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Molluscum contagiosum as a tattoo complication: a case report and literature review

Molusco contagioso como complicação de tatuagem: um relato de caso e revisão da literatura

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ABSTRACT

Tattooing is an ancient practice and very popular nowadays. The pigments used have changed over time but still present varied and poorly regulated compositions. There are many described cases of adverse effects after tattooing, mainly infectious and hypersensitivity reactions. We report the case of a 64-year-old woman, healthy, with papules on her eyebrows one month after performing micropigmentation. The excisional biopsy diagnosed molluscum contagiosum, and the lesions were curetted. There are few reports in the literature of the spread of molluscum contagiosum caused by tattooing.

Keywords: Molluscum contagiosum. Tattooing. Poxviridae infections.

RESUMO

A tatuagem é uma prática antiga e muito popular atualmente. Os pigmentos utilizados mudaram com o tempo, mas continuam apresentando composições variadas e pouco regulamentadas. Há inúmeros casos descritos de efeitos adversos pós-tatuagem, em sua maioria infecciosos, e reações de hipersensibilidade. Relatamos o caso de uma mulher de 64 anos, hígida, com pápulas nas sobrancelhas um mês após realizar micropigmentação. A biópsia excisional fez o diagnóstico de molusco contagioso, e o tratamento foi realizado com curetagem das lesões. Na literatura, existem poucos relatos de disseminação de molusco contagioso causada por tatuagem.

Palavras-chave: Molusco contagioso. Tatuagem. Infecções por poxviridae

Case report

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INTRODUCTION

Tattooing is an ancient practice that is becoming increasingly popular. It is estimated that 10% to 30% of the population currently have tattoos.¹⁻⁴ There are different types and purposes of tattooing, such as artistic, religious, social, and cosmetic expression.^{1,4,5} The procedure consists of introducing pigments into the dermis through needles, manually or electrically, to produce a permanent design. Cosmetic tattooing, also known as micropigmentation or permanent makeup, is gaining more popularity. They can be used to camouflage skin conditions, act as adjuvants in reconstructive surgery, or replace makeup. The micropigmentation deposits the pigment more superficially in the dermis. It has a temporary effect because it reaches more superficial layers than conventional tattoos. Despite being an invasive procedure, it is an accessible procedure to the population.⁶⁻¹⁰

The inks and pigments used in tattoos are impure chemical mixtures that contain heavy metal oxide, salts, and organic molecules. Modern color inks often include azo pigments and polycyclic compounds. Health surveillance agencies do not always regulate these mixtures, and there is no control over the application of these products.^{1,2,4,6,11,12} In Brazil, Despite the numerous ink brands available, the Brazilian Health Regulatory Agency (ANVISA) approves only three.¹³ Histology shows pigments free in the dermis or phagocytized by macrophages. They can also be found in lymph nodes, illustrating the close contact that the pigment and its metabolites can have with our immune system.^{1,2,1}

The tattoo poses a relevant risk of infection, considering the skin barrier. There is a possibility of contamination by the ink, not properly sterilized instruments, inappropriate skin antisepsis, in addition to the possibility of secondary infection during the healing process.^{1,2} Skin infections range from pyoderma to endocarditis and sepsis, syphilis, leprosy, mycobacteriosis, fungal contamination, and the spread of viral diseases such as HPV, molluscum contagiosum, herpesvirus, hepatitis B and C, and even HIV.^{1,2,3,12}

Hypersensitivity reactions also occur, as the pigment acts as a foreign body in the dermis, triggering lichenoid, granulomatous, and even pseudolymphoma lesions. Immunological reactions can be immediate or delayed and manifest locally or systemically. The most common skin manifestation related to tattooing is allergic contact dermatitis.³ The red ink is the most frequently involved, probably due to mercury formerly used as a pigment.^{2,3} There are also reports of the onset of Koebner phenomenon triggering psoriasis, vitiligo, and lichen planus lesions.^{2,3,14,15}

The potential local and systemic carcinogenic effects of the tattoos and inks used remain uncertain.¹¹ Dermatofibroma, keratoacanthoma, pseudoepitheliomatous hyperplasia, basal and squamous cell carcinomas, melanoma, and other skin tumors have already been found on previously tattooed skin.¹¹ It is advised not to tattoo on a melanocytic nevus due to the difficulty of monitoring it. It also becomes a challenge to identify new

lesions on tattooed skin, which could delay the diagnosis of a malignant tumor.^{2,3}

CASE REPORT

A 64-year-old woman, white, presented intense itching with papule formation strictly on the tattoo site one month after performing eyebrows micropigmentation in an aesthetic clinic (Figure 1). She had no previous comorbidities. The dermatological examination showed numerous 1 mm to 4 mm papules, pearly and normochromic, on the tattoo area on the right eyebrow (Figure 2). After the excisional punch biopsy, the anatomopathological examination revealed a hyperplastic region in the epidermis characterized by cell proliferation from the Malpighian body, forming piriform invaginations into the dermis (Figure 3). We also found progressive accumulation of amorphous and eosinophilic material, compatible with molluscum contagiosum (Figure 4). Serologies for hepatitis B and C and HIV were negative. We performed the treatment with curettage of the lesions, with good results and no recurrence (Figures 5 and 6).

