


Identification Of Types Of Fungus Candida Albicans In The Urine Of Pregnant Women In The Thirty Trimester At RSI Surabaya Jemursari

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| Article Info | ABSTRACT |
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| <p>Keywords: Candida albicans, Pregnant women in the third trimester, Urine.</p> | <p>Candidiasis is an infection caused by the fungus <i>Candida albicans</i>, especially in pregnant women in the third trimester. This infection, known as Vulvovaginal Candidiasis (VVC), occurs due to the growth of <i>Candida</i> on the vaginal wall. Increased estrogen hormone during pregnancy increases glycogen levels in the vagina, which is a source of carbon for <i>Candida albicans</i>. This study aims to identify the presence of <i>Candida albicans</i> in the urine of pregnant women in the third trimester at RSI Jemursari Surabaya. The study was descriptive qualitative involving 18 samples of pregnant women who experienced symptoms of itching in the vaginal area and vaginal discharge. The results showed that 5 pregnant women (27.8%) were positive for <i>Candida albicans</i> infection, while 13 pregnant women (72.2%) were negative. Examination was carried out macroscopically with Sabouraud Dextrose Agar (SDA) media, followed by microscopic examination using Lactophenol Cotton Blue (LPCB) staining, and a specific germ tube test. This study concluded that 27.8% of pregnant women in the third trimester were infected with <i>Candida albicans</i> from the identification results in urine samples.</p> |
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INTRODUCTION

World Health Organization (WHO), (2023) , stated that 800% of the labor process as well as pregnancy capable result in woman experience death. Almost 95% in the country develop death Mother capable happened. Most of the disease the caused by bleeding high, infection, pressure blood tall moment pregnant, complications moment giving birth, disease chronic as well as disease related such as malaria and AIDS at the moment pregnant.

Isolation type mold *Candida albicans* in urine Mother pregnant using Sabouraud Dextrose Agar (SDA) media during the Covid-19 pandemic in the group Mother pregnant prone to infected with covid-19, on examination microscopic state found existence pseudohyphae as well as *Candida albicans* yeast cells were stained *Lactophenol Cotton Blue* (LPCB). Pregnant women who experience vaginal discharge capable result in risk to pregnancy (Fahmi & Anggraini, 2023) .

Research conducted by (Herawati et al., 2016) on " Relationships Work as well as Vulva Hygiene with Incident Vaginal Discharge in Pregnant Women at Sungai Bilu Health Center,

Banjarmasin" stated that 20 people (87%) with good vulva hygiene condition experience vaginal discharge physiological, while 7 people (13%) with poor vulvar hygiene experience vaginal discharge pathophysiological. Of the 29 mothers pregnant, a total of 22 people (75.9%) with cleanliness bad self experience vaginal discharge, while from 56 mothers pregnant, a total of 30 people (53.4%) with cleanliness self Good No experience vaginal discharge.

Disease mold the most common laboratory as well as seldom diagnosed is prevalence as well as etiology candidiasis. Mostly in women's vaginas found there is *Candida* fungus, namely *Candida albicans* species, which is related with vulvovaginitis. Other *Candida* species found including *Candida tropicalis*, accounting for 26%, and *Candida krusei*, accounting for 6.6%. Pathogens mold dominant seen in women is *Candida albicans* (Esraa, 2023).

Research conducted by Annisa Rahmawati, et al. (2022) on " Identification *Candida* sp in the Urine of Pregnant Women at the RAMLAH PARJIB 1 Clinic, SAMARINDA" was carried out inspection microscopic a total of 8 people experienced vulvovaginal candidiasis namely with 26.7% positive mold *Candida* sp as well as a total of 22 people with 73.3% negative mold *Candida* sp. Colonies were also found from fungi that are contaminants that are not at risk namely type mold *Aspergillus* sp namely 6 samples with 20% (Rahmawati et al., 2022) .

Impact for Mother pregnant especially in the third trimester if infected capable found transmission infection from Mother fetus with method contact direct labor (Agustini & Arsani, 2018) . Impact from vaginal discharge Mother pregnant capable found amniotic fluid broken early so that baby born in a way premature or baby born with low weight, cancer uterus, and death fetus in content. Conditions in vital organs that are lacking clean the treatment capable result in vaginal discharge in mothers pregnant (Prianti et al., 2021) .

