The Efficacy Of Jatropha Multifida In The Management Of Oral Candidiasis: A Preliminary Study

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Citation

Abstract

Background: Oral candidiasis is presently a common problem affecting children in third world countries. This is probably due to the increasing prevalence of human immunodeficiency virus infections, poverty and malnutrition, which predisposes to candida infections. There are anecdotal reports suggesting the efficacy of the Nigerian grown species of Jatropha multifida herbs in the management of oral candidiasis.

Aims of the study: To determine the efficacy of Jatropha multifida in the management of oral candidiasis and compare its efficacy with that of oral Nystatin.

Subjects and Method: All the clinically detected cases of children with oral candidiasis at the children's outpatient department of the State Hospital, Osogbo and children's welfare clinic of the Wesley Guild Hospital, Ilesa were randomized into either Jatropha multifadum Juice extract therapy or the Nystatin group. The juice extracts from the Jatropha multifada leaves were applied to the tongue and the oral mucosal areas affected by candida lesions as a single application in the patients randomized to this group. Oral Nystatin was administered 4 times a day, for 7 consecutive days to the children randomized to the Nystatin group.

Results: A total of 5 patients (3 boys and 2 girls) were studied with their ages ranging from 2 to 10 months. Clearance of the white lesions on the tongue was defined as cure and this was recorded within 24 hours in the patients on Jatropha multifada juice extracts, while those on oral Nystatin showed features of cure at 48 hours.

Conclusion: Jatropha multifada is efficacious in the management of oral candidiasis. Compared to oral Nystatin suspension, it has the advantages of acting faster and being efficacious as a single dose. Its use in the management of oral candidiasis is recommended in third world countries where it is easily cultivated and accessible.

INTRODUCTION

Oral candidiasis (thrush) is a fungal infection caused by Candida albicans. This organism is a normal flora and inhabitant of the skin, mouth, vagina and intestinal mucosa. It can be spread to a newborn infant from the mother's birth canal during vaginal delivery. Prolonged use of antibiotics, leading to alteration in the oral flora may also cause thrush. The oral lesions are usually white flaky plaques and they may cover all or part of the tongue, lips, gingival and buccal mucous membranes. Oral candidiasis can be acute in the newborn or chronic in children with nutritional deficiencies or debilitating conditions.

The differential diagnoses of thrush include geographical tongue which is an asymptomatic, benign condition that requires no treatment. It is a normal variant of tongue appearance. The tongue being covered with milk can also mimic thrush, however this milk curds can be easily scrapped off from epithelial surfaces. Diagnosis of oral candidiasis can be confirmed by direct microscopic examination and culture of the scrapings from the mucous membranes. Nystatin is the most popular choice of antifungal agent used for the treatment of oral fungal infections among general dental practitioners.

Conventionally thrush is treated by the oral administration of 100,000 IU of Nystatin suspension four times a day for 7 consecutive days. One percent aqueous solution of gentian violet is also effective orally and topically, but it is messy.

Jatropha multifida are small trees or shrubs with smooth
gray barks, which exudes whitish colored watery latex when cut. Other common names are coral plant and adenoropium multifidum. It normally grows to attain a height between three and seven feet. In addition it grows well in the tropics and can thrive in almost every kind of soil. Previous studies conducted in Tanzania have shown that Jatropha Multifida has significant antifugal activity, against many species of Candida, but very little against candida albicans. This study aims to show that the specie of Jatropha multifida cultivated in Nigeria, possess antibiotic activity against candida albicans (thrush). It also aims to compare the efficacy of Jatropha multifida with Nysatin in the management of thrush.

**METHODS**

Consecutive children with oral candidiasis, seen between July 1st and September 30th 2006, were studied. Informed consent was obtained from all the parents of the studied children. The welfare and general out patient clinics of the Wesley Guild Hospital, Ilesa and the State Hospital, Osogbo, respectively were the study locations. Both hospitals are located in Osun state, Western Nigeria. The diagnosis of thrush was made clinically in all cases by the researchers after obtaining pertinent history and examination. All cases had their tongues or infected oral mucosa scrapped firmly by applying moderate pressure, using a wooden spatula. Cases in which the whitish materials were scrapped up with consequent cleaning of the underlying tongue or oral mucosa were excluded, while cases that had persistence of white lesions on the oral mucosa were taken to be oral candidiasis. The patients diagnosed as cases of thrush were then randomly allocated to treatment with oral Nystatin or Jatropha multifida.