DISCUSSION

Molluscum contagiosum is a dermatovirus caused by a poxvirus. Usually, its transmission requires contact with infected hosts or contaminated fomites. It has a universal distribution, affecting more often children at school age. In healthy adults, it can manifest in the anogenital region, mainly through sexual transmission. Thus, it is also considered a sexually transmitted disease (STD). It is more commonly found in immunocompromised adult individuals, and it may present a disseminated picture or even inflammatory phenomena such as uveitis.¹⁶⁻¹⁹



FIGURE 1: Pearly papules on tattoo

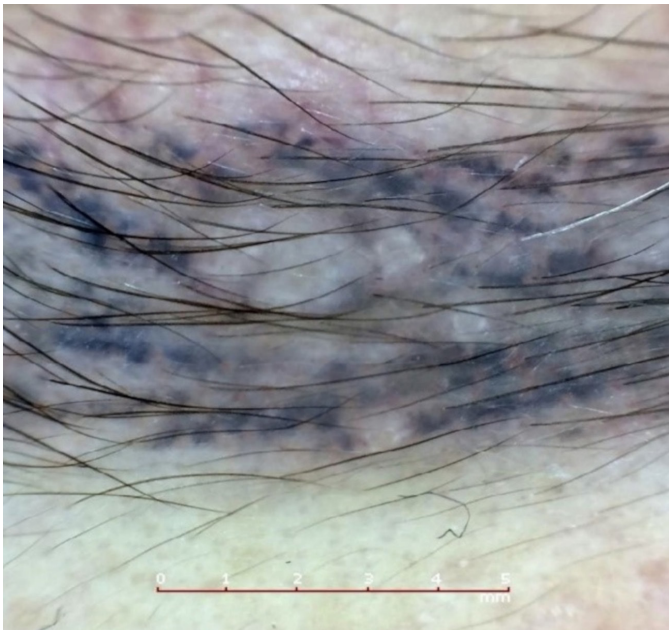


FIGURE 2: Dermoscopy revealed amorphous, polyglobular, white structures surrounded by fine telangiectasias

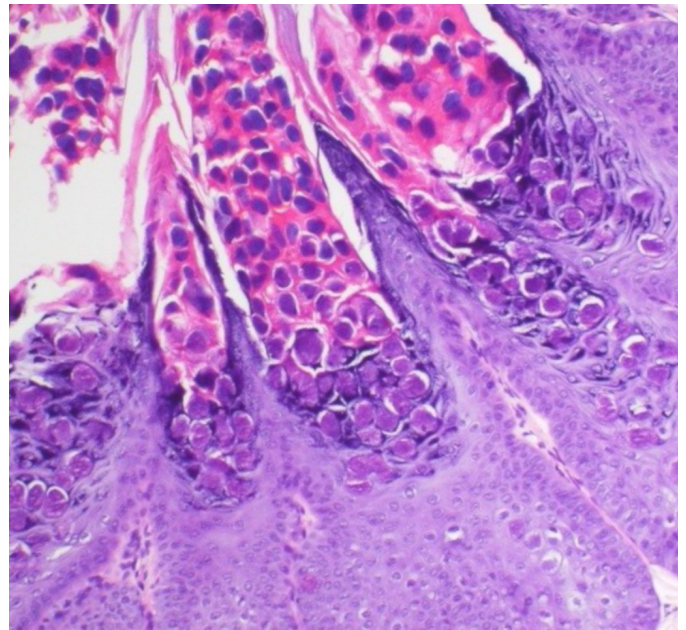


FIGURE 4: Accumulation of amorphous and eosinophilic material in cells that occupy the entire cell at the level of the granular and corneal layers