Study about Identification of *Candida albicans* Fungus Types in maternal urine sample pregnant in the third trimester at RSI Surabaya Jemursari Not yet Once implemented. In the description said, then need implemented study related mold *Candida albicans* in the urine of pregnant women, especially in the third trimester determine condition Mother pregnant whether potential For infected candidiasis or No.

Study This aiming For identify existence mold *Candida albicans* in maternal urine sample pregnant in the third trimester at RSI Surabaya Jemursari. *Candida albicans* is type mushrooms that are often become causes of vulvovaginitis in the feminine area, including in mothers pregnant. Hormonal changes during pregnancy can influence vaginal pH balance, so increase risk fungal infection this. With existence study this, it is expected can give outlook more wide about importance guard feminine health for Mother pregnant, especially in the third trimester.

In general practical, research This underline importance detection early vulvovaginitis infection caused by *Candida albicans* in mothers pregnant. One of the step prevention that can be done taken is with guard hygiene of the vulnerable genital area to growth mushrooms. In addition, mother pregnant recommended to do routinely inspection microbiology, including inspection urine sample, for know There is whether or not infections that can influence health mother and fetus. Research This contribute in give information practical and useful in prevention and management infection mold during pregnancy.

RESEARCH METHOD

Study This use method descriptive qualitative For ensure existence mold *Candida albicans* in maternal urine samples pregnant in the third trimester at RSI Surabaya Jemursari. Population study covering Mother pregnant women who were examined at the RSI Surabaya Obstetrics and Gynecology Polyclinic in May 2024. The number of sample used as many as 18 maternal urine pregnant, chosen through purposive sampling technique, according to criteria experiencing itching in the vaginal area and vaginal discharge. Retrieval sample done with clear procedures, including filling out informed consent and taking urine given identity before culture is performed.

Processing sample conducted in the Laboratory Microbiology with using Sabouraud Dextrose Agar (SDA) media. All equipment used sterilized using an autoclave at a temperature of 121°C for 15 minutes. After that, SDA media is prepared with add antibiotics chloramphenicol For prevent growth bacteria contaminants. Inoculated urine samples in SDA media incubated at 37 °C for 2-3 days. Colonies that grow observed in a way macroscopic and microscopic. Examination microscopic use Lactophenol Cotton Blue (LPCB) staining for observe structure like blastospores, pseudohyphae, and chlamydospores.

In addition to the examination microscopically, germ tube tests are performed to confirm existence *Candida albicans*. Colony samples from SDA incubated in serum at 37 °C for 2-4 hours and observed under microscope. Colonies showing growth shaped sprouts like racket to signify existence *Candida albicans*. Examination results This illustrated in form table and explained in a way narrative For get better understanding deep about existence mold the in maternal urine pregnant.

RESULTS AND DISCUSSION

Research result

Candida albicans Fungus Identification Results

After implemented study from maternal urine sample implanted third trimester pregnant in SDA media and incubated in temperature 37 °C for 48 hours form colony capable seen in Figure 1.



Figure 1 *Candida albicans* Fungal Colony in SDA media

Based on image 1 obtained colony growth mold *Candida albicans* growing in the SDA media obtained with form round, colored white as well as smells of yeast. The results of the identification of *Candida albicans* fungus in the mother's urine pregnant in the third trimester is able seen in Figure 2.

