

## References

1. Glezen WP, Denny FW: Epidemiology of acute lower respiratory disease in children. *New England Journal of Medicine* (1973) 288:498–505
2. Chanock RM, Parrott RH: Acute respiratory disease in infancy and childhood: present understanding and prospects for prevention. *Pediatrics* (1965) 36:21–39
3. Lipson SM, Krilov LR: Comparison of the rapid second generation directigenR EIA with cell culture and immunofluorescence for the detection of respiratory syncytial virus in nasopharyngeal aspirates. *Clinical and Diagnostic Virology* (1994) 2:105–112
4. Ray CG, Minnich LL: Efficiency of immunofluorescence for rapid detection of common respiratory viruses. *Journal of Clinical Microbiology* (1987) 25:355–357
5. Rothbarth PhH, Hermus M-C, Schrijnemakers P: Reliability of two new test kits for rapid diagnosis of respiratory syncytial virus infection. *Journal of Clinical Microbiology* (1991) 29:824–826
6. Krilov LR, Lipson SM, Barone SR, Kaplan MH, Ciamician Z, Harkness SH: Evaluation of a rapid diagnostic test for respiratory syncytial virus (RSV): potential for bedside diagnosis. *Pediatrics* (1994) 93:903–906
7. Swierkosz EM, Flanders R, Melvin L, Miller JD, Kline MW: Evaluation of the Abbott TESTPACK RSV enzyme immunoassay for detection of respiratory syncytial virus in nasopharyngeal swab specimens. *Journal of Clinical Microbiology* (1989) 27:1151–1154
8. Thomas EE, Book L: Comparison of two rapid methods for detection of respiratory syncytial virus (RSV) (TestPack RSV and Ortho RSV ELISA) with direct immunofluorescence and virus isolation for the diagnosis of pediatric RSV infection. *Journal of Clinical Microbiology* (1991) 29:632–635
9. Dominguez EA, Taber LH, Couch RB: Comparison of rapid diagnostic techniques for respiratory syncytial virus and influenza A virus respiratory infections in young children. *Journal of Clinical Microbiology* (1993) 31:2286–2290
10. Wren CG, Bate BJ, Masters HB, Lauer BA: Detection of respiratory syncytial virus antigen in nasal washings by Abbott TestPack enzyme immunoassay. *Journal of Clinical Microbiology* (1990) 28:1395–1397

## Relationship between Erythema of the Proximal Nailfold in HIV-Infected Patients and Hepatitis C Virus Infection

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Periungual erythema was first described in HIV-infected patients in 1995 by our group [1]. In 1996 Pechère et al. [2] presented nine patients with periungual erythema, all of whom were serologically positive

for hepatitis C virus (HCV) antibodies. All had active viral hepatitis, and in six patients hepatitis C-RNA was found. In the nine patients we reported, only four had a serological test positive for HCV [3]. However, the percentage of HCV infections may have been underestimated, as serological tests for HCV were not performed in all patients who had no signs of chronic liver disease. To give a description of the course of disease and a possible relationship with HCV, we present an overview of 21 patients, eight of whom have been presented earlier [3, 4].

Through 30 June 1997, we documented periungual erythema in 22 of 540 (4.1%) HIV-infected patients. HIV-infected persons were examined routinely every 6 months by a dermatologist. Demographic, clinical, and laboratory data of the 21 patients we analysed are shown in Table 1. Asymptomatic erythema was restricted to the distal part of the fingers in nine patients and to the distal part of the toes in 10 patients and was found in both sites in two patients. Some patients had telangiectases. Marked palmar erythema was observed in nine patients. Periungual erythema was documented at two consecutive consultations or repeatedly in nine patients; in four of these patients, the erythema disappeared.

The HIV viral load at the time of diagnosis was available for 19 patients; it showed no correlation with the presence of periungual erythema (Table 1). Serological data regarding HCV infection was at least partly available for 20 patients. Serological tests for HCV (second-generation EIA; Abbott, USA) were confirmed as positive in 12 patients and were negative in five patients. In one patient the confirmatory test (Dediscan; Sanofi, France) for HCV was questionable. This patient also had cryoglobulinemia, a complication that can occur during HCV infection [5]. In three patients serological testing for HCV was either not done or was not available. Chronic hepatopathy documented by elevated liver enzymes was seen in seven patients. No patient tested positive for hepatitis B surface antigen, which indicates that all were free of acute or chronic hepatitis B infection.

