

Primary Cutaneous Cryptococcosis

Dong-Hoon Shin, M.D., Kyung-Soo Kim, M.D., Ji-Min Lee, M.D.,
Jong-Soo Choi, M.D., and Ki-Hong Kim, M.D.

Department of Dermatology, College of Medicine, Yeungnam University,
Taegu, Korea

We report a case of primary cutaneous cryptococcosis on the left knee of a 67 year-old woman. She had a large ulcerated and indurated plaque with yellowish purulent exudates on her left knee. A histopathological examination from the lesion showed numerous encapsulated, round spores. Cultures from the lesion showed the presence of *Cryptococcus neoformans*. This may have resulted from an immunosuppressive state due to long-term use of oral corticosteroids. (Ann Dermatol 11(1) 27~29, 1999).

Key Words : Primary cutaneous cryptococcosis

Cryptococcosis is an opportunistic yeast infection, caused by *Cryptococcus neoformans*^{1,2}. It usually has a systemic spread; the main target organs are the lungs and nervous system. The cutaneous cryptococcal infection is a part of systemic cryptococcosis, and most cases are initiated by a hematogenous spread. The cutaneous involvement as a secondary spread occurs in 10% to 15% of all patients with cryptococcosis^{1,9}. Primary cutaneous cryptococcosis (PCC) is extremely rare. It has been postulated that the primary infection is the result of direct inoculation of the fungus into the skin^{6,8}. We describe report a patient, who suffered from such a rare primary cutaneous cryptococcosis.

CASE REPORT

A 67-year-old Korean woman was admitted to our department for evaluation and treatment of ulceration on her left knee. She had had a slowly enlarging erythematous ulcerative lesion on the left knee for 1 month. She had arthralgia, and was treated with long-term oral corticosteroids. A clinical examination showed a 4X4.5 cm sized,

deeply ulcerated, and indurated plaque with a yellowish purulent exudate on her left knee (Fig. 1). A satellite pustular lesion was present near the ulcer. Additionally, well demarcated, scaly erythematous lesions were seen on both thighs and lower legs. Creamy, white hyperkeratotic lesions were also present on all fingers and toe nails. She did not have any systemic symptoms of cryptococcosis. A routine histopathological examination from the lesion showed numerous encapsulated, round spores of the organisms, accompanied by diffuse infiltrates of neutrophils, lymphocytes and macrophages. On PAS staining, the spores were stained red. On Gomori methenamine silver staining, the spores were blackish in color (Fig. 2). Multiple cultures of the lesion on Sabouraud dextrose agar media at 25°C, 37°C were performed. We found moist, smooth surfaced and mucoid cream-colored colonies (Fig. 3). The culture on Christensen urea agar was positive, and the one on niger seed agar showed brown colonies. Lacto-phenol cotton blue stains from the colony showed thick encapsulated budding round spores (Fig. 4). *Trichophyton rubrum* was isolated from cultures taken from the nails and scaly skin lesions on Sabouraud media. CBC, urinalysis, liver function tests, a chest x-ray, C3, C4 and T cell/B cell ratios were all within normal limits. Multi CMI tests were all negative. AFB stains and cultures from the lesion were negative. The patient was treated with oral itracona-

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Reprint request to : Dong-Hoon Shin, M.D., Department of Dermatology, College of Medicine, Yeungnam University, Taegu, Korea

Fig. 1. A 4 × 4.5 cm sized deeply ulcerated, indurated plaque with a yellowish purulent exudate on the left knee.

Fig. 2. Many black stained round spores in the dermis (Gomori methenamine silver stain, × 400).

zole 100 mg twice a day for 15 weeks. The ulcerative lesion completely healed with a scar (Fig. 5).

DISCUSSION

Cryptococcosis is an opportunistic yeast infection caused by *Cryptococcus neoformans*. It is found in the excreta of birds, mainly pigeons and chickens, and in soil contaminated by the organisms^{1,2,5,7}. The organism generally enters the body through the respiratory tract. Direct cutaneous inoculation of

Fig. 3. Moist, smooth surfaced and mucoid cream-colored colonies on Sabouraud dextrose agar.

Fig. 4. Thick encapsulated round spores with budding on lacto-phenol cotton blue stains from the colony.

the organism is rare.

Cutaneous cryptococcosis presents variable features, such as papules, nodules, acneiform pustules, abscesses, or ulcers^{1,2}. Most often the eruption is superficial but progresses to necrosis and deeper ulceration with time. PCC without systemic involvement is extremely rare^{3,9}. Most cutaneous cryptococcal infections are cutaneous manifestations of systemic disease via hematogenous spread. Cutaneous lesions are found in 10% to 15% of cases of systemic cryptococcosis. Therefore, exami-

conazole have proved to be effective against cryptococcosis. They appear to be less toxic than amphotericin B and 5-flucytosine^{1,2,6}.

REFERENCES

1. Sugar AM, Rinaldi MG. Deep mycoses. In: Moschella SL, Hurley HJ (eds): *Dermatology*, 3rd ed. WB Saunders Co., Philadelphia, 1992, pp 934-936.
2. Shadomy HJ, Utz JP. Deep fungal infections. In: Fitzpatrick TB, Eisen AZ, Wolff K, et al (eds): *Dermatology in general medicine*, 4th ed. McGraw-Hill Book, New York, 1993, pp 2475-2477.
3. Sussman EJ, McMahon F, Wright D, et al: Cutaneous cryptococcosis without evidence of systemic involvement. *J Am Acad Dermatol* 11:371-374, 1984.
4. Chuck SL, Sande MA: Infections with *Cryptococcus neoformans* in the acquired immunodeficiency syndrome. *N Engl J Med* 321:794-932, 1989.
5. Lee MK, Kang HC, Hahm JH, et al: Two cases of primary cutaneous cryptococcosis. *Kor J Dermatol* 28(2):216-221, 1990.
6. Goh CL: Cutaneous cryptococcosis successfully treated with itraconazole. *Cutis* 51:377-380, 1993.
7. Goonetilleke AKE, Krause K, Slater DN, et al: Primary cutaneous cryptococcosis in an immunocompromised pigeon keeper. *Br J Dermatol* 133:650-652, 1995.
8. Ng WF, Loo KT: Cutaneous cryptococcosis—primary versus secondary disease. *J Am Acad Dermatol* 15:372-377, 1993.
9. Bohne T, Sander A, Wartha AP, et al: Primary cutaneous cryptococcosis following trauma of the right forearm. *Mycoses* 39:457-459, 1996.
10. Lee SH, Moon SY, Lee JH, et al: A case of cryptococcosis with cutaneous manifestation. *Kor J Dermatol* 33(5):935-939, 1995.

Fig. 5. Completely healed with scarring after 15 weeks of treatment with itraconazole, 200mg daily.

nation to detect other organ involvement should be done. In our patient, there was no evidence of systemic infection.

Cryptococcosis usually develops in an immunocompromised host. Predisposing factors for cryptococcosis in general are AIDS, hematopoietic malignancies, sarcoidosis, and steroid therapy^{1,2,9}. Our patient had suffered from arthralgia and became immunosuppressed by long-term treatment with oral corticosteroids. Multi CMI tests were all negative. Several reports have supported the role of systemic corticosteroids as immunosuppressive agents in patients with cryptococcosis^{7,10}.

Our patient was successfully treated with oral itraconazole. Amphotericin B combined with 5-flucytosine has been used in the past to treat cryptococcosis. In these days, itraconazole and flu-