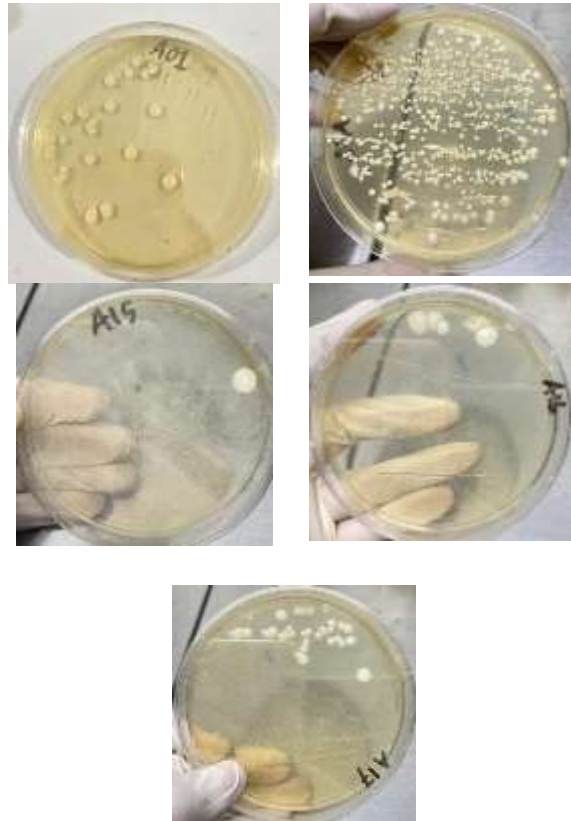


Figure 2 *Candida albicans* fungus growing in SDA media

Based on Figure 2 of results Isolation of 18 samples, 5 samples were found to grow *Candida albicans* fungus with 27.8% and 13 samples No grow mold *Candida albicans* with 72.2%. Inspection microscopic implemented with LPCB (Lactopenol Cotton Blue) staining was found found cell yeast as well as pseudohyphae under microscope with 40x magnification capable seen in Figure 3.

Identification *Candida albicans* implemented with germtube test with using blood serum that has been suspended as well as incubated in temperature 37 o C for 3 hours. Germtube test found with form like sprouts capable seen in Figure 4.



Figure 3 Microscopic *Candida albicans* LPCB stain

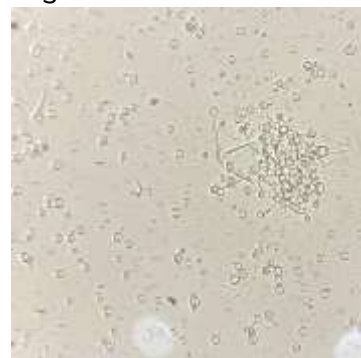


Figure 4 Germtube test *Candida albicans*

Figure 3 shows found yeast cells as well pseudohyphae on examination microscopic at

40x magnification using dye Lactophenol Cotton Blue (LPCB) fungus looks colored blue, while in image 4 found mold shaped like racket or sprouts.

Based on results study identification type mold *Candida albicans* in maternal urine pregnant in the third trimester at RSI Surabaya Jemursari which has conducted in the Laboratory Campus Major Technology Laboratory Medical Polytechnic of the Ministry of Health Surabaya with using 18 maternal urine samples pregnant who carries out examination at the Gynecology Polyclinic as well willing become Respondent capable seen in Table 1 as under.

Table 1 Results of Observations of *Candida albicans* Fungus Types in Mother's Urine in the Third Trimester Macroscopic, Microscopic, and Tests Germtube.

| Sample Code | Observation result |
|-------------|----------------------------------|
| A01 | Positive <i>Candida albicans</i> |
| A02 | Positive <i>Candida albicans</i> |
| A03 | Negative <i>Candida albicans</i> |
| A04 | Negative <i>Candida albicans</i> |
| A05 | Negative <i>Candida albicans</i> |
| A06 | Negative <i>Candida albicans</i> |
| A07 | Negative <i>Candida albicans</i> |
| A08 | Negative <i>Candida albicans</i> |
| A09 | Negative <i>Candida albicans</i> |
| A10 | Negative <i>Candida albicans</i> |
| A11 | Negative <i>Candida albicans</i> |
| A12 | Negative <i>Candida albicans</i> |
| A13 | Negative <i>Candida albicans</i> |
| A14 | Negative <i>Candida albicans</i> |
| A15 | Positive <i>Candida albicans</i> |
| A16 | Positive <i>Candida albicans</i> |
| A17 | Positive <i>Candida albicans</i> |
| A18 | Negative <i>Candida albicans</i> |

Based on table 1 found a total of 5 samples positive *Candida albicans* because in the germtube test found form like sprouts whereas a total of 13 samples negative *Candida albicans*. Identification mold *Candida albicans* capable implemented after there is growth colony in *Saboraud Dextrose Agar* (SDA) media which is then to be continued with inspection in a way microscopic use LPCB dyes, as well as germ tube test was performed as an identification test.

Data analysis

Research result found type mold *Candida albicans* in maternal urine pregnant in the third trimester at RSI Surabaya Jemursari, then obtained from results research that is capable seen in table 2 as under.

