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Case report:

Milker's Nodule, case report

Nódulo del ordeñador, reporte de un caso

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Citation

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Abstract

Milker's nodule is an occupational disease caused by the paravaccinia virus of the genus Parapoxvirus. They are usually solitary lesions, prevalent in the hands, arms and forearms. It has been reported in people who are in contact with infected parts of cows, such as the udder or in individuals who handle contaminated meat and / or objects. We present the case of a 26-year-old woman, dedicated to milking cows, who presented a nodular lesion on the back of the fourth finger of the right hand, 1 cm in diameter, indurated, symmetrical, with well-defined edges that they form a collar with a serohematic crusty center, of a purplish-red hue. It is worth mentioning that in Ecuador there is still a population in rural areas that milks cattle and handles their meats manually, hence the importance of early identification of this type of injury. In this context, a thorough history, clinical characterization, histopathological study, and molecular confirmation are essential to confirm the diagnosis and avoid inappropriate treatment.

Key words: Poxviridae Infections, Cow Pseudopox Virus, Occupational Health.

Resumen

El nódulo del ordeñador es una patología ocupacional ocasionada por el virus paravaccinia del género Parapoxvirus. Habitualmente son lesiones solitarias, de localización prevalente en manos, brazos y antebrazos. Se ha reportado en personas que se encuentran en contacto con partes infectadas de las vacas, como la ubre o en individuos que manipulan carne y/o objetos contaminados. Se presenta el caso de una mujer de 26 años, dedicada al ordeño de vacas, que presentó una lesión nodular en el dorso del cuarto dedo de la mano derecha, de 1 cm de diámetro, indurada, simétrica, de bordes bien definidos que forman un collarete con centro costroso serohemático, de tonalidad rojo violácea. Cabe mencionar que en Ecuador aún existe población en áreas rurales que realiza ordeño de ganado vacuno y manejo de sus carnes de forma manual, por ello, la importancia de identificar de forma precoz este tipo de lesiones. En este contexto, resulta fundamental efectuar una exhaustiva anamnesis, caracterización clínica, estudio histopatológico y confirmación molecular para confirmar el diagnóstico y evitar el tratamiento inadecuado.

Palabras claves: Infecciones por Poxviridae, Virus de la Seudoviruela de las Vacas, Salud Laboral.

Introduction

Milker's nodule was first described in 1799 and presented as a clinical case in 1934 by Newson and Cross 1. It is classified as an occupational pathology and is usually reported in people who work or handle infected parts of cows, mainly udder, mouth or those who handle their raw meat 2. Indeed, it is a zoonosis typical of cattle, it is accidentally transmitted to humans by physical contact. It predominates in men from 12 to 65 years of age and a slight predominance has been observed during the winter. The reported incidences correspond to 30% in the United Kingdom, 44% in New Zealand and cases have been described in Germany, Belgium, Spain, the United States, Canada, France and Mexico [3].

This pathology is caused by paravaccinia viruses of the Parapoxvirus genus, these are double-stranded DNA viruses 4,5. Clinically it is like Orf's node, which, unlike the milker's node, describes a contact relationship with goats and sheep. In fact, to clarify the diagnosis, identification by polymerase chain reaction-DNA hybridization is required [1,6].

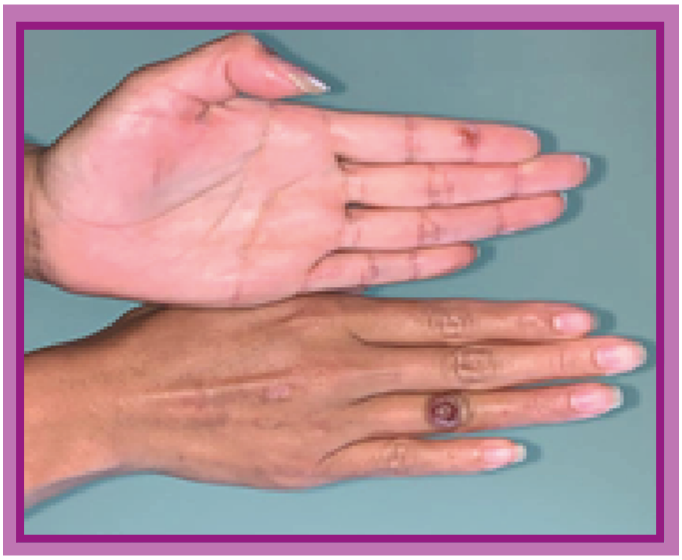
This report presents a case of milker's nodule from a rural area of Ecuador. Sector in which it is most frequently observed due to the livestock activity of its inhabitants. These patients, on several occasions, do not come to consultation since it has a self-limited nature [7]. Its importance lies in the fact that it must be considered as a differential diagnosis with other pathologies with similar clinical characteristics and thus avoid inadequate treatment.

