

Case Report

Peroxide alkaline for cleansing the baby bottle nipple to prevent oral thrush relaps

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ABSTRACT

Background: Oral candidiasis is the most prevalent opportunistic infection affecting the oral mucosa. A number of predisposing factors have the capacity to convert *Candida* from the normal commensal flora to a pathogenic organism. Oral candidiasis is divided into primary and secondary infection. The primary infections are restricted to the oral and perioral sites, where as secondary infections are accompanied by systemic mucocutaneous manifestation. Oral thrush is one of the candidiasis primary infection. Some predisposing factors of oral thrush are neonatal, old people, or where oral microflora is disturbed by the treatment with broad spectrum antibiotics. Final diagnosis is determined by fungal culture examination, although through clinical examination oral thrush can be determined by swabbing the white pseudomembran. **Purpose:** This case report presents about the importance of using the antiseptic cleanser for baby bottle nipple to prevent oral thrush relaps and shows about peroxide alkaline as the alternatif of antiseptic cleanser for baby bottle nipple that can substitute chlorhexidine gluconat 0.2%. **Case:** A baby girl, 15 months old, when she was suffering influenza the pediatry gave amoxicillin 125 mg three times a day for ten days. Then the white plaque appeared on her dorsum of tongue. The therapy was Gentian Violet 1% four times a day for ten days was applied on dorsum of the tongue. The patient was suspected to suffer allergy reaction after using nistatin oral suspension four times a day had applied for 1 day. The instruction was doing sterilization for the baby bottle nipple in boiling water. Three days after the baby was cured, the white plaque was appeared on upper and lower lips mucous. **Case management:** The diagnosis was Oral thrush. The therapy was Gentian violet 1% four times a day for ten days that applied on upper and lower lips mucous. The instruction was doing the sterilization for baby bottle nipple in denture cleanser contain peroxide alkaline for five minutes, then it was washed with antiseptic soap, and soaked it in boiling water. **Conclusion:** The baby bottle nipple sterilization on the case of Oral thrush can not only by boiling in the water, but it must be keep in the antiseptic solution before boiled in the water. It was for preventing oral thrush relaps.

Key words: Baby bottle nipple, denture cleanser, gentian violet 1%, oral thrush, peroxide alkaline

ABSTRAK

Latar belakang: Kandidiasis rongga mulut merupakan infeksi oportunistik yang sering terjadi pada mukosa mulut. Banyak faktor predisposisi yang menyebabkan *Candida* yang awalnya merupakan flora normal dalam rongga mulut berubah menjadi organisme patogen. Kandidiasis rongga mulut dibagi menjadi infeksi primer dan sekunder. Infeksi primer terjadi pada rongga mulut dan sekitarnya, sedangkan infeksi sekunder akan diikuti oleh manifestasi mukokutan secara sistemik. Oral thrush adalah salah satu dari infeksi primer candidiasis. Beberapa faktor predisposisinya adalah pada bayi, orang tua atau microflora rongga mulut terganggu karena pemakaian jenis antibiotik spektrum luas. Diagnosis akhir didapatkan dari pemeriksaan kultur jamur, meskipun diagnosis dapat ditegakkan dengan pemeriksaan klinis melalui hapusan lesi pseudomembran putih. **Tujuan:** Laporan kasus ini tentang pentingnya penggunaan antiseptik untuk sterilisasi dot botol bayi untuk mencegah kekambuhan oral thrush dan menunjukkan alkalin peroksida sebagai alternatif bahan antiseptik untuk sterilisasi dot botol bayi, yang mampu mengganti Klorheksidin glukonat 0,2%. **Kasus:** Pasien adalah bayi perempuan usia 15 bulan, selama sakit batuk pilek mendapat obat dari dokter spesialis anak amoxicillin 125 mg yang diberikan 3 kali sehari selama 10 hari. Selanjutnya tampak plak putih pada lidah. Terapi yang diberikan adalah Gentian Violet 1% yang oleskan

