CASE REPORT

Chromoblastomycosis: A rare entity in Kuwait

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INTRODUCTION

Chromoblastomycosis is a chronic granulomatous mycotic infection of the skin and subcutaneous tissue caused by pigmented fungi, the most common being *Fonsecaea pedrosoi.*[1] The prevalence is higher in rural populations and in countries with a tropical or subtropical climate.[2] It typically occurs on the exposed surfaces of the lower leg following traumatic implantation of the organisms.[3,4] Usually it is an occupation related disease, mainly affecting individuals in tropical and temperate regions.[5] Kuwait comes under dry desert climatic zone. The rarity of chromoblastomycosis in this region can cause some diagnostic difficulties. Hence, we report a rare case of chromoblastomycosis from Kuwait successfully managed with itraconazole.

CASE HISTORY

A 36 yr old male presented with a large warty growth on the left knee for 2 years (Fig.1). It started as a small pea sized growth 2 years back that progressively became enlarged and more keratotic with peripheral extension. The patient was an electrician, and denied any history of trauma at the site. There was no history of pain or discharge from the lesion. Also there was no history suggestive of tuberculosis in patient or family or travel outside the country in the past 3 years.

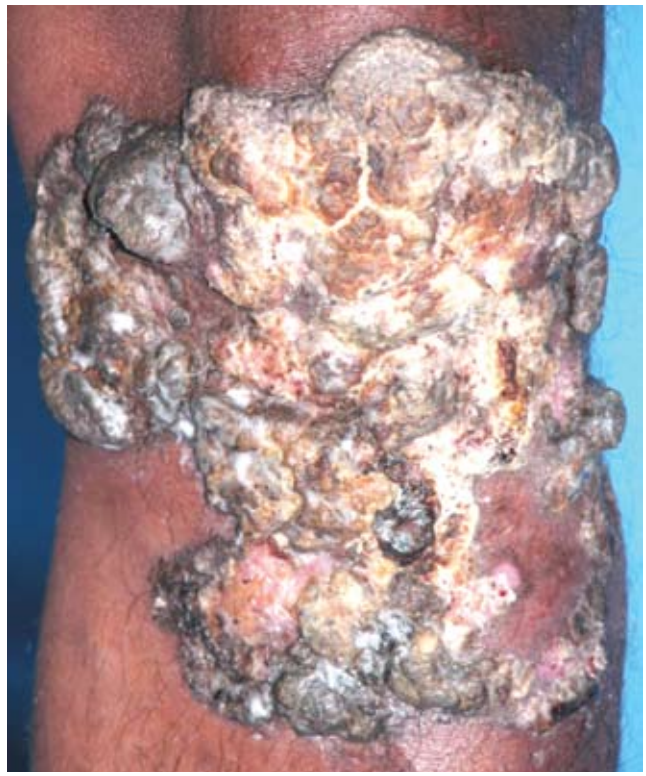

Fig. 1 10cm × 14cm firm, verrucous, fungating dirty grey brown growth on the left knee with punctate black spots and areas of atrophy, scarring, fissuring and crusting

On examination it was a 10cm × 14cm, firm, verrucous, fungating, dirty greyish brown growth on the left knee with surface studded with punctate black spots. It was non tender showing areas of atrophy, scarring, fissuring and crusting. There was no regional lymphadenopathy. Differential diagnosis of tuberculosis verrucosa cutis, hypertrophic lupus vulgaris, atypical

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mycobacteriosis, chromoblastomycosis and squamous cell carcinoma were kept.

His baseline blood and urine examination, were normal. X-ray left knee and Chest X-ray were normal. Potassium hydroxide examination of the scrapings from the black dots revealed classical copper pennies (Fig.2). Incisional biopsy was done and tissue was sent for histopathology and cultures – mycobacterial & fungal. Histopathology showed pseudoepitheliomatous epidermal hyperplasia (Fig.3), marked keratinization, intraepidermal hemorrhage, neutrophilic infiltrate and intrafollicular neutrophilic abscess (Fig.4). Dermis showed mixed inflammatory infiltrate with extravasated erythrocytes, multinucleated giant cells in between the infiltrate (Fig.5) and central neutrophilic collection surrounded by granulomatous infiltrate. Dark brown, thick-walled, ovoid or spheric pigmented spores resembling "copper pennies" surrounded by mixed inflammatory infiltrate (Fig.6) or inside giant cell could be appreciated. Fungal culture showed velvety dark gray to brown colonies with black pigment on the reverse. Microscopic examination of the cultured organism showed sporulation by a combination method, with acrogenous conidia with short branching chains and oval conidia at irregular positions on tips and sides of conidiospores, characteristic of *F. pedrosoi*. This confirmed the diagnosis of chromoblastomycosis. The patient was started on oral Itraconazole 200mg twice daily for 1 week per month, in addition cryotherapy was given every two weeks. There was more than 90% improvement within 5 months (Fig7). Treatment was continued for 2 more months. There was no recurrence till 1 year of follow up.

