

## Epidemiology of infant oral candidiasis among infants attending Tikrit teaching hospital

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### Abstract

#### Back ground :

A thrush is a yeast infection of the mouth that is caused by a fungal microorganism called *Candida albicans*. Oral thrush is most common in infants and is generally not a serious condition in itself. 50% of the population has candida in their mouths. Under normal circumstances *Candida albicans* is kept under control by bacteria. *Candida albicans* can also cause a yeast or thrush infection in the vagina, resulting in the exposure of an infant to the infection during the vaginal birthing process. It can also cause an infection in a woman's nipples, which can then be transmitted to an infant's mouth during breast feeding. Thrush appears as whitish, velvety lesions in the mouth and on the tongue. Underneath the whitish material, there is red tissue that may bleed easily. The lesions can slowly increase in number and size.

**Objectives of the study:** To determine the epidemiological factors of infant oral candidiasis among infant attending Tikrit teaching hospital out-patient clinic.

**Patients and methods:** A descriptive study was conducted on infant attending Tikrit teaching hospital. The sample includes (115) infants. The information was obtained according to well-prepared questionnaire. The demographic information in addition to other epidemiological data was obtained by the interviewing with infant mother. The study period start from 1/2/2017 to 1/4/2017.

#### Results:

The results of current study showed that more than (61%) were males and more than half of the cases within the age first three months. About (98%) of cases with low level of maternal education. Regarding delivery method of infants, it has been shown that (46%) by cesarean section. A maternal history of birth canal infection was about (59%) and a maternal history of breast infection was (18%). Artificial feeding of infant cases were (43%).

**Conclusions:** Thrush of infants is prominent in 1<sup>st</sup> three months of age and it is more frequent with those of certain risk factors as maternal breast and birth canal infection..

**Key words:** infant, epidemiology, candidiasis

## Introduction

Thrush is an infection of the buccal cavity by *Candida albican*. (1, 2). It was first described by the French pediatrician Francois Valleix in 1838. (3). The disease is limited to infants and neonates, patients on antibiotics (4,5,6) or steroids.( 3,7). Candida colonization infant is as a risk factor for developing infection of candidiasis (8,9).

Affected neonates are typically colonized by *Candida albicans* during passage through the birth canal. Other sources of transmission to neonates include colonized breasts (for breastfed infants), hands, and/or improperly cleaned bottle nipples. (5,10, 11)

*Candida albicans* frequently and asymptotomatically inhabits the gastrointestinal tract of many children and adults (3). Thrush appears as whitish, velvety lesions in the mouth and on the tongue. Underneath the whitish material, there is red tissue that may bleed easily. The lesions can slowly increase in number and size(5,7).

In United States, many as 37% of newborns may develop thrush during the first months of life. Thrush is more common in poorly nourished populations (4). Thrush incidence peaks around the fourth week of life; thrush is uncommon in infants older than 6-9 months. Thrush

can occur, however, at any age in predisposed patients( 3)

Thrush is usually a mild and self-limited illness, may go within few days although it may cause discomfort sufficient to disrupt feeding in a newborn. (10,11).Thrush occurs equally in males and females.(3) .

Diagnosis of oral candidiasis is clinical and to confirm the diagnosis swab from buccal cavity must be sent for culture(1, 2,7). Thrush can be treated by antifungal medicine and it can be prevented by clean and sterilize all equipment including nipples (7, 10,11,12)

## Patients and methods

A descriptive study was conducted on infant age group who was attending Tikrit Medical Teaching Hospital from period 1-2-2017 to 1-4-2017. The patients were examined clinically and swab was taken from affected area to confirm the diagnosis. We exclude all the negative cases by culture. The sample included (115) infants, 60 % of them were males. The demographic information was obtained according a designed questionnaire by direct interviewing the mother infant.

## Epidemiology of infant oral candidiasis among infants attending Tikrit teaching hospital

### Results

Table (1) Distribution of infant oral candidiasis cases according to age group and gender.

Gender Age in months	Male	Female	Total
<1-3	36	25	61      53%
4-6	21	4	25      21.8%
More than 6	14	15	29      25.2%
Total	71 61.7%	44 38.3%	115 100%

Chi – square is 7.6613. Significant at  $p < .05$

Table (1) shows that prevalent of cases were from age within first three months of life (53%) followed by those from age

group more than six months (25.2%). It has been revealed that more than (61%) of cases from male gender.

Table (2) Distribution of infant oral candidiasis cases according to history of drug intake and gender.

Gender Drug intake	Male	Female	Total
Positive	61	42	103      89.5%
Negative	10	2	12      10.5%
Total	71	44	115      100%

Chi – square is 2.6448. No significant at  $p < .05$

Table (2) reveals that more than 89% of cases were

with history of intake drugs .