4 kali sehari selama 10 hari pada dorsum lidah. Hal ini disebabkan pasien diduga mengalami alergi setelah diberi nistatin suspensi 4 kali sehari. Instruksi yang dianjurkan adalah menyeteril dot botol bayi dalam rebusan air. Setelah sembuh, 3 hari kemudian muncul lagi plak putih pada mukosa bibir atas dan bawahnya. **Tatalaksana kasus:** Pasien didiagnosis menderita oral thrush. Terapi yang diberikan adalah Gentian Violet 1% diaplikasikan 4 x 1 selama 10 hari pada mukosa bibir atas dan bawah. Instruksi yang diberikan adalah untuk menyeteril dot botol bayi dengan pembersih gigi tiruan yang mengandung alkalin peroksida selama 5 menit, kemudian dicuci dengan sabun mandi antiseptik, dan direbus dalam air. **Simpulan:** Sterilisasi pada bottle nipple pada pasien anak dengan oral thrush tidak dapat dilakukan dengan hanya merebus dalam air saja, melainkan harus merendam dengan cairan antiseptik terlebih dahulu sebelum direbus dalam air. Hal ini untuk mencegah terjadinya kekambuhan pada Oral thrush.

Kata kunci: Dot botol bayi, pembersih gigi tiruan, gentian violet 1%, oral thrush, alkalin peroksida

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INTRODUCTION

Oral candidiasis is the most prevalent opportunistic infection affecting the oral mucosa. In the vast majority of cases, the lesions are caused by the yeast *Candida albicans*. The pathogenesis is not fully understood, but a number of predisposing factors have the capacity to convert *Candida* from the normal commensal flora to a pathogenic organism. It is a change in the normal oral environment rather than actual exposure, that results in clinical candida infection.^{1,2}

Oral candidiasis is divided into primary and secondary infection. The primary infections are restricted to the oral and perioral sites, where as secondary infections are accompanied by systemic mucocutaneous manifestation. Oral thrush is one of the candidiasis primary infection. The clinical features is white or creamy plaques that can be wiped off to leave a red base. These can be easily wiped away with gauze leaving an erythematous base with minimal bleeding. Lesions can be seen anywhere but are frequently located on the dorsal surface of the tongue, buccal mucosa, and palate. The predisposing factors of oral thrush are neonatal, older people, disruption of oral microflora by consuming antibiotics or corticosteroids, xerostomia, immune defects, immunosuppressive management, diabetes mellitus, leukaemias and lymphomas.¹⁻³

The prevalence of children who were fed with both breast milk and bottle milk or other fluids was 18.5%, while in children fed only with breast milk was 0%. The consumption of bottle milk may lead of retention of fluid in the mouth leading to acid production by the oral microflora creating an environment for growth of *Candida albicans*.⁴

The most common form of oral thrush usually acute. It appears as creamy whitish spots or plaques, which usually can be detached. The lesions may be localized or generalized. The management of oral thrush are eliminating the predisposing cause and giving the topical antifungal drugs such as nystatin oral suspension and myconazole gel, or systemic antifungal drugs such as fluconazole, itraconazole, and ketoconazole.^{1,3}

This case report presents about the importance of using the antiseptic cleanser for baby bottle nipple to

prevent oral thrush relaps. The peroxide alkaline usually uses as a denture cleanser that contain antiseptic agent. In this case, peroxide alkaline could be as the alternatif of antiseptic cleanser for baby bottle nipple that can substitute Chlorhexidine gluconat 0.2%.

CASE

A baby girl, 15 months old, her mother said that the thick white membran appeared on her baby dorsum tongue. She had suffered influenza, the pediatry gave her amoxicillin 125 mg that was consumed three times a day. Then the thick white membran appeared on her tongue dorsum after consuming amoxicillin 125 mg three times a day for ten days.

CASE MANAGEMENT

First visit, the intra oral examination showed the thick white plaque on the dorsum of tongue, can be scrapped, it leaved erythematous area (Figure 1). Clinical diagnosis was oral thrush because of using broad spectrum antibiotic. The therapy was nistatin oral suspension four times a day that applied on dorsum of the tongue, then it was swallowed. Then the patient should not eat and drink for thirty minutes. The instruction was doing sterilization for baby bottle nipple in boiling water.