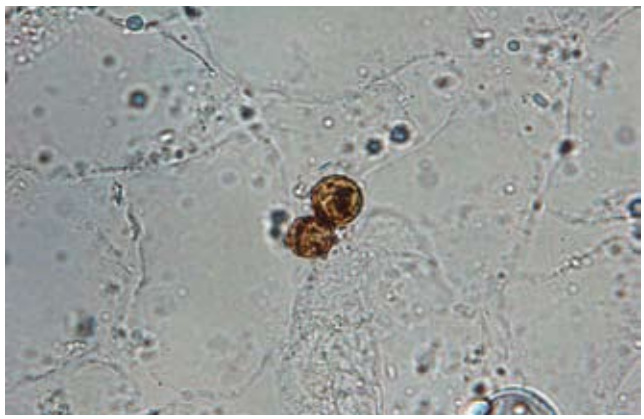

Fig. 2 10% KOH preparation from the black dots showing classical copper pennies

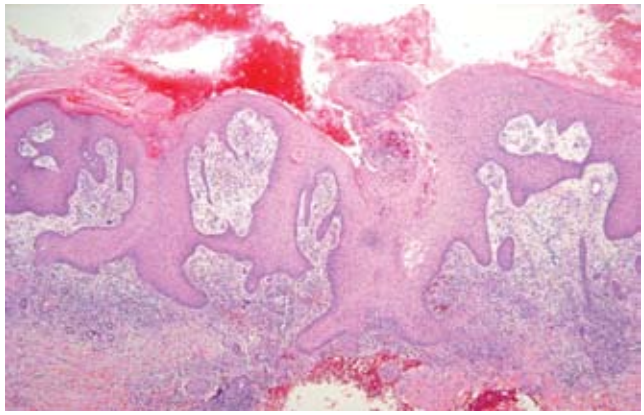

Fig. 3 Scanning power shows pseudoepitheliomatous epidermal hyperplasia with mixed inflammatory infiltrate of the dermis

DISCUSSION

Chromoblastomycosis is subcutaneous mycosis caused by traumatic inoculation of a specific group of dematiaceous fungi through the skin, first described by Max Rudolph in 1914.[2] It has a higher prevalence in rural populations and countries with tropical or subtropical climate. The principal causative agents are: *Fonsecaea pedrosoi, Phialophora verrucosa, Cladosporium carrionii, Fonsecaea compacta* and rarely *Rhinocladiella aquaspersa* or *Exophiala* species. *Fonsecaea pedrosoi* is the most common agent found in

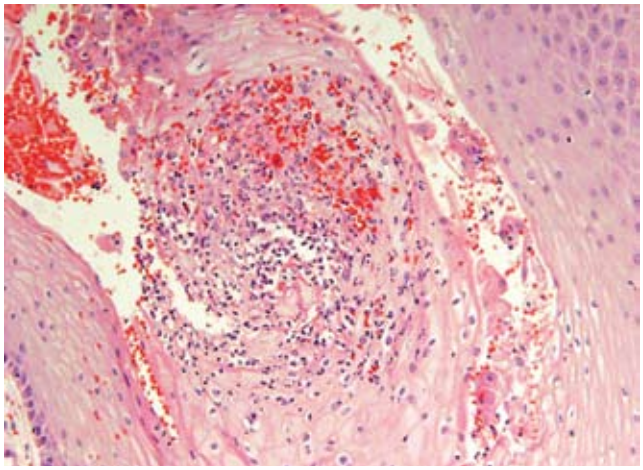

Fig. 4 Intra follicular neutrophilic abscess

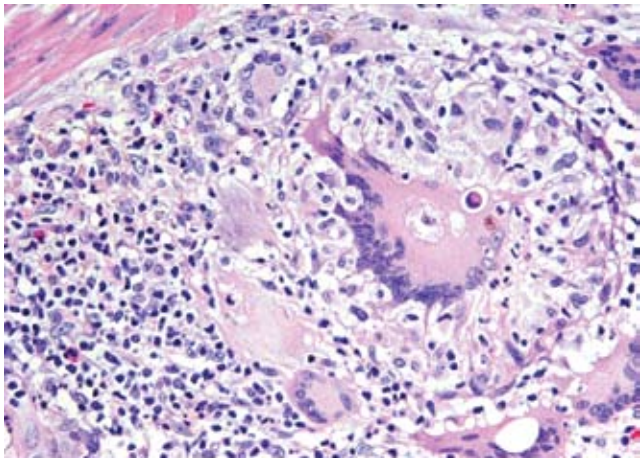

Fig. 5 Multinucleated giant cells in between the infiltrate

tropical forests, as well as temperate regions of Latin America. *Cladophialophora carrionii* is the most important agent in dry countries and desert regions such as Australia, South Africa and Cuba.[6]

