Genital warts are the most frequently observed form of HPV infection and, to date, only 1 double-blind phase II clinical trial has been published on the use of topical cidofovir.[9] In that trial, 47% of the 19 patients in the group treated with cidofovir had a complete response with no important side effects reported. This percentage is similar to those obtained with other topical treatments, such as imiquimod and podophyllotoxin.[10]

This case supports the suggestion that topical cidofovir provides an effective alternative to patients with genital warts resistant to conventional therapies. However, clinical trials are required to determine the efficacy and safety of topical cidofovir in cutaneous lesions caused by HPV.

References

1. Koutsky L. Epidemiology of genital human papillomavirus infection. Am J Med. 1997;102:3-8.
2. Hagensee ME, Cameron JE, Leigh JE, Clark RA. Human papillomavirus infection and disease in HIV-infected individuals. Am J Med Sci. 2004;328: 57-63.
3. Brown RE, Breugelmans JG, Theodo ratou D, Benard S. Costs of detection and treatment of cervical cancer, cervi cal dysplasia and genital warts in the UK. Curr Med Res Opin. 2006;22: 663-70.
4. O'Mahony C. Genital warts: current and future management options. Am J Clin Dermatol. 2005;6:239-43.
5. Calista D. Topical cidofovir for severe cutaneous human papillomavirus and molluscum contagiosum infections in patients with HIV/AIDS. A pilot study. J Eur Acad Dermatol Venereol. 2000; 14:484-8.
6. Calista D. Regression of a cutaneous melanoma metastasis after intralesional cidofovir [letter]. Melanoma Res. 2003;13:205-6.
7. Calista D. Topical 1 % cidofovir for the treatment of basal cell carcinoma. Eur J Dermatol. 2002;12:562-4.
8. Andrei G, Snoeck R, Piette J, Del venne P, De Clercq E. Antiprolifera tive effects of acyclic nucleoside phosp honates on human papillomavirus (HPV)-harboring cell lines compared with HPV-negative cell lines. Oncol Res. 1998;10:523-31.
9. Snoeck R, Bossens M, Parent D, Delaere B, Degreef H, Van Ranst M, et al. Phase II double-blind, placebo controlled study of the safety and effi cacy of cidofovir topical gel for the treatment of patients with human papillomavirus infection. Clin Infect Dis. 2001;33:597-602.
10. Yan J, Chen SL, Wang HN, Wu T. Meta-analysis of 5 % imiquimod and 0.5 % podophyllotoxin in the treat ment of condylomata acuminate. Der matology. 2006;213:218-23.

Neonatal Zosteriform Herpes Simplex

J del Boz,[a] L Affumicato,[b] T Martín,[a] D Moreno-Pérez,[b] and Á Vera[a]

[a]Servicio de Dermatología and [b]Servicio de Pediatría, Complejo Hospitalario Carlos Haya, Málaga, Spain

To the Editor:

It is almost impossible to distinguish clinically between the cutaneous lesions of zosteriform herpes simplex caused by the herpes simplex virus (HSV) and those occurring in herpes zoster due to infection with the varicella zoster virus (VZV),[1-4] and the distinction is particularly important in neonates, such as the case described in this letter, when correct and early diagnosis and prompt treatment are imperative.[1-3] Some of the published cases of neonatal herpes zoster may actually have been HSV infections, since in many cases diagnosis was clinical and the causal virus was not isolated.[3-6]

We present the case of an 11-day-old full-term newborn infant (gestational age of 40 weeks) admitted to our hospital with a 3-day history of low-grade fever accompanied by umbilicated vesicles and pustules on localized inflamed bases in a metameric configuration on the right-hand side (Figure 1). There were no other previous or concurrent signs or symptoms. The pregnancy and immediate postpartum period had been without incident, and there had been no known contact with cases of chickenpox or zoster. The birth had been by unassisted vaginal delivery. The mother reported having had chicken pox when she was 9 years of age and, when a more detailed clinical history was obtained, reported a history of recurrent vaginal burning and redness indicative of herpetic lesions in the genital area, although none were evident at the time.

The results of blood tests in the infant, including a basic immunologic workup (immunoglobulins and lymphocyte subpopulations), were normal. The results of blood culture

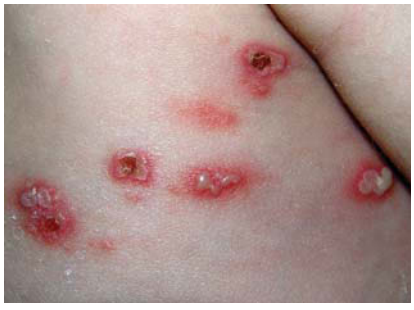

Figure 1. Skin lesions on admission.