Second visit, after using nystatin for three times in one day, there were erythematous lesion around lips and arms (Figure 2 and 3). It were papula, multiple, erythematous, and itching that showed the symptoms that similiar to allergic reaction after using nystatin for three times a day. It was suspect allergic reaction. The patient was given cetirizine 2.5 mg once time a day until the symptoms that similiar to allergy was gone. It had disappeared for two days. Nystatin was stopped, it was replaced with Gentian violet 1% applied four times a day for ten days. It was left for 30 minutes in oral cavity, especially on dorsum of the tongue. The instruction was doing the baby bottle nipple sterilization in boiling water still continued.

Third visit, after 14 days, the patient and her mother came again. On intra oral examination, there were white and thick plaque on her upper and lower lips mucous (Figure 4). The lesion could be scrapped and left erythematous areas. It appeared after the white plaque on dorsum of the tongue had been healed for 3 days. The therapy was Gentian violet 1% applied four times a day for ten days. It was left for 30 minutes in oral cavity, especially on upper and lower lips mucous. The instruction was doing the baby bottle nipple sterilization in Chlorhexidine glukonat 0.2% for 15 minutes, then cleaned by antiseptic soap, and put into boiling water.

In the evening, the patient's mother called by phone. She said that was difficult to get Chlorhexidine gluconate 0.2% at the drug stores, so that chlorhexidine gluconat 0.2% was replaced with denture cleanser contains Peroxide alkaline. The baby bottle nipple was soaked into Peroxide alkaline effervescent and 200ml water for 5 menit, then it was wash with antiseptic soap, and put into boiling water.

Fourth visit, after 24 days, the patient came to control. According to her mother explanation, her child was getting better. Base on clinical examination, there were not any lesion, the patient was cured (Figure 5 and 6).

DISCUSSION

On this case, the patient was a baby girl, 15 months old, consumed baby bottle milk. On first time, based on clinical examination, it was diagnosed as thrush. Base on patient anamnesis, it appeared on dorsum of the tongue, after consuming the broad spectrum antibiotic. It changed the balance of oral commensal microorganisms in oral cavity and disturb the comensal bacterial growing that antagonistic against candida, so it made the population being increased.¹

Thrush appears because of some predisposing and a bad oral hygiene. The consumption of bottle milk may lead of retention of milk in the mouth leading to acid production by the oral microflora creating an environment for growth of *Candida albicans*. Some studies discuss about the interaction between candida and bacterial in oral cavity. The bacterial modulated the attachment and candida colonization. The chronical inflamation was happened because of some protein as phospolipase dan proteinase from candida that was supported by bacterial from baby bottle milk. The residual milk attached on tongue mucous. Then *Candida albicans* was more virulent.⁴⁻⁶

The differential diagnosis of oral thrush on dorsal surface of the tongue are furred tongue. Clinical examination of furred tongue reveals a whitish lesion encompassing the entire dorsal surface of the tongue. There are multiple elongated projections within the body of the lesion. Patients may have a bad taste in their mouth or discoloration of the tongue but usually have no pain or discomfort. It is different from thrush, the patient has burning sensation, dryness, and loss of taste.^{7,8}

The management case were eliminating the predisposing factors, had a good oral hygiene and giving the topical antifungal drug. The oral cavity was cleaning with sterile gauze that had been given with Gentian violet (GV) 1% for getting a good oral hygiene. GV 1% substituted nystatin oral suspension, because the patient suspected of allergic reaction. Previous studies suggested mechanisms of action for GV 1% that production of the perhydroxy radicals may facilitate the penetration of GV 1% through the biofilm matrix leading to inhibition of *Candida* cell wall synthesis. GV 1% activity against *Candida* biofilms was demonstrated by a reduction in dry weight, disruption of biofilm architecture, and reduced biofilm thickness.⁹ So that in this case, GV 1% was as effective as Nystatin oral suspension for killing candida albicans.

The instruction were doing baby bottle sterilization in boiling water, but it was not efektif for killing candida. Because the temperature used for sterilizing baby bottle nipple was not to high for preventing baby bottle nipple to be broken. After three days the patient was healed, the thrush appeared again. Boiling water in fifteen minutes will kill most vegetatif bacteria and inactive viruses, but it is ineffective many bacterial and fungal spore, therefore boiling water is unsuitable for sterilization.¹⁰

For preventing thrush relaps, the sterilization instruction was given to soak the baby bottle nipple in Peroxide alkaline for 5 minutes, then cleaned by antiseptic soap, and put into boiling water. Chlorhexidine gluconate 0.2% was difficult to get at drug store, so that chlorhexidine gluconat 0,2% can be replaced with denture cleanser contains peroxide alkaline.