Table (3) Distribution of infant oral candidiasis cases according to history of presence of birth canal infection and gender.

Gender Birth canal infection	Male	Female	Total
Positive	37      52.1%	31      70.4%	68      59.1%
Negative	34	13	47      40.9%
Total	71	44	115      100%

Chi – square is 3.7817. No significant at  $p < .05$

## Epidemiology of infant oral candidiasis among infants attending Tikrit teaching hospital

Table (3) shows that more than 59% of cases with history of maternal birth

canal candidiasis infection.

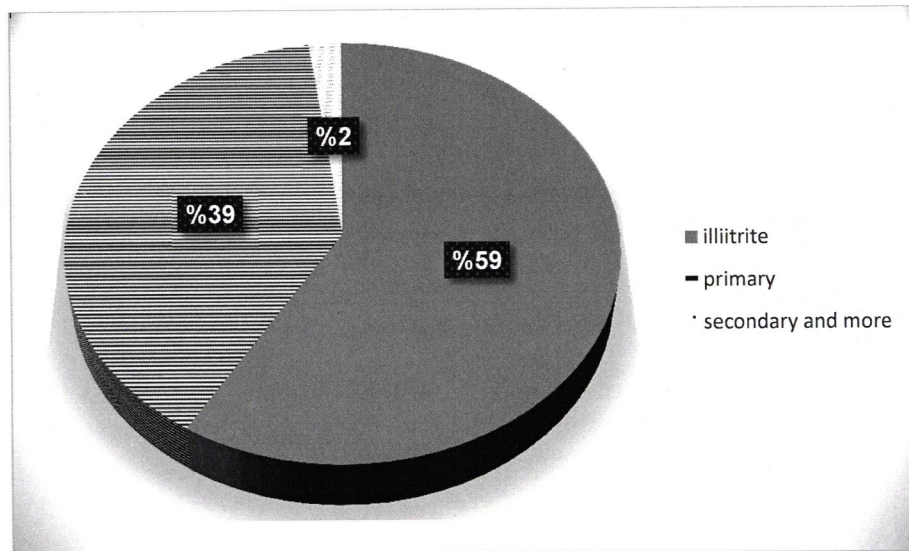


Figure (1) shows that 59% of mothers were illiterate followed by (39%) of them were with primary education.

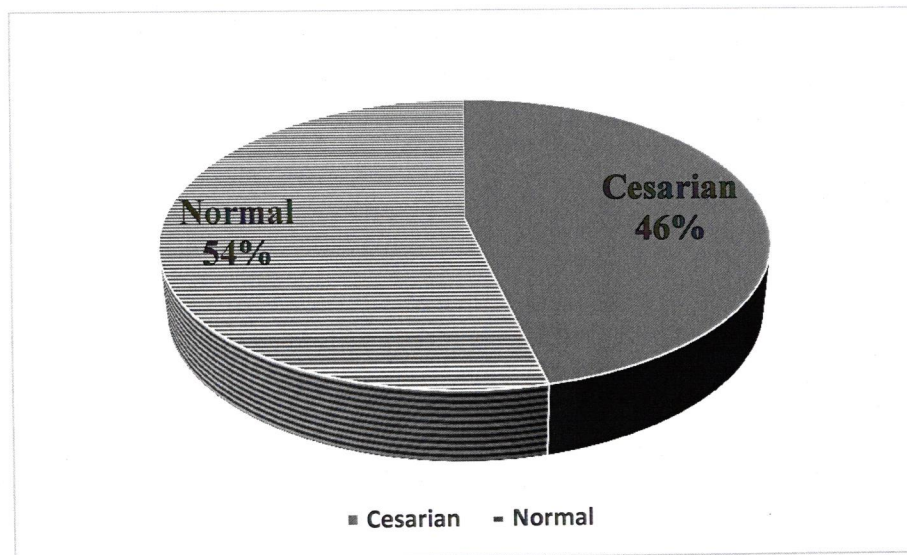


Figure (2) Distribution of infant oral candidiasis cases according to type of delivery

## Epidemiology of infant oral candidiasis among infants attending Tikrit teaching hospital

Table (4) Distribution of infant oral candidiasis cases according to history of presence of birth canal infection and type of delivery.

Gender Birth canal infection	Vaginal		Caesarean		Total	
Positive	50	80.6%	18	33.9%	68	59.1%
Negative	12	19.4	35	66.1%	47	40.9%
Total	62	53.9%	53	46.1%	115	100%

Chi – square is 25.7676. Significant at  $p < .05$

Table (4) shows that more than 59% of cases with history of maternal birth canal candidiasis infection and more than 80% of infant who delivered by vaginal way were affected. Regarding the distribution

of cases according to type of delivery of child , it has been documented that (46%) of cases were delivered by caesarean section.(Figure 2).