Table. Additional Tests Performed

Test	*Neonate*	*Mother*
Serology for VZV	IgM (–), IgG (–)	IgM (–), IgG (+)
Serology for HSV-1	IgM (+), IgG(–)	IgM (–), IgG (+)
Serology for HSV-2	IgM (–), IgG(–)	IgM (–), IgG (–)
PCR in blood	VZV (–), HSV not performed	Not performed
PCR in skin lesion	HSV-1 (+), HSV-2 (–), VZV (–)	Not performed

Abbreviations: HSV, herpes simplex virus; Ig, immunoglobulin; PCR, polymerase chain reaction; VZV, varicella zoster virus.

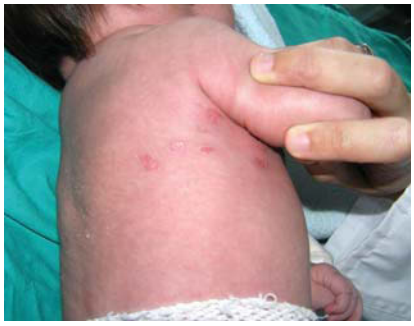

Figure 2. Skin lesions 1 week after starting treatment with intravenous acyclovir.

and standard culture of the skin lesions were negative. Of particular interest were the results of serology (HSV-1 immunoglobulin [Ig] G negative and IgM positive) and a punch biopsy of one of the child's blisters. The biopsy revealed histology typical of a herpetic infection[7] and the presence of an intraepidermal blister caused by keratinocyte necrosis. In the remaining intact keratinocytes, grayish nuclear inclusions with a ground glass appearance were observed together with chromatin margination. A polymerase chain reaction (PCR) assay of a specimen of the biopsy material revealed HSV-1 (Table). These findings established a definitive diagnosis of zosteriform herpes simplex attributed to possible infection in the birth canal.

Treatment was initiated with intravenous acyclovir at a dose of 30 mg/kg/d for 14 days with gradual resolution of the lesions (Figure 2). The patient remained asymptomatic and there was no recurrence of the blisters during 15 months of outpatient follow-up.

Clinical suspicion of neonatal herpes simplex should be particularly high in the case of assisted delivery or when the mother presents genital lesions consistent with a diagnosis of herpes simplex (and still higher when a peripartum primary genital herpes infection is suspected).

Thirty years ago, more than 85% of cases of neonatal herpes were caused by HSV-2.[2] Today, HSV-1 is the cause in almost 50% of cases in immunocompetent young mothers.[3] The current incidence of neonatal herpes is estimated to be 15 cases per 100 000 neonates, although many authors consider the disease to be underdiagnosed.[2,3]

When the medical history is incomplete or the lesions are atypical, and particularly when a quick diagnosis is needed because the patient is immunocompromised, has severe disease, or when there is a possibility of dissemination or serious repercussions arising from incorrect diagnosis or treatment, additional tests should be ordered to confirm the diagnosis. Histology and the Tzanck test are not useful for differentiating between lesions caused by HSV and VZV, and blood tests are only useful in the diagnosis of primary but not recurrent herpes infections.[3,8] VZV/HSV culture is the most specific test for diagnosis, but it is not the most sensitive and often takes too long.[7] Viral antigen detection by direct immunofluorescence of a specimen from a fresh vesicular lesion is an economical, rapid, and sensitive diagnostic tool. Other tests examine viral genetic material using in situ hybridization or PCR. These tests are quick and sensitive, but rarely necessary in routine practice. It is important to bear in mind that a detailed medical history is helpful in determining etiology in these cases.

In around 70% of cases, localized cutaneous herpes infection in neonates will progress to disseminated disease or localized involvement of the central nervous system and give rise to neurological damage that will only become clinically evident months or years later.[9] Therefore, recognition of the skin lesions, which are sometimes atypical, is essential.[10]

Neonatal herpes zoster is exceptional because it is usually the result of a VZV infection acquired by the mother during pregnancy, although it can also be caused by postnatal exposure to VZV at an early age.[11,12]

The treatment recommended for neonatal mucocutaneous infection with herpes simplex is intravenous acyclovir for 14 days at a dose of 30 to 60 mg/kg/d in 3 to 4 doses. This regimen has reduced to 2% the morbidity associated with these cases.[2] In the case of encephalitis or disseminated disease, the treatment should be continued for 21 days.[9] The recommended treatment for a neonatal herpes zoster infection is similar to that used for chickenpox in immunocompromised patients, that is, intravenous acyclovir at a dose of 30 mg/kg/d in 3 doses for 7 to 14 days depending on the severity (in particular the extension) and course of the disease.[9]