Peroxide alkaline is the chemical denture cleanser as the effervescent tablet. It's compotision are subtilisin, citric acid, sodium carbonate, potassium peroxy monosulfate dan sodium perbirate monohydrate. After it has dissolved in water, sodium perborate will unravel and make peroxide alkaline solution that release oxygen so that will be cleaning and eliminating the mikroorganisme mechanically. Peroxide alkaline is denture cleanser that is better than other denture cleanser which contains acid. It will decrease the ability to kill candida. It is supported by the fact that adhesion plaques is through organic content. Peroxide alkaline in water will form hydrogen peroxyde solution and release oxygen. Oxygen bubbles will clean it mechanically. The acid is dissolving calcareous deposit. Peroxide degradation would release oxygen bubbles that will clean the dentures mechanically if it contacts with debris. Peroxide can also prevent the formation of stain and calculus. As desinfectan, it will kill candida through protein denaturation process.¹²⁻¹⁴

Peroxyde alkaline is a denture cleanser that as desinfectan can kill candida. Based on that theory, peroxyde alkaline can substitute chlorhexidine gluconat 0,2% that is desinfectan for cleansing the baby bottle nipple from candida. The baby bottle nipple sterilization with boiling in water is not effective that can cause thrush relaps. The using

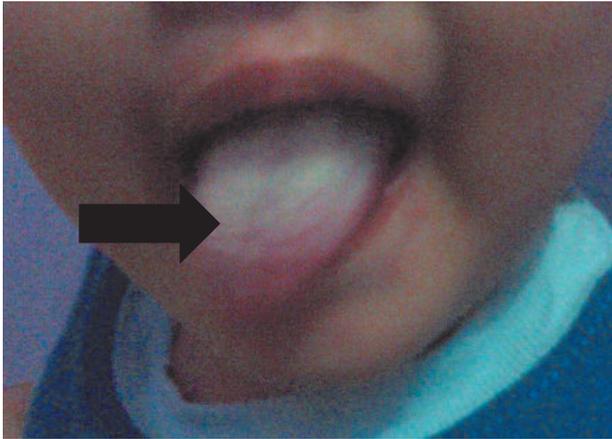


Figure 1. The intra oral examination showed the thick white plaque on dorsum of tongue.

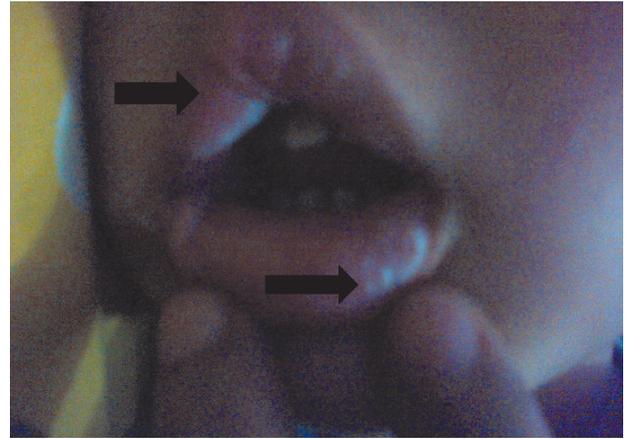


Figure 4. There were white and thick plaque on her upper and lower lips mucous. The lesion could be scrapped and left erythematous areas.



Figure 2. There were erythematous lesion around her lips. It were papula, multiple, erythemaous, and itching that suspected of allergic reaction after using nystatin.



Figure 5. Base on clinical examination, there was not any lesion on upper lip mucous. The patient was cured.



Figure 3. There were erythematous lesion around her arms. It were papula, multiple, erythemaous, and itching that suspected of allergic reaction after using nystatin.



Figure 6. Base on clinical examination, there was not any lesion on lower lip mucous. The patient was cured.

of peroxyde alkaline can prevent thrush relaps, because it is a desinfectan with antifungal agent.

It can be concluded that baby bottle nipple sterilization on the case of thrush can not only by boiling in the water, but it must be keep in the antiseptic solution before boiled in the water. It was for preventing thrush relaps.

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