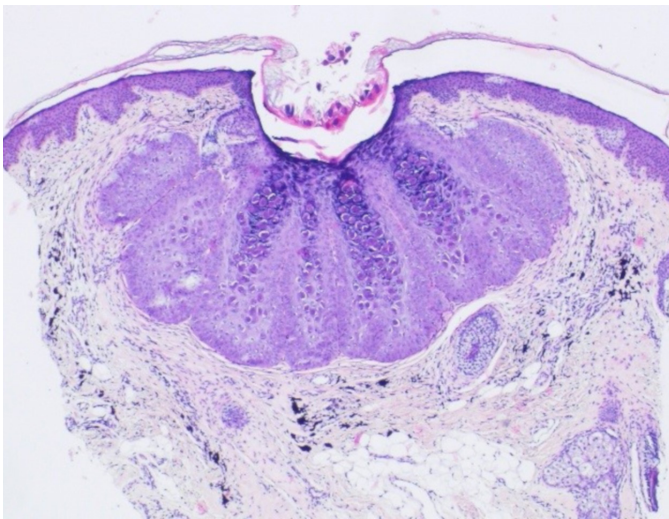


FIGURE E: Hyperplastic lesion in the epidermis characterized by cell proliferation from the Malpighian body, forming piriform invaginations into the dermis

As other infections spread through tattoos, the two most plausible possibilities for transmitting molluscum contagiosum are the contamination of the ink or instruments used.^{18,21}

A firm and umbilicated pearly papule, normochromic, measuring a few millimeters characterizes the clinical lesion, which is more common in skin folds, trunk, thighs, buttocks, and face.¹⁷ Dermoscopy presents a rounded, shiny lesion, with hairpin (looped) vessels in the periphery and a small circular

central area, lighter in color, resembling a target (white target pattern).²⁰ Differential diagnoses are adnexal tumors, viral warts, juvenile xanthogranuloma, basal cell carcinoma, Spitz nevus, and granuloma annulare, among others.¹⁷ In immunocompromised patients, systemic and subcutaneous mycoses may have a similar presentation.¹⁹ This dermatosis spontaneously regresses in immunocompetent patients, but some therapeutic options are available to accelerate its eradication, such as curettage, cryotherapy, keratolytics, imiquimod, and other chemovesicants.¹⁷

After searching the PubMed database using the words “Molluscum contagiosum” and “tattoo” or “Molluscum contagiosum” and “tattooing”, we found only ten published cases,¹⁸⁻²⁷ the oldest from 1982 and the most recent from 2013. All patients were immunocompetent, aged from 20 to 59 years, and there were nine men and one woman. Most individuals had the lesions strictly over the tattooed area, except for one, who also had lesions on the adjacent skin. Five patients presented the condition within one month after tattooing, and four within five months (one case did not describe the presentation time). Some subjects refused treatment modalities, and all others had their lesions cured successfully and without recurrence. One case had spontaneous disappearance of the lesion in six months.

Skin disorders after micropigmentation and permanent make-up on the face have also been reported. For example, cutaneous and systemic sarcoidosis²⁸ and mycobacteriosis²⁹ after tattooing for eyebrows design. We found no report of molluscum contagiosum as a complication of micropigmentation or cosmetic tattooing.

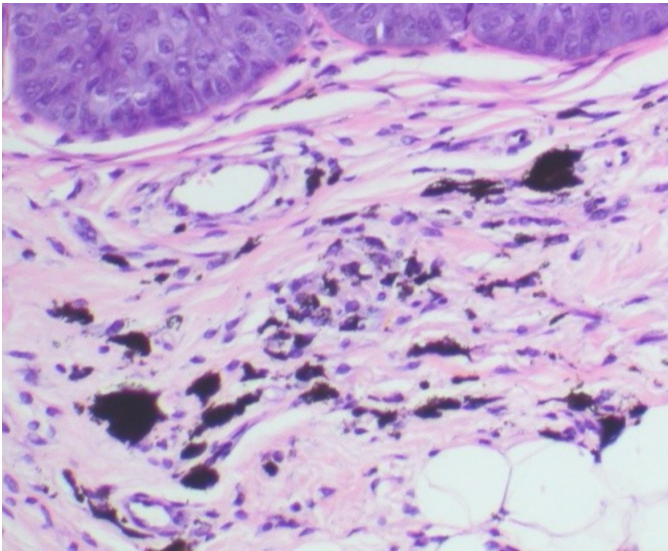


FIGURE 5: Highlight for the pigment in the dermis



FIGURE 6: Result after curettage of all lesions

It is important to emphasize that our search in PubMed was limited to articles in English or with at least the title translated. In addition, any similar cases that have not been reported and published in the scientific community must be considered.

CONCLUSION

Since tattooing is increasingly popular, its complications will be more recurrent. Therefore, dermatologists must be prepared to suspect, investigate, diagnose, and treat these skin conditions. The medical knowledge on the technique and its possible complications is also critical to guide and inform the patient who wishes to perform it.

Procedures such as micropigmentation and permanent makeup are widespread and easily accessible to the population, and they are considered safe and straightforward techniques. However, they are also tattoo methods, being likewise subject to all the risks presented here.

It is essential to regulate and control the quality of the pigments and the technique through public agencies and health surveillance, as this is an invasive procedure with serious complications. ●

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