Case report

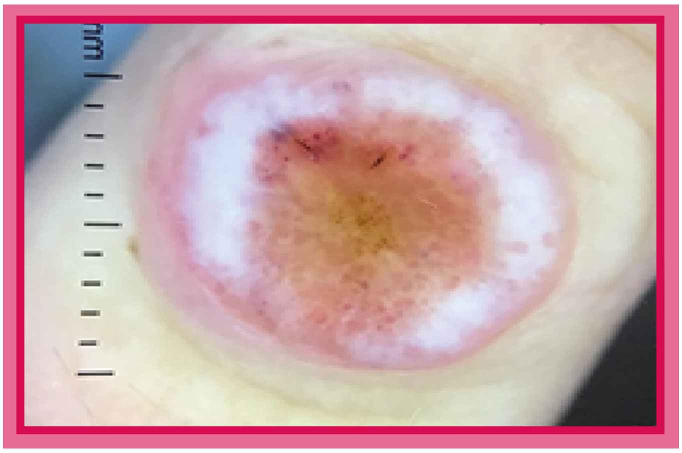
The case of a 26-year-old woman is presented, who lives in a valley of the Western Cordillera 18 km from the city of Quito, at an altitude of 2,800 meters, in a rural area. As work history, she milks cattle daily without the use of protective gloves, she does not report any other important personal, pathological, family or socioeconomic history. She consulted at a specialized dermatological center for two lesions on her hands that had developed four weeks ago. She reported that she had previously suffered trauma to her hands and 4 days later she developed a small, painless, slow-growing erythematous papule.

On physical examination, he presented a nodular lesion on the back of the proximal phalanx on the fourth finger of the right hand (first lesion, figure 1A), 1 cm in diameter, indurated, symmetrical, with well-defined edges that formed a collarette with a serohematic scabby center, red to violaceous. In addition, another smaller nodule with similar characteristics was observed on the anterior aspect of the distal phalanx of the second finger of the left hand (second lesion, Figure 1A).

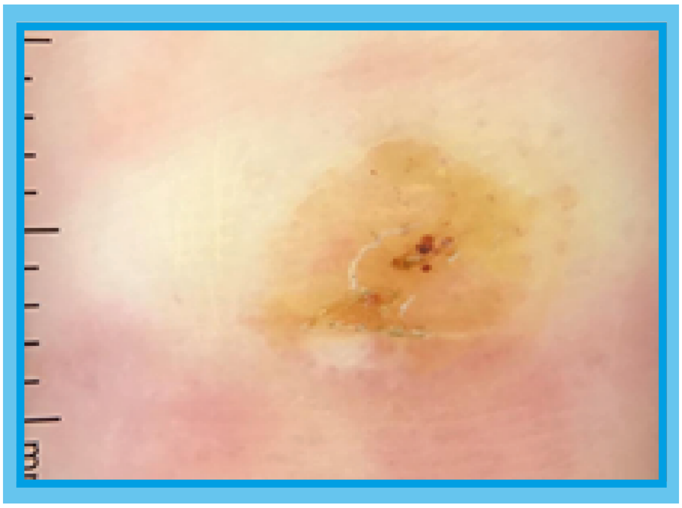
Figure 1.- Clinical and dermatoscopic findings



***1A:** Right- and left-hand injuries.*



1B: Dermatoscopy of the first lesion of the right-hand ring finger.



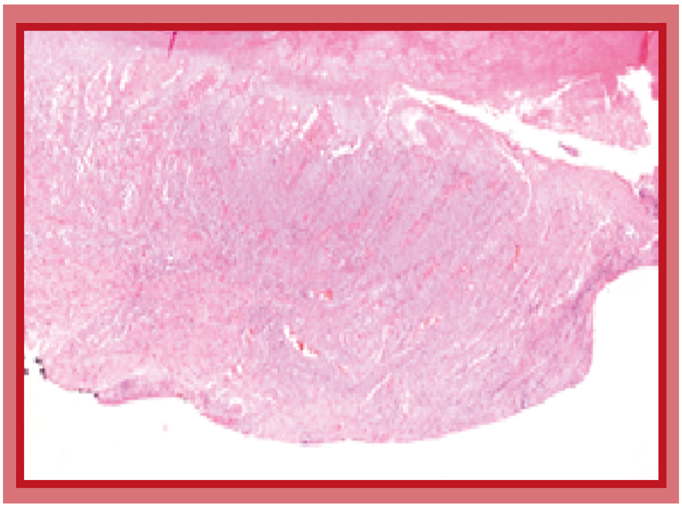
***1C:** Dermatoscopy second injury left hand index finger.*

No regional adenopathy's were observed, the rest of the physical examination did not present alterations. Dermatoscopy of the first lesion revealed a peripheral erythematous ring, an internal homogeneous white ring, and a central yellowish area with pinpoint vessels accompanied by small black dots in the center of the lesion (Figure 1B).

