

Cryotherapy in chromoblastomycosis

D N Atukorala¹, S P W Kumarasinghe², M P Kumarasinghe³ and J Senevirathne⁴

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Summary

Chromoblastomycosis (chromomycosis) is a subcutaneous fungal infection due to a soil fungus. Many treatment modalities have been described for this condition but complete eradication of the fungus from the body is difficult. Cryotherapy has been used for the treatment of many benign dermatoses but there are only a few case reports of cryotherapy for chromoblastomycosis. We report the first Sri Lankan experience of cryotherapy for chromoblastomycosis.

Seven patients with chromoblastomycosis were treated with liquid nitrogen cryotherapy (General Hospitals, Colombo and Kandy). Cryotherapy was effective, particularly for smaller lesions of chromoblastomycosis. Even for larger lesions it helped to contain the disease. Therefore we recommend cryotherapy for small lesions of chromoblastomycosis as first line of therapy.

Introduction

Chromoblastomycosis (chromomycosis) is a subcutaneous fungal infection due to a variety of dermatiaceous fungi in the genera *phialophora*, *fonsecaea* and *cladosporium*¹. These fungi gain entry through the skin by traumatic implantation and cause verrucous skin lesions which enlarge slowly.

Many treatment modalities have been described in the literature; but still the treatment of this condition is a practical problem. Although, liquid nitrogen has been used in many dermatological conditions there are only a few case reports of use of liquid nitrogen in chromoblastomycosis^{2,3,4}.

Seven consecutive cases of chromoblastomycosis were treated with liquid nitrogen and results are discussed.

Materials and methods

All cases of chromoblastomycosis who presented to the dermatology clinic at General Hospital, Colombo from December 1990 to March 1991 and one case from General Hospital, Kandy (February 1991) were

included in this study. Three patients were diagnosed for the first time and had had no previous treatment. Others came for treatment of recurrences after treatment with other modalities. In all new cases of chromoblastomycosis, clinical diagnosis was confirmed by histopathology. The biopsy specimens were fixed in 10% formol saline and stained with haematoxylin and eosin. Characteristic golden coloured sclerotic bodies of chromoblastomycosis together with a granulomatous reaction was taken as histological confirmation.

Liquid nitrogen from an ordinary vacuum flask was taken and cotton wool swabs fixed to eyles were used. The cotton swabs were made bigger than the usual size used for freezing seborrhoeic keratoses and viral warts, depending on the thickness and the size of the lesion. Liquid nitrogen swabs were kept on the lesion for approximately 20-30 seconds at a time. Thicker lesions were treated longer. Freezing was done intermittently, giving a thaw time of approximately five minutes. Where the lesion was too large to freeze in one sitting, cryotherapy was repeated at variable intervals.

Results

With liquid nitrogen therapy, all patients showed at least some improvement. Patients were followed up for several months at the dermatology clinics. In four cases there were recurrences and they were treated repeatedly with liquid nitrogen. One patient did not turn up for review. In two patients there appeared to be complete clearing of the disease after a few sessions of cryotherapy. Both these patients had relatively small lesions of chromoblastomycosis.

One patient developed haemorrhagic bullae at the edge of the lesion following cryotherapy. Most patients developed necrotic superficial ulcers at the treatment sites. Small ulcers were allowed to heal spontaneously, and larger ulcers were treated with wound dressings and broad spectrum antibiotics.

¹ Consultant Dermatologist, General Hospital, Colombo.

² Consultant Dermatologist, General Hospital, Matara. (Previously attached to General Hospital, Colombo and General Hospital, Kandy.)

³ Consultant Pathologist and Senior Lecturer in Pathology, Faculty of Medicine, University of Colombo.

⁴ Consultant Dermatologist, General Hospital, Badulla. (Previously attached to General Hospital, Colombo.)

Most patients experienced mild to moderate pain following cryotherapy, but there were no major complications. Cryotherapy was well accepted by all seven patients.

Discussion

Chromoblastomycosis is a subcutaneous (deep) fungal infection caused by several species of fungi, namely, *fonsecaea pedrosoi*, *phialophora verrucosa*, *fonsecaea compactum*, *cladosporium carrioni*, *rhinocladiella aquaspersa* or *rhinocladiella cerophilum*^{1,5}.

These fungi are generally considered soil fungi and therefore, chromoblastomycosis is found more commonly among farmers. Clinically the skin lesion starts as a papule and evolves into a warty plaque. These lesions grow slowly over the years to form extensive hyperkeratotic plaques and nodules. Some lesions show central clearing. Satellite lesions are produced by scratching. Rarely, lymphatic and haematogenous spread have been reported¹.

Many treatment modalities for chromoblastomycosis have been described in the dermatological literature, local excision or curettage, 5 fluorocytosine with ketoconazole, topical heat therapy, amphotericin B, itraconazole and itraconazole with 5 fluorocytosine and cryotherapy²⁻⁹.

The most commonly used surgical methods, excision or curettage, require local or general anaesthesia, are time consuming and require operating theatre time. In fact in two of our patients, liquid nitrogen was tried because the waiting list for surgery was too long.

On the other hand, most of the effective drugs such as amphotericin B and 5 fluorocytosine have serious side effects. Itraconazole, a supposedly effective drug in chromoblastomycosis, is not yet available in Sri Lanka. Even after apparently successful therapy recurrences are very common in this condition. Sometimes, several modalities have been combined to treat a single patient^{4,10}.

In cryotherapy, slow freezing causes gradual formation of intercellular large ice crystals, whereas in rapid freezing, smaller ice crystals form intracellularly as well¹¹. In the adjacent rim of tissue, mast cells are damaged by the freezing temperature. The resultant release of histamine causes capillary and small vessel local leakage. This leads to small vessel thrombosis leading to eventual necrosis of the tissue treated. Therefore, the immediate outer rim of the whitened or frozen tissue is also destroyed¹¹. However, the degree of destruction depends on the duration of freezing and the depth of freezing. Cryotherapy has been used for destruction of many benign skin lesions¹².

Lubritz (1978) and Ramirez (1973) have reported successful treatment of chromoblastomycosis with cryotherapy, but the lesions in both these cases had been small in size^{2,3}.

Our results from this limited study of seven cases of chromoblastomycosis, treated with cryotherapy suggests, that liquid nitrogen is an effective alternative in the treatment of this condition; particularly for small lesions. In larger lesions recurrences were common. However, even in these cases cryotherapy helped to contain the disease. The follow up visits by our patients were irregular and patients can not be declared fully cured unless followed up for several years.

Liquid nitrogen therapy was well accepted by the patients, was convenient, cheap and without serious side effects. Perhaps the freezing could have been done more effectively, to an adequate depth, if cryotherapy spray guns were available. Another advantage of cryotherapy is that it can be performed as an out patients procedure unless the lesion is large. Furthermore, it does not require anaesthesia or operation theatre time.

Therefore, we recommend, that liquid nitrogen cryotherapy is a suitable alternative, perhaps a superior method of treatment, in chromoblastomycosis where the lesions are small in size.

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