The infection usually results from a traumatic injury by wood splinters or thorns, often not remembered or realized by the patient. A small, raised, erythematous asymptomatic papule develops slowly at the site of implantation, overtime producing a warty nodule, limited to the skin and the subcutaneous tissue. Progressively the nodule grows centripetally and spreads to neighboring healthy skin, forming plaques that can sometimes involve the whole limb. It is usually localized but satellite lesions can develop as a result of autoinoculation from scratching or from lymphatic dissemination. As the lesions extend peripherally they leave central healed areas of sclerotic or keloidal scarring. Complications include secondary bacterial infection, ulceration, secondary lymphoedema, and rarely the development of squamous cell carcinoma. Lymphoedema itself can predispose to attacks of cellulitis. Extension of infection to underlying muscle and bone is rare and usually only occurs in association with immunosuppression.[6]

Carrion described five morphologic types consisting of nodular, tumorous, verrucous, plaque and cicatricial lesions.[7] The two most common clinical variants are nodular type and plaque type. Nodular type of lesion develops into verrucous, pedunculated, cauliflower like florets. Plaque type spreads peripherally, with an active, raised border, leaving a central healed area with atrophic and yellowish scar tissue. Numerous black dots may be observed on the surface of both types of clinical variants, where the causative organisms are preferentially found. The sites most commonly affected are the lower extremities, especially the feet, hands, arms and buttocks. Rarely lesions are located on the ear, face and breasts.

On direct microscopic examination of 10% KOH scrapings from the black dots, typical, thick-walled, globe-shaped, cigar-colored, sclerotic cells, known as medlar bodies, resembling copper pennies are found. They are 4-12mm in diameter, multiply by septation, and induce a purulent,

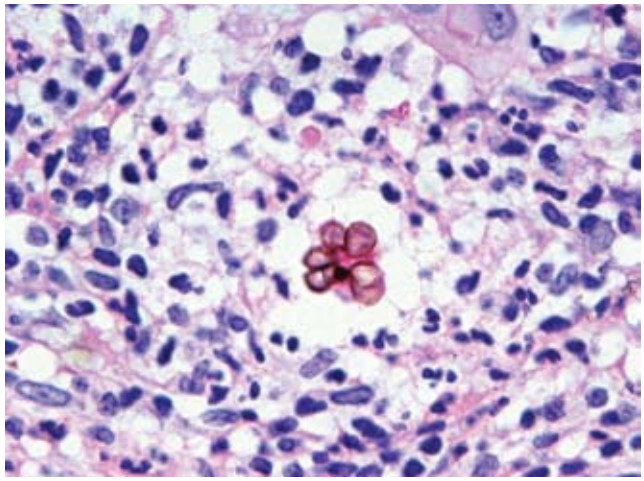

Fig. 6 Pigmented spores resembling "copper pennies" surrounded by mixed inflammatory infiltrate

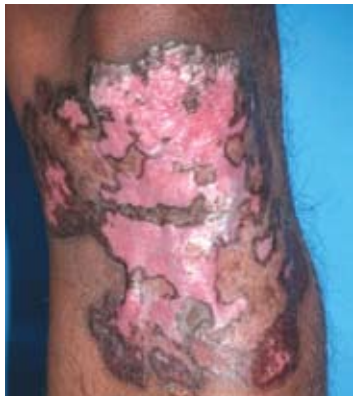

Fig. 7 Outcome 5 months post treatment

granulomatous and inflammatory reaction in tissue. Culture shows slow-growing, dark, velvety colony with a black obverse with identification of individual species, conidia production in cultures. PCR is rapid, sensitive and useful when culture fails. ELISA is helpful for monitoring response to treatment.[6] Bone involvement is not a typical finding in chromoblastomycosis. Regular radiography can be done for old lesions, sites with scarce subcutaneous tissue, and lesions associated with lymphedema. Lymphoscintigraphy to evaluate lymphedema is not routinely used.

