Eur J Dermatol 2003; 13: 587–9

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Article accepted on 21/08/2003

Necrotizing varicella zoster virus folliculitis

Although the usual clinical features of the varicella zoster virus (VZV)-induced lesions are readily recognized, the same virus is also responsible for a series of atypical lesions. A patient is presented with a single large infiltrated plaque on the abdomen. Although histology showed a necrotizing folliculitis surrounded by a dense perifollicular inflammatory infiltrate, the clinical presentation was not suggestive of folliculitis. Subtle cyto-histological clues for viral infection were suggested. Immunohistochemistry revealed the presence of VZV in the remnants of the follicular structures. This report underlines one of the protean clinical presentations of VZV skin infections and highlights the discreteness of typical VZV-related cyto-histological alterations. Complementary VZV identification methods such as immunohistochemistry, are helpful in order to increase the diagnostic accuracy of unusual VZV lesions.

Key words: varicella zoster virus, folliculitis, immunohistochemistry

The varicella zoster virus (VZV) is the agent responsible for varicella and herpes zoster. These clinical entities are well established and usually easily recognized on clinical evaluation. However, VZV is also responsible for atypical clinical presentations, particularly in the immunocompromised subject. These lesions encompass granulomatous reactions [1], folliculitis [2-5], verruciform lesions [6], and lichenoid reactions [7]. The cyto-histological features of these atypical VZV lesions are also heterogenous, rendering histological diagnosis complicated [1-7].
The case reported here illustrates both the atypical clinical features and histological characteristics of the VZV follicular infection.

Case report

A 51-year-old woman without any remarkable past medical history and any drug intake presented with a single asymptomatic erythematous indurated plaque on the abdomen *(Fig. 1)*. She had no evidence of any underlying malignancy or immunocompromised status. HIV serology was

Figure 1. *Single asymptomatic indurated plaque on the abdomen.*

Figure 2. *Dense superficial and deep perivascular and perifollicular lympho-histiocytic infiltrate.*

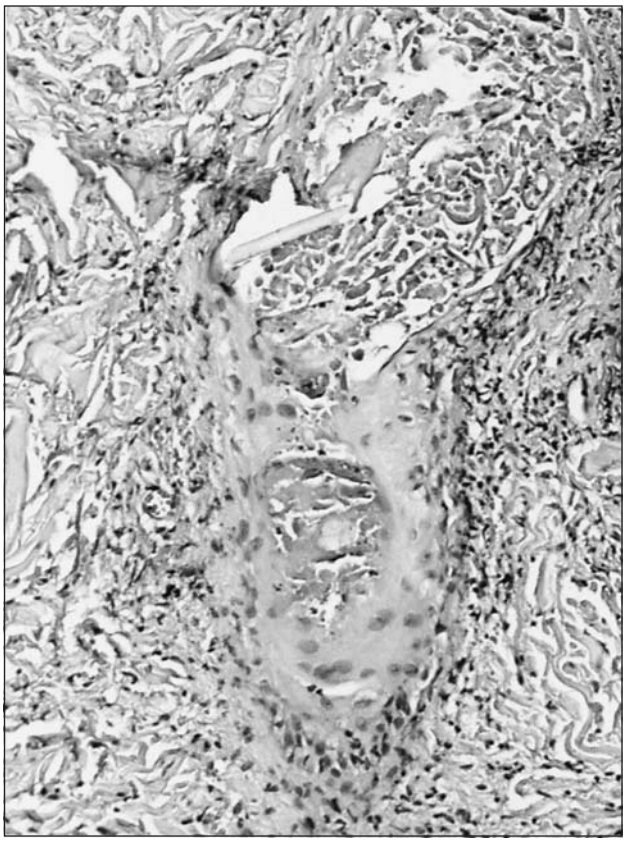

Figure 3. *High power magnification reveals alterations suggestive of cytopathic changes.*

