle. In our patient, the history and clinical features were supportive.

The diagnosis of milker's nodules is based on the patient's history and may be complemented by dermoscopic findings of the lesions^[4]. The disease has an incubation period of five to fifteen days with appearance of one to five nodules. These nodules most commonly develop in areas where skin contact has been made with the infected animal, such as hands and forearms but can also affect the face^[5]. It begins as an erythematous macula, progresses to a papulovesicular lesion with a central ulceration and finally develops into an oozing papulopustular lesion with loss of epidermis over the centre^[4-8]. Histopathological abnormalities, which range from mononuclear cell infiltration in the dermis to intracytoplasmic eosinophilic inclusions, granulomatous reactions in the upper dermis, hyperkeratosis, parakeratosis, and acanthosis, are not diagnostic^[4]. Although a differential diagnosis of ORF was taken into consideration, history ruled it out because infected goats and sheep are a common source of the ORF.

There is no specific treatment for this disorder, and the illness is self-limiting. Therefore, it is necessary to emphasise the value of teaching people about hand cleanliness and the use of personal protection equipment during milking, in addition to the prevention of mastitis in cows^[4,7]. So, while handling cows, our patient was advised to wear gloves and maintain good cleanliness by using antiseptics. Patients with milker's nodules have the risk of catching secondary infections. Antibiotics can be given to the patient in order to prevent further infections. For the purpose of preventing further infections, our patient was given oral and topical antibiotics in this particular case.

REFERENCE

- [1]. R.W. Groves, E. Wilson-Jones, and D. M. MacDonald, "Human orf and milker's nodule: a clinicopathologic study." *Journal of the American Academy of Dermatology*. 1991; 706-11.
- [2]. Jayasree P, Kaliyadan F, Abraham R, Milker's Nodule. *JAMA Dermatol*. 2020; 156(1): 93.
- [3]. Adriano AR, Quiroz CD, Acosta ML, Jeunon T, Bonini F, Milker's nodule – case report. *An Bras Dermatol*. 2015; 90: 407 -10.
- [4]. Poudel GP, Agrawal S, Dhakal S. Milker's nodule: An under-reported and under diagnosed occupational infection. *Clin Case Rep*. 2020; 8(7):1162-65.
- [5]. Lunge SB, Doshi B, Manjunath swamy BS, Mudgal S. Milker's nodule. *Indian J Health Sci Biomed Res*. 2019; 12:242-4.
- [6]. Haenssle HA, Kiessling J, Kempf VA, Fuchs T, Neumann C, Emmert S, et al. Orthopoxvirus infection transmitted by a domestic cat. *J Am Acad Dermatol*. 2006; 54:1-4.
- [7]. Handler NS, Handler MZ, Rubins A, Rubins S, Septe M, Milker's nodule: an occupational infection and threat to the immunocompromised. *JEADV*. 2018; 32: 537-41.
- [8]. Barravieira SRCS, Diseases caused by poxvirus – orf and milker's nodules: a review. *J Venom Anim Toxins incl Trop Dis*. 2005; 11: 102 –8.