

Cutaneous Cytomegalovirus Infection Presenting as Perianal Ulcers

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A 68-year-old Korean woman was consulted to the department of dermatology to evaluate ulcerated lesions on the perianal area, which developed about 3 weeks after a cadaveric renal transplantation. Histopathologic examination showed large atypical cytomegalic cells in the upper dermis. Polymerase chain reaction (PCR) study revealed positive cytomegalovirus (CMV) deoxyribonucleic acid (DNA) from the skin tissue.

We herein present a case of cutaneous CMV infection presenting as perianal ulcers.
(*Ann Dermatol* 14(1) 56-58, 2002).

Key Words : Cytomegalovirus, Renal transplantation, Perianal ulcer

CMV infection is known to be common in organ transplant recipients, patients with malignant neoplasms, and patients with acquired immunodeficiency syndrome (AIDS)¹. The manifestations of CMV infection frequently include ocular, gastrointestinal, and pulmonary symptoms but cutaneous lesions have been reported rarely². In Korea, only two cases were previously reported^{3,4}. We report a case of 68-year-old female with CMV inclusion disease presenting as perianal ulcers which developed about 3 weeks after a cadaveric renal transplantation.

CASE REPORT

A 68-year-old Korean woman was consulted to the department of dermatology to evaluate ulcerated lesions on the perianal area. She had suffered from diabetes mellitus

and hypertension for more than 20 years and had been diagnosed as having a chronic renal failure 2 years before. She had been treated with hemodialysis. She underwent a cadaveric allogenic renal transplantation due to her end stage renal disease and thereafter she was taking medicines including mycophenolate mofetil, cyclosporin, and prednisolone. About 3 weeks later, multiple ulcers developed on her perianal area (Fig. 1). Results of the following laboratory studies were within normal limits or negative; a blood cell count, urinalysis, liver function tests, chemical battery, and CMV cultures in the blood and urine. The blood CMV IgG was positive, 175 in titer but not IgM. On chest X ray, there were no abnormal findings. Histopathologic examination showed Owl's eye-appearing endothelial cells, which had large nuclei with basophilic intranuclear inclusions surrounded by perinuclear halo in the upper dermis (Fig. 2) and PCR study revealed positive CMV DNA from the tissue (Fig. 3). Diagnosis of CMV inclusion disease was done. She was treated with intravenous ganciclovir 250 mg two times daily and the lesions healed slowly.

Received May 28, 2001.

Accepted for publication September 18, 2001.

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Fig. 1. Well-defined irregular perianal ulcers with overlying white crust and erythematous border.

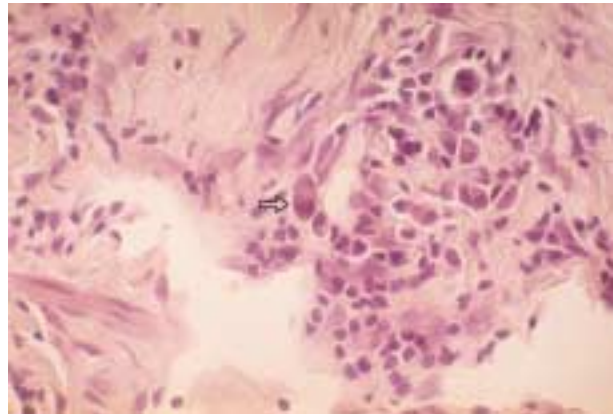


Fig. 2. Owl's eye-appearing atypical cytomegalic cell (arrow) (H&E, ×400).

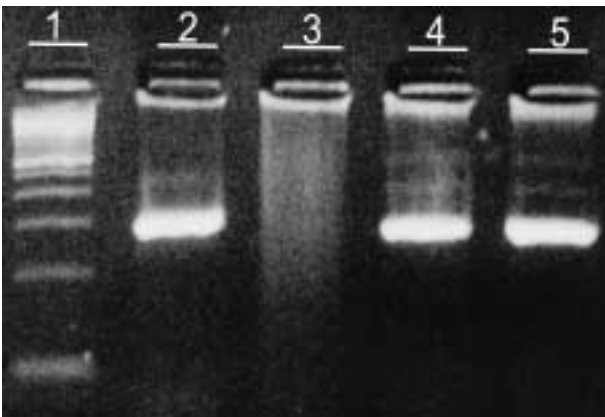


Fig. 3. Polymerase chain reaction.
Line 1: 1kb marker.
Line 2: positive CMV DNA from the positive control.
Line 3: negative control.
Line 4 & 5: positive CMV DNA from the tissue.

DISCUSSION

CMV is a DNA virus and is a member of the herpes family of viruses, which also includes herpes simplex virus, varicella-zoster virus, and Epstein-Barr virus¹. Like the other herpes viruses, CMV normally exists in certain tissues in a latent state after the primary infection, and the virus may be excreted for months or years and may manifest periodic episodes of reactivation^{1,5,6}. The virus can be isolated from urine, breast milk, semen, tears, feces, saliva, blood, cervical secretions, and lymphocytes in healthy

persons^{1,3,6}.