The patients allocated to the Jatropha multifida group, had the leaves of the plant washed clean and air-dried. [A picture of the Jatropha multifida plant is shown in Figure 1].

![Figure 1](image1.jpg)

A clean cotton wool was then used to absorb the fluid that dripped from the cut leaf or leaf stalk. There after, the soaked cotton wool was then gently applied into the mouth and rubbed gently on the tongue from the back to the front. When the inner cheek and the lips were affected, the soaked cotton wool was applied to these areas. Saliva arising from the cleaning and the removed oral patches was then discarded, there after the mouth was rinsed. On the other hand the patients allocated to the Nystatin group were treated with 1000,000 international units of the drug, every 6 hours orally, for an interval of one week. The time of clearance of the white lesions post oral application of either Nystatin or Jatropha multifada was then noted. A picture of one of the patients infected with oral candidiasis is shown in Figure 2.

The picture of the same patient in figure 2 after a single dose application of Jatropha multifada is shown in Figure 3.
RESULTS

AGE AND SEX DISTRIBUTION.

Five patients were studied, 3 (60%) of these patients were male while 2 (40%) were female. This gives a male to female ratio of 3:2. All the patients were below the age of 1 year, with respective ages in ascending order of 2, 6, 7, 8 and 10 months.

SYMPTOMS OF THRUSH

The parents of all the affected children all complained of a white tongue. None of their parents complained of reduced feed intake.

TIME OF CLEARANCE OF THRUSH

All the patients randomized to Jatropha multifida therapy were observed to be cured of the oral candida lesion 24 hours post single application, while those on Nystatin oral suspension were noted to be cured after 48 hours (8 applications of 100,000 international units each of oral Nystatin).

SIDE EFFECTS TO NYSTATIN OR JATROPHA MULTIFADA

No side effects were developed in the patients allocated to Nystatin or Jatropha multifadum therapy.

DISCUSSION

The use of the juice extracts of jatropha multifida in the management of oral candidiasis is a common practice among rural inhabitants of Western Nigeria. It is a practice that has transcended many generations in rural communities. Elderly members in some of these western Nigerian rural communities have also observed an associated loss of appetite in those affected. Interestingly, they have associated thrush with malaria and depression of the immune system. Documented predisposing factors to thrush in infants include immunosuppression, malnutrition and unhygienic bottle-feeding practices.

Jatropha multifida therapy is particularly relevant in the third world countries, because of the current HIV/AIDS pandemic. Oral candidiasis is one of the most common opportunistic infection associated with HIV/AIDS disease; also, it is the most common muco-cutaneous manifestation and it serves as a marker of HIV disease progression.

Extensive oral infections can cause difficulty with feeding while esophageal and gastrointestinal infections may lead to vomiting and diarrhea.

The present study has shown that Jatropha multifida leaf juice extract is effective in the management of thrush and works faster compared to Nystatin. Its mechanism of action is however unknown, as well as the active ingredient responsible for the antifungal action. The drug however appears relatively safe because of the absence of complications in the present study. No side effects were also reported to Nystatin therapy in the present study. However,
vomiting and diarrhea are some of the known side effects that might arise from Nystatin therapy. The small sample size in the present study might have hindered us from encountering these complications.

The Jatropha multifida fruit has been documented to contain toxins such as toxabulmin ricin. Ingestion of large quantities of this fruit has been documented to cause severe diarrhea, dehydration, shock and hepatic impairment in children. Ricin also has cardiotoxic and hemolytic effects and several deaths have been reported from it. On the converse the roots, stems and leaves of the Jatropha multifida plant possess useful ingredients and activities. The fruits are widely used in traditional folk medicine in many parts of West Africa. Other chemotherapeutic properties of this plant are used in the treatment of ascites, gout and constipation.

In conclusion, jatropha multifida is a plant whose juice provides a cure for oral candidiasis. It acts faster compared to Nystatin and compliance on the part of patients is likely to be better since it is a single dose application. It is recommended for use in communities where it is easily accessible. However, further studies need to be carried out on this plant in order determine the ingredient in it, having the anti-fungal activities. This can be selectively extracted and made into oral preparations for general and commercial use.

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