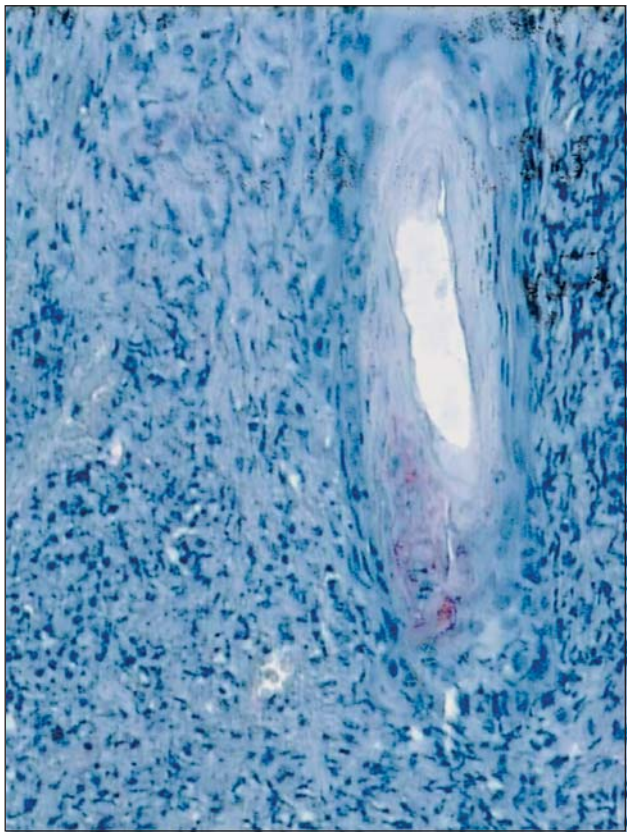

Figure 4. *VZV IE63 antigen expression in follicular keratinocytes (red signal).*

negative. Previous serological screening revealed the IgM – and IgG + status of past infections due to HSV, CMV, EBV and VZV. Other blood tests and liver analysis were normal. The patient had never experienced herpes zoster (HZ). The lesion appeared three weeks previously and had reached 4 × 3 cm in extension. It was not clearly delineated. No epidermal changes were clinically noted. There was no fever and no recall of an insect bite. Further physical examination was unremarkable. Automedication with weak topical corticosteroids and antimycotics had not improved the clinical presentation. A punch biopsy was performed. A dense perivascular and perifollicular lymphohistiocytic infiltrate *(Fig. 2)* was present. The epidermis was intact. In contrast, necrosis was present in the mid and deep portions of the hair follicles. Some cells had abundant cytoplasm *(Fig. 3)*. These alterations prompted an immunohistochemical search for herpes simplex virus (HSV), using polyclonal anti-HSV 1 and anti-HSV 2 antibodies (Dakopatts°, Denmark) and varicella zoster virus (VZV), using the monoclonal antibody VL8 directed against the gE major envelope glycoprotein [9] as well as the polyclonal anti-VZV IE63 antibody [6]. A standard immunohistochemical ABC (Dakopatts°) staining procedure was performed as published earlier [6, 9]. The VZV IE63 antigen and gE glycoprotein were demonstrated in some follicular keratinocytes, presenting a predominantly nuclear and membraneous immunostaining pattern, respectively *(Fig. 4)*.

Upon diagnosis, oral treatment with valaciclovir (1000 mg, 3 times daily for 7 days) was administered. The lesion cleared after about two weeks without residual scarring.

Discussion

The pilosebaceous structures surrounded by a rich network of nerve endings represent a prefential pathway for the VZV spread to the epidermal keratinocytes [1]. However, VZV folliculitis is rarely identified, but is probably underrecognized in HSV and VZV infections [2-5]. Although no data from large series are available, clinical experience and case reports provide some insight about VZV follicular infection. The clinical presentation of this entity is variable [2-5]. The lesions may be single or multiple, and the duration is commonly longer than epidermal HZ [5]. The prevalence of VZV folliculitis is unknown, but probably increases with age, similarly to the classic type of HZ [5]. Although prodromal or concomittant pain, as well as postherpetic neuralgia are characteristic features of HZ in the elderly. This report and previous personal experience [8] however suggest that VZV folliculitis is not typically painful. We hypothesise that the clinical presentation is probably determined by the localisation of the infection in the follicular structures. An infection located near the follicular ostium frequently extends to the nearby epidermal keratinocytes and results clinically in a vesicular or pustular

folliculitis. In such instances, confirmation of the diagnosis can be obtained on a Tzanck smear [2]. A deeper infection without epidermal involvment leads to inflammatory papules and plaques. These lesions are probably not identified clinically as HZ, and they require a biopsy to reach the diagnosis. However, this case illustrates that the clinical expression of a follicular VZV infection may be heterogenous and is not always clinically recognized as a folliculitis.

Histologically, VZV folliculitis may exhibit ballooning degeneration of follicular keratinocytes, intranuclear inclusions and syncytial cell formation. Uni- or multilobular intraepidermal vesicle formation can also be present [2-5]. This case also indicates that VZV infection does not always show prominent cytological alterations, but only necrosis. This could be the case in older lesions. Although the histological features are non-distinctive between HSV and VZV, immunohistochemistry can identify the causative virus [9]. Currently, there are no controlled data indicating the opportunity of initiating an antiviral treatment in localized VZV folliculitis. The situation is obviously different when VZV or HSV folliculitis is present in the context of a widespread infection, particularly in immunocompromised patients and those suffering from acantholytic dermatoses.

In conclusion, VZV folliculitis probably remains an underrecognized entity because of its clinical and histological protean aspects. The immunohistochemical identification of VZV infection on a skin biopsy allows us to reach the correct diagnosis. ■

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