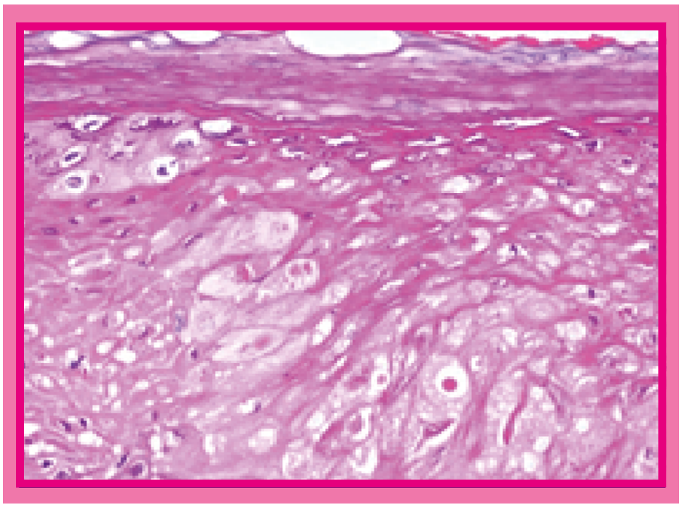
The second lesion presented a peripheral pale yellowish area surrounding a brownish halo, with few punctate vessels visible in the middle (Figure 1C).

On histopathological examination, the panoramic image showed epidermal hyperplasia with irregular acanthosis, ballooning of keratinocytes, cytoplasmic vacuolization, and eosinophilic inclusion bodies. A dense predominantly lymphohistiocytic inflammatory infiltrate with vascular proliferation was observed in the dermis (Figure 2).

Figure 2.- Histopathology



***2A.-** X Lens.*



***2B.-** X Lens.*

Due to the work history, clinical, dermatoscopic and histopathological pattern, the diagnosis of milker's nodule was established, a clinical follow-up of the lesion was carried out until its resolution; pharmacological therapy was not indicated.

Discussion

The case is presented with dermatoscopic and histopathological images of a patient infected by paravaccinia virus with a history of milking cows. The clinical presentation is variable and atypical cases have been described, including erythema multiforme, which depend on the immune reaction mediated by cells against specific antigens towards the viral fragments phagocytosed by Langerhans cells and transferred to epidermal keratinocytes. Consequently, the recruitment of CD4 + Th18 cells is triggered.

Complicated forms with mucosal involvement have also been reported in immunosuppressed patients; On the other hand, in cases with bacterial superinfection, general signs and local adenopathies were reported [9,10].

The clinical manifestations and history of the patient studied coincide with the international scientific literature. In fact, patients with milker's nodule are characterized by painless papules, nodules, and ulcerated lesions with a traditional history of previous contact with contaminated fomites, infected animals, and even instruments used for animal vaccination. Human-to-human transmission is not described 1.

They are usually solitary lesions, most frequently located on the hands (79%), followed by arms and forearms (48%), other less frequent lesions described are: face, armpits, buttocks, and genitals. The incubation period for this disease varies from 3 to 14 days and clinically, patients present six stages that last approximately one week each: maculopapular erythematous, target, suppurative papulopustular, nodular with dry crust, papillomatous and regressive [1,11].

The dermatoscopic description of the lesion depends on the stage in which it is found, 4 types are identified: type 1 consists of a central yellowish white area and a peripheral erythematous ring, type 2 presents yellow-orange streaks in the center with an erythematous base violaceous, grayish-white striae around and the outer erythematous ring, type 3 with ulceration in the center, surrounding white-yellowish ring and erythematous ring outside; finally, type 4 presents erythema in the center or area with ulcer crust, yellowish white ring around [12].

According to these descriptions, the patient's first lesion corresponded to type 2 or 3 in relation to the fourth week of evolution. Meanwhile, the second lesion probably had a 2-week history correlating with type 1. It should be noted that a variety of infectious conditions can present similarly to milker's nodules such as Orf's node, molluscum contagiosum, pyogenic granuloma, due to Mycobacterium marinum, buruli ulcers due to Mycobacterium ulcerans, anthrax due to Bacillus anthracis, so the differential diagnosis should be considered.

For the diagnosis of milker's nodule, the epidemiological and clinical characteristics of each case must be considered. It is recommended to rely on microbiological and pathological examinations, because the treatment differs between these pathologies [13,14].

Pathologic examination in patients infected with paravaccinia virus usually reveals a hyperkeratotic epidermis, acanthosis, and mild to moderate papillomatosis. There may be ulceration. It is also possible to observe ballooning, and this can be so intense that it produces degeneration of the epidermis and the formation of vesicles. Occasionally, spongiosis is detected, which also contributes to the appearance of vesicular lesions [7].

In the dermis of patients with milker's nodule, the inflammatory infiltrate is dense and predominantly lymphohistiocytic. The viral cytopathic effect can be moderate to extreme and is present in both recent and late lesions [7].

Prevention is essential, protective measures are required such as wearing gloves, proper hygiene and maintaining the integrity of the skin so that this is not the door of entry to various pathological agents. In addition, it is important to carry out regular veterinary check-ups to ensure the dermatological health of cows and other animals that may be infected [1].

Conclusions

In Ecuador, especially in rural areas, milking of cattle and handling of their meat is carried out manually, unlike in industrialized countries. For this reason, this type of injury must be diagnosed by health personnel early in order to carry out the appropriate treatment.

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