On histopathology the tissue response to the fungus is typically mixed. There is pseudoepitheliomatous hyperplasia of the epidermis in around 88% with epidermis playing a role in transepidermal elimination.[8] The dermis shows diffuse and lymphomononuclear inflammatory infiltrate with microabscesses, granulomas, granulomatous reactions, and abscesses surrounded by a granulomatous reaction with giant cells may sometimes be seen in the same section. Inside the giant cells, brown-colored, thick-walled fungal cells may be seen which can be single, 2-celled, or multiple-celled as a result of multiplication by splitting rather than budding.[8]

Treatment can be medical or surgical. Cure rates for chromoblastomycosis are low and range from 15% to 80%. *F. pedrosoi*, the most common aetiological agent is less sensitive to antifungal chemotherapy than *C. carrionii* or *P. verrucosa*.[8] The goal of treating small and early lesions should be complete clinical cure. However, in the case of extensive infection a more realistic goal might be to reduce disease, control spread and prevent complications.[6] Drug therapy consists of long courses of high dose antifungals. First-line agents are itraconazole (200–400 mg daily) and terbinafine (500–1000 mg daily), given for a minimum of 6–12 months. Pulse itraconazole (200 mg twice daily for one week every month) has demonstrated comparable efficacy to daily itraconazole, and the consequent reduction in its cumulative dose has the dual advantage of reducing risks of long-term drug therapy and bringing down the cost of treatment.[9] Combination therapy with itraconazole and terbinafine has synergistic effects, but is very costly.[10]

The new second generation broad-spectrum triazoles such as posaconazole and voriconazole are promising drugs for treating deep cutaneous mycoses, but experience to date is limited because of their prohibitive costs. Outcome may be slightly superior to those obtained by Itraconazole or Terbinafine. A single study demonstrated cure with long-term posaconazole in five out of six patients with chromoblastomycosis refractory to standard antifungal therapies and long-term therapy (up to 34 months) was well tolerated.[11] Drug therapy should be continued for several months after cure in order to prevent relapse, which is more common for extensive disease.

Localized small lesions respond well to cryotherapy with liquid nitrogen. In larger lesions optimal results can be obtained with the combination of both cryosurgery and Itraconazole.[12] Adjunctive treatment include heat therapy with prolonged topical application of tolerable heat from pocket warmers for 6 months or more.[6] Physiotherapy and lymphatic drainage are useful in preventing lymphedema. Nursing care and oral antibiotics may be needed to deal with ulcers and secondary infection. The most common complications are: ulceration, secondary infection, lymphedema – elephantiasis, unaesthetic scars. Rarely the malignant transformation to squamous cell carcinoma occurs. Prognosis is good for small and localized lesions. Large lesions, cure is difficult, although control can be achieved.[2]

REFERENCES

1. Milam CP, Fenske NA. Chromoblastomycosis. Dermatol Clin 1989; 7:219-25.
2. Pradhan SV, Talwar OP, Ghosh A, Swami RM, Shiva Raj KC, Gupta S. Chromoblastomycosis in Nepal: a study of 13 cases. Ind J Dermatol Venereol Leprol. 2007 May-Jun; 73(3):176-8.
3. Lupi O, Tyring SK, McGinnis MR. Tropical dermatology: Fungal tropical diseases. J Am Acad Dermatol 2005; 53:931-51.
4. Minnotto R, Bernardi CD, Mallmann LF, Edelweiss MI, Scrofernker ML. Chromoblastomycosis: A review of 100 cases in the state of Rio Grande do Sul, Brazil. J Am Acad Dermatol 2001; 44:585-92.
5. Queiroz-Telles F, Esterre P, Perez-Blanco M, Vitale RG, Salgado CG, Bonifaz A. Chromoblastomycosis: an overview of clinical manifestations, diagnosis and treatment. Med Mycol. 2009; 47(1):3-15.
6. Ameen M. Managing chromoblastomycosis. Trop Doct. 2010; 40(2):65-7.
7. Vollum DI. Chromomycosis: A review. Br J Dermatol 1977; 96: 454-8.
8. Fabio UJ, Angela IZ, Walter L, Angela R. Histopathology of chromoblastomycosis. Mycopathologia.1989; 105:1-6.
9. Ungpakorn R, Reangchainam S. Pulse itraconazole 400 mg daily in the treatment of chromoblastomycosis. Clin Exp Dermatol 2006; 31:245-7.
10. Gupta AK, Taborda PR, Sanzovo AD. Alternate week and combination itraconazole and terbinafine therapy for chromoblastomycosis caused by Fonsecaea pedrosoi in Brazil. Med Mycol 2002; 40:529-34.
11. Negroni R, Tobon A, Bustamante B, Shikanai-Yasuda MA, Patino H, Restrepo A. Posaconazole treatment of refractory eumycetoma and chromoblastomycosis. Rev Inst Med Trop Sao Paulo 2005; 47:339-46.
12. Bonifaz A, Martinez-Soto E, Carrasco-Gerard E, Peniche J. Treatment of chromoblastomycosis with itraconazole, cryosurgery, and a combination of both. Int J Dermatol 1997; 36:542-7.