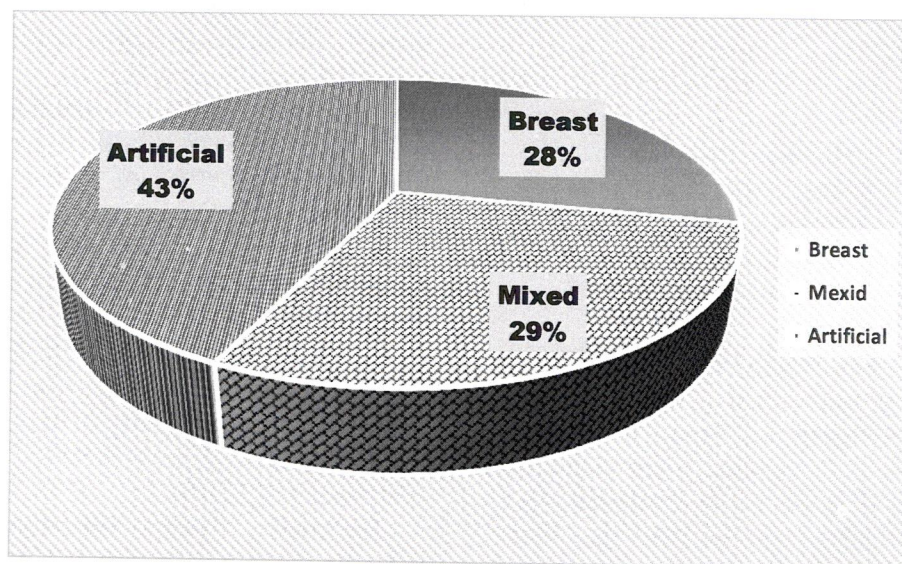


Figure (3) Distribution of infant oral candidiasis cases according to type of infant feeding

Regarding the distribution of cases according to to type of feedings, it has been revealed that (43%) of cases

with artificial feeding followed those with mixed feeding (29%) .Figure (3).

## Epidemiology of infant oral candidiasis among infants attending Tikrit teaching hospital

Table (5) Distribution of infant oral candidiasis cases according to age group and gender.

Breast infection / Infant feeding	Positive	Negative	Total
Breast	25 78.1%	7 21.9%	32 27.8%
Artificial	4	46	50 43.5%
Mixed	18	15	33 28.7%
Total	47 61.7%	68 38.3%	115 100%

Chi – square is 43.2864. Significant at  $p < .05$

Table (5) shows that prevalent cases were from those with artificial feeding (43.5%) . It has been revealed that more than (61%) of cases from male gender. More than 78% of mothers infant with breast feeding had breast disease.

### Discussions

The current study revealed that the most frequent cases were from age group within first months of life (53%). This results agree with other studies which attribute this effect to immature immune system of infants (3).

It has been documented that most of cases were from male gender (61.7%) and similar results was reported in other studies (13,14) while other studies showed that there is no difference in gender affection (3 ). This may be attributed that there is more care for male than female in our society and usually the female is neglected.

Most of the infant mothers were with educational level either illiterate (59%) or with primary school education (39%). There is a positive relation between poverty in which illiteracy is common and occurrence of the disease(3).

Regarding history of taking antibiotics by infants ,the study showed that more than (89%) of cases with positive history. Antibiotics given to infant are one of risk factors of occurrence of the disease. Antibiotics affect bacterial growth leading to proliferation of yeasts(10,11,13).

Regarding a history of maternal birth canal infection with yeasts. It has been that more than (59%) of mothers were with positive history.

The results of current study showed that (54%) of infant delivery was normal vaginal way and (80%) of this group , their mothers with history of birth canal infection. This results agree with studies that revealed the relation between birth canal disease and occurrence of infant oral thrush(10,11,13).

Maternal breast infection with yeasts is one of risk factors of infant oral thrush especially in those on breast feeding(5,15). It has been documented that more than (78%) of cases with breast feeding were with positive history of maternal breast infection. This result nearly similar to study that considered maternal breast infection is one of risk factor(5) while

## Epidemiology of infant oral candidiasis among infants attending Tikrit teaching hospital

it has been documented in Brazil there is no relation between type of infant feeding and occurrence of disease(16).

### Conclusions

Thrush of infants is prominent in 1<sup>st</sup> three months of age and it is more frequent with those of certain risk factors as maternal breast and birth canal infection.

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## **Epidemiology of infant oral candidiasis among infants attending Tikrit teaching hospital**

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