



## Case Report

# Milker's Nodule: An Occupational Infectious Dermatoses-Case Report

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### Abstract

A good anamnesis and a careful clinical examination are the fundamental pillars of the physician's performance. Epidemiological information about origin and occupation remains to be fundamental in the composition of clinical reasoning. We report a case of Milker's Nodule, an occupational dermatovirus, self-limited, caused by poxviridae, whose knowledge allows for a correct diagnosis. On the other hand, not identifying this situation can expose the patient to unnecessary tests and treatments. With this report, we seek to draw attention to this entity to be remembered in clinical practice, whether by dermatologists or general practitioners.

**Keywords:** Milker's nodule; Occupational dermatosis; Poxviridae

case, with a history of occupational exposure, in order to draw attention to this disease.

### Introduction

Milker's nodule is a high contagious skin disease caused by the Para vaccinia virus, of the Poxviridae family [1]. 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].

Data on incidence and prevalence are not well established. However, it is believed that the number of cases is higher than that found in the literature because it is a self-limiting disease, in which medical care is not sought, contributing to underreporting and under diagnosis [1,3]. We report a typical and illustrative clinical

### Case Report

Female patient, 40 years old, resident of rural areas, small farmer, raises small animals, including dairy cattle. She performs all activities inherent to her farm, along with her husband.

Follow-up at our Rosacea Dermatology outpatient clinic comes in consultation due to an intercurrent: lesion on the finger, slightly painful. About fifteen days ago, started with an erythematous papule on the fifth finger of the right hand. This lesion quickly grew, becoming a nodule, in addition to the appearance of a small pustule in the central portion of the lesion. This center evolved with exulceration and exudation (Figure 1 and 2). Denied local trauma.



**Figure 1:** Nodular lesion on the fifth finger of the right hand with central exulceration and exudation.



**Figure 2:** Focused figure of the central exulceration and exudation.

On examination, she was afebrile, without lymphangitis or lymph node enlargement associated with the lesion. Considering the occupation and the management of dairy cattle, we made the diagnostic hypothesis of Milker's Nodule. We formulated hypotheses for the differential diagnosis: reaction to an insect bite (arthropod), pyoderma by gram-positive in the skin (ecthyma) or sporotrichosis chancre. It is worth mentioning that, if not for the rapid evolution, benign and malignant skin tumors (keratoacanthoma, basal cell and even squamous cell carcinomas, in addition to rarer tumors such as Merkel cell carcinoma) would be included in the differential diagnosis.

As Milker's Nodule entity is self-limiting, we opted for expectant management (hygiene with antiseptic soap and daily

curative with solid Vaseline). Upon return after thirty days, we were able to identify complete remission of the lesion, maintaining only slight residual hyperchromia (Figure 3).



**Figure 3:** Complete remission with a slight residual hyperchromia.

## Discussion

Milker's Nodule, also known as pseudocowpox, is therefore a viral disease resulting from a skin infection caused by parapoxvirus of bovine origin [4]. The infection has an occupational character since it occurs mainly during the milking activity [3,5]. Interhuman transmission has not yet been described [3].

The disease has an incubation period of five to fifteen days [1,2], with a variable appearance of one to five nodules [5,6]. These nodules most commonly develop in areas where skin contact has been made with the infected animal, such as hands and forearms [1,6], but can also affect the face [1,3,5]. The clinical picture is manifested in six stages, each one lasting approximately one week [1,2].

The lesion starts as an erythematous macula, becomes target-shaped – a papulovesicular lesion with central ulceration – and then an exuding papulopustular lesion, characterized by loss of epidermis over the center. The fourth stage is the nodular formation with dry crust, with dark spots on the surface. It becomes papillomatous and finally a regressive lesion, which involutes without leaving a scar. Lesions are self-limiting, disappearing in about four to eight weeks [1-3].

The diagnosis of milker's nodules is based on the patient's detailed and epidemiological history and may be complemented by dermoscopic findings of the lesions [5]. Histopathology and electron microscopy can help, in this last one, the virus is seen in a cylindrical shape [1,3]. The anamnesis includes a history of contact with an infected cow. It is important to point out that the lesions on the animal may not be visible, but transmission can still occur [6].

Histopathological examination reveals hyperkeratosis with acanthosis of the epidermis and spongiosis [1,6]. In the upper third of the epidermis, cells with a ballooning pattern can be observed [3,5]. In the dermis, eosinophilic cytoplasm and dense lymphocytic infiltrate can be seen [1]. Eosinophilic and intracytoplasmic inclusion bodies are characteristic, but not present in all stages [3,5].

The most common differential diagnosis is Orf, also caused by the virus Poxviridae family, differentiated by the history of contact with sheep or goats [1,6]. Other differential diagnoses include pyoderma, anthrax, sporotrichosis, tularemia, atypical mycobacteriosis, brown spider bite [1,5].

As it is a self-limiting disease, with a benign course and complete resolution, the management should be expectant [5]. It is worth mentioning the importance of education about hand hygiene and the use of personal protective equipment [1,6] during the order activity, in addition to the treatment of mastitis in cows as a preventive measure [3].

**Data Confidentiality:** The authors declare that they followed the institution's protocols regarding data confidentiality, preserving the patient's identity.

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