It has been estimated that the majority of the population has been infected with CMV by puberty, with the incidence of exposure continuing to rise thereafter, probably related to venereal spread¹. After primary CMV infection, which is most often subclinical and asymptomatic, the virus persists in a lifelong latent stage with the omnipresent potential for reactivation. Symptomatic clinical infection in immunocompetent hosts is rare. Clinically apparent disease may manifest itself in neonates and in the immunosuppressed or immunocompromised hosts^{6,7}. With increasing numbers of organ transplant recipients and individuals infected with the human immunodeficiency virus (HIV), the incidence of symptomatic CMV-associated morbidity and mortality has also increased^{3,6}. More than 80% of the primary infections and more than 20% of the reactivation infection in renal transplant patients are symptomatic⁸. Symptomatic CMV infection may present as mononucleosis, pneumonitis, hepatitis, encephalitis, chorioretinitis, or gastroenteritis but cutaneous lesions have been reported rarely². The most specific cutaneous manifestation of CMV is ulceration, especially in the perianal area. Ulcerations on the buttocks, perineum, and thigh with visceral involvement have also been well described. Other types of cutaneous lesions are indurated hyperpigmented nodules or

plaques, a widespread exanthem that may become papular and purpuric, and vesiculobullous lesions^{2,9,10}.

Light and electron microscopy, immunofluorescence and immunoperoxidase techniques, and cytopathic effects in human fibroblast tissue cultures allow reliable microscopic detection of CMV¹¹. In situ DNA hybridization and PCR technique are also useful methods⁶. The characteristic finding in infected tissue is the presence of cytomegalic cells with large intranuclear inclusions surrounded by a clear halo. Occasionally cytoplasmic inclusions are also observed^{1,3,6,10}. Cytomegalic cells may appear in urine¹. The diagnosis of CMV infection by histologic findings alone is not always possible since the typical CMV-associated inclusions may be subtle and relatively sparse even in highly infected tissues¹².

Patients with cutaneous CMV have a very poor prognosis, with a mortality rate that approximates 85 percent within 6 months, although most of these cases were reported before the general use of improved antiviral agents^{6,12}. CMV is the major cause of morbidity and mortality in renal transplant recipients. Especially, CMV infection is very critical during first 3 postoperative months, presumably a consequence of the intense immunosuppression required during this period to prevent allograft rejection⁸.

High-dose acyclovir can be used effectively as prophylaxis against CMV infection, although it is ineffective against active viral disease. Ganciclovir, a nucleoside analogue of acyclovir, is known to be 50 times more effective than acyclovir in vitro against CMV and inhibits viral DNA polymerase⁶.

Because skin lesions may be clues to the presence of disseminated CMV infections and early diagnosis and treatment may lead to a successful outcome, recognition of these

infections assumes increased significance^{1,6}.

REFERENCES

1. Leshner JL: Cytomegalovirus infections and the skin. *J Am Acad Dermatol* 18:1333-1338, 1988.
2. Bournierias I, Boissac S, Patey O, et al.: Unusual cutaneous cytomegalovirus involvement in patients with acquired immunodeficiency syndrome. *Arch Dermatol* 125:1243-1246, 1989.
3. Kim SD, Kim HB, Youn SW, et al: A case of cytomegalovirus induced perineal ulcer in an AIDS patient. *Korean J Dermatol* 37:257-261, 1999.
4. Chang SE, Jung EC, Choi JH, et al: A case of cytomegalovirus induced purpura in a bone marrow transplant recipient. *Korean J Dermatol* 38:966-968, 2000.
5. Stagno S, Whitley RJ: Herpesvirus infections of pregnancy. *N Engl J Med* 313:1270-1273, 1985.
6. Bowers KE: Cytomegalovirus infection. In Fitzpatrick TB, Eisen AZ, Wolff K, et al. (eds): *Dermatology in general medicine*. 5th ed. McGraw-Hill, New York, 1999, pp2450-2457.
7. Vilmer C, Perol Y: Cutaneous manifestations of cytomegalovirus infections. *Ann Dermatol Venereol* 111:119-125, 1984.
8. Lee JY: Cytomegalovirus infection involving the skin in immunocompromised hosts. A clinicopathologic study. *Am J Clin Pathol* 92:96-100, 1989.
9. Smith KJ, Skeleton III HG, James WD, Peter Angritt: Concurrent epidermal involvement of cytomegalovirus and herpes simplex virus in two HIV-infected patients. *J Am Acad Dermatol* 25: 500-506, 1991.
10. Parisier RJ: Histologically specific skin lesions in disseminated cytomegalovirus infection. *J Am Acad Dermatol* 9:937-946, 1983.
11. Horn TD, Hood AF: Clinically occult cytomegalovirus present in skin biopsy specimens I immunosuppressed hosts. *J Am Acad Dermatol* 21: 781-784, 1989.
12. Toome BK, Bowers KE, Scott GA: Diagnosis of cytomegalovirus infection: A review and report of a case. *J Am Acad Dermatol* 24:860-867, 1991.