In our series of 21 patients, 12 had documented HCV infection. In one other patient, HCV infection was highly probable. In five patients serological testing for HCV was negative. Therefore, it is possible that conditions other than HCV may also contribute to erythema. One patient (no. 11) who tested negative serologically for HCV and HBV but who was a known alcohol abuser with elevated liver enzyme values had periungual and palmar erythema. Another patient (no. 15) with a history of alcohol abuse and recurrent pancreatitis had no signs of chronic liver disease. In the remaining three patients with negative HCV serological tests, no sign of chronic hepatopathy was found. In

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**Table 1** Clinical and laboratory findings in patients with HIV infection and periungual erythema

Patient no.	Age in years/sex	Focus of infection	>1x*	Mode of transmission	CDC classification	CD4+T cell count in $\mu$ l	HIV viral load (copies/ml)	HCV antibodies
1	36/m	F/T/P	yes	iv	C3	160	23993	pos
2	40/m	T	no	iv	B1	608	3847	pos
3	35/f	T	no	iv	B3	190	793404	pos
4	32/m	T/P	no	iv/msm	C3	100	413	pos
5	31/f	F/P	yes	iv	C3	157	750000	pos
6	30/f	T/P	yes	iv	B2	374	766	pos
7	38/m	F	yes	iv	B3	260	<244	pos
8	33/m	F	no	msm	A2	370	38515	neg
9	39/m	T	no	iv	B3	45	122085	nd
10	38/f	F	yes	iv	C3	57	15474	prob
11	58/m	T/P	no	bi	C3	5	169254	neg
12	33/m	T	no	iv	C3	30	40271	pos
13	34/m	F	no	iv	C2	260	<274	pos
14	31/m	T/P	yes	iv	B3	119	<418	pos
15	35/m	T	yes	hetero	B3	170	206167	neg
16	29/f	F/P	yes	iv	B2	310	na	na
17	56/m	F	no	msm	B2	270	nd	neg
18	57/m	T	no	msm	C3	20	45060	neg
19	28/f	F	no	iv	A1	851	1329	pos
20	33/m	F/P	no	iv	C3	135	165616	na
21	36/f	F/T/P	yes	iv	C3	95	4467	pos

\* Diagnosis was established in more than one consultation

bi, bisexual; CDC, Centers for Disease Control; F, fingers; HCV, hepatitis C virus; hetero, heterosexual intercourse; iv, intravenous drug abuse; msm, men having sex with men; na, not available; nd, not done; neg, negative; P, palmar erythema; pos, positive; prob, probable; T, toes

these three patients periungual erythema was seen only once, and in two of them it disappeared before the next follow-up visit. However, it is also possible that the serological test for HCV was falsely negative [6]. All patients described by Pechère et al. [2] were intravenous drug users or alcohol abusers. Interestingly, all of our patients who were intravenous drug users had positive serological tests for HCV. There was no correlation between diagnosis of the periungual erythema and the activity of the HIV infection expressed by the actual viral load.

We conclude that periungual erythema in HIV-infected patients is most often associated with HCV infection with or without concomitant activity and non-virus-induced chronic liver disease. Other associations are suggested, especially in transient periungual erythema. Possibly, non-organ-specific autoantibodies in HIV infection [7] play a role in the pathogenesis of periungual erythema, reflecting the large spectrum of antibodies found in HIV-infected patients.

## References

1. Itin PH, Gilli L, Nüesch R, Courvoisier S, Battegay M, Ruffli T, Gasser P: Erythema of the proximal nail fold – a further cutaneous clue to HIV infection? *Dermatology* (1995) 191:176
2. Pechère M, Krischer J, Rosay A, Hirschel B, Saurat JH: Red fingers syndrome in patients with HIV and hepatitis C infection. *Lancet* (1996) 348:196–197
3. Battegay M, Itin PH: Red fingers syndrome in HIV patients. *Lancet* (1996) 348:763
4. Itin PH, Gilli L, Nüesch R, Courvoisier S, Battegay M, Ruffli T, Gasser P: Erythema of the proximal nail fold in HIV-infected patients. *Journal of the American Academy of Dermatology* (1996) 35:631–633
5. Levey JM, Björnsson B, Banner B, Kuhns M, Malhotra R, Whitman N, Romain PL, Cropley TG, Bonkovsky HL: Mixed cryoglobulinemia in chronic hepatitis C infection. *Medicine* (1994) 73:53–67
6. Sugitani M, Inchauspe G, Shindo M, Prince AM: Sensitivity of serological assays to identify blood donors with hepatitis C viraemia. *Lancet* (1992) 339:1018–1019
7. Muller S, Richalet P, Laurent-Crawford A, Barakat S, Riviere Y, Porrot F, Chamaret S, Briand JP, Montagnier L, Hovanessian A: Autoantibodies typical of non-organ-specific autoimmune diseases in HIV-seropositive patients. *AIDS* (1992) 6:933–942

## Intrauterine Rubella Virus Infection Despite Expected Maternal Immunity

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Screening for immunity against the rubella virus is an essential part of the prenatal care of pregnant women.

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