References

1. Koskiniemi M, Happonen JM, Järvenpää AL, Pettay O, Vahery A. Neonatal herpes simplex virus infection: a report of 43 patients. Pediatr Infect DisJ. 1989;8:30-5.
2. Nahmias AJ. Neonatal HSV infections. Herpes. 2004;11:33-7.
3. Villalobos T, McMahon MC, Rathore MH. Recurrent periorbital zosteriform

herpes simplex virus infection in childhood. Ambulatory Child Health. 2000;6:59-66.
4. Kalman CM, Laskin OL. Herpes zoster and zosteriform herpes simplex virus infections in immunocompetent adults. Am J Medic. 1986;81:775-8.
5. Nikkels AF, Nikkels-Tassoudji N, Piérard GE. Revisiting childhood herpes zoster. pediatr dermatol. 2004; 21:18-23.
6. Kakourou T, Theodoridou M, Mostrou G, Syriopoulou V, Papadogeorgaki H, Constantopoulus A. Herpes zoster in children. J Am Acad Dermatol. 1998;39:207-10.
7. Requena L. Diagnóstico y diagnóstico diferencial del herpes zóster. Actas Dermosifiliogr. 2006;97 Supl 3:17-24.
8. Goldman BD. Herpes Serology for Dermatologists. Arch Dermatol. 2000;136:1158-61.
9. Prober CG, Arvin AM. Herpes simplex virus. Varicella-zoster virus. In: Long S, Pickering LK, Prober CG, editors. Principles and Practices of Pediatric Infectious Diseases. 2nd ed. Philadelphia: Churchill-Livingston; 2003. p. 1032-50.
10. Rabalais GP, Adams G, Yusk JW, Wilkerson SA. Zosteriform denuded skin caused by intrauterine herpes simplex virus infection. Pediatr Infect Dis J. 1991;10:79-80.
11. Brown ZA, Wald A, Morrow RA, Selke S, Zeh J, Corey L. Effect of serologic status and cesarean delivery on transmission rates of herpes simplex virus from mother to infant. JAMA. 2003;289:203-9.
12. Kurlan JG, Connelly BL, Lucky AW. Herpes zoster in the first year of life following postnatal exposure to varicella-zoster virus. Arch Dermatol. 2004;140:1268-72.

A Case of Linear Atrophoderma of Moulin

N López, MA Gallardo, M Mendiola, R Bosch, and E Herrera
Departamento de Dermatología, Hospital Universitario Virgen de la Victoria, Málaga, Spain

To the Editor:

Linear atrophoderma of Moulin is characterized by slightly atrophic hyperpigmented patches that follow Blaschko lines. Only a few cases have been reported since the condition was first described by Moulin et al[1] in 1992 and most of these have been isolated cases. Moreover, not all of them coincide with the original description. We report the case of a patient with typical clinical and histologic findings.

A 17-year-old male patient presented with hyperpigmented lesions on the right upper arm. The lesions, which had appeared 12 months earlier, occurred as multiple brown macules that formed a distinctive S-shaped curve along the affected arm. Since their onset, they had spread slowly and progressively, grown in number and size, darkened, and acquired a slightly atrophic texture (Figure 1). There were no subjective or objective symptoms, related events, or inflammatory reactions in the affected area. The 2 skin biopsies performed revealed only localized hyperpigmentation in the basal layer of the epidermis (Figure 2). The results of the other tests performed (complete blood count, coagulation, liver and kidney function, antinuclear antibodies, protein profile, erythrocyte sedimentation rate, chest radiograph, and serological tests for *Borrelia*) were all normal. No specific treatment was prescribed and, with the exception of the darkening of the atrophic patches, the condition remained unchanged during the first 6 months of follow-up. Four years later, the lesions seem to be stable and there have been no evident changes.

Linear atrophoderma of Moulin is a rare skin condition featuring lesions that follow Blaschko lines.[1,2] In our review of the literature, we found 22 publications describing the condition (Table). Because several of the clinical and histologic features described do not adhere strictly to the original description provided by Moulin et al,[1] the true number of cases may actually be smaller.

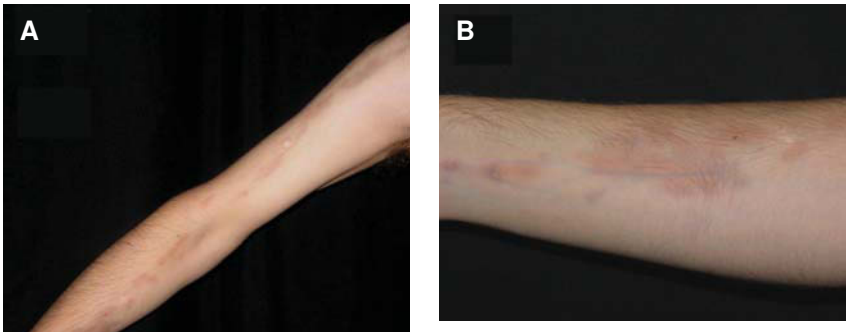

Figure 1. A, Multiple brown macules following Blaschko lines on upper arm. B, Close-up of the slightly atrophic appearance of the hyperpigmented lesions.