Table 4.2 Distribution Frequency Identification *Candida albicans* in the mother's urine Third Trimester Pregnancy.

| Check up result | Frequency (People) | Percentage (%) |
|-----------------|--------------------|----------------|
| Positive | 5 | 27.8 |
| Negative | 13 | 72.2 |
| Total | 18 | 100 |

Based on table 2 states results distribution frequency infection mold *Candida albicans* in maternal urine pregnant can be found a total of 5 mothers positive third trimester pregnancy *Candida albicans* with percentage 27.8% and a total of 13 mothers negative third trimester pregnancy infected mold *Candida albicans* with 72.2%.

Table 3 Result values questionnaire that has been filled in by respondents based on symptom vaginal discharge, and level vaginal discharge.

| Respondent No. | Questionnaire Results | Questionnaire Score (%) | Category |
|----------------|--|-------------------------|-------------|
| A01 | vaginal discharge frequent, thick as well as colored white | 58 | Not good |
| A02 | vaginal discharge frequent, thick as well as colored white | 60 | Not good |
| A03 | vaginal discharge sparse, thick as well as colored white | 78 | Good |
| A04 | vaginal discharge sparse, thick as well as colored white | 74 | Enough Good |
| A05 | vaginal discharge sparse, thick as well as colored white | 72 | Enough Good |
| A06 | vaginal discharge sparse, thick as well as colored white | 74 | Enough Good |
| A07 | vaginal discharge sparse, thick as well as colored white | 76 | Good |
| A08 | vaginal discharge sparse, thick as well as colored white | 76 | Good |
| A09 | vaginal discharge sparse, thick as well as colored white | 70 | Enough Good |
| A10 | vaginal discharge sparse, thick as well as colored white | 64 | Enough Good |
| A11 | vaginal discharge sparse, thick as well as colored white | 64 | Enough Good |
| A12 | vaginal discharge sparse, thick as well as colored white | 74 | Enough Good |
| A13 | vaginal discharge sparse, thick as well as colored white | 72 | Enough Good |

| Respondent No. | Questionnaire Results | Questionnaire Score (%) | Category |
|----------------|--|-------------------------|-------------|
| A14 | vaginal discharge sparse, thick as well as colored white | 73 | Enough Good |
| A15 | vaginal discharge frequent, thick as well as colored rather yellow | 60 | Not good |
| A16 | vaginal discharge frequent, thick as well as colored rather yellow | 54 | Not good |
| A17 | vaginal discharge frequent, thick as well as colored rather yellow | 56 | Not good |
| A18 | vaginal discharge sparse, thick as well as colored white | 70 | Enough Good |

Questionnaire results 16.6 % of mothers pregnant with category good, 27.7% mothers pregnant in category not enough Good and 55.5% of mothers pregnant in category Enough Good in vaginal hygiene during pregnancy as well as symptom vaginal discharge experienced.

Discussion

Based on table researcher, isolation as well as identification in table 4.1 of the study This succeed identified which is carried out in the Laboratory Parasitology Major Technology Laboratory Medical Polytechnic of the Ministry of Health Surabaya with use as many as 18 maternal urine samples pregnant who does examination at the Obstetrics Polyclinic at RSI Surabaya Jemursari.

Colony mold *Candida albicans* overgrowth in the SDA media it was found with surface smooth, slippery or folded, shaped round, and colored white and also yellowish. Observation with macroscopic *Candida albicans* was found with smells of yeast or acid. According to with research, *Candida albicans* fungus was examined in a way microscopic with coloring Lactophenol Cotton Blue (LPCB). LPCB dye is used For make it easier procedure reading on a microscope with 10x and 40x magnification. LPCB dyes that provide color blue on cell mold contain cotton blue, the lactic acid found in the LPCB color works For prevent cell experience dehydration, while crystal phenol play a role For kill mushrooms (Himedia, 2017). On examination microscopic capable observed found yeast cells that have form round or oval, and there is blastospores, pseudohyphae, and chlamydospores.

Germ tube test implemented For distinguish *Candida albicans* from non-*albicans* fungi in growing colonies in SDA media. For germtube test suspension, serum is added to the colonies that have been isolated from Saboraud Dextrose Agar (SDA) media. Suspension cultured for 3 hours in temperature 37°C. After left alone for 3 hours, place on top glass object, next closed with coverglass, and check below microscope with 10x and 40x magnification. *Candida albicans* germtube test reading has morphology that resembles shoots or racket.

Research conducted by (Liwartina Ice & Sulastina Afni Nur, 2023) from 38 mothers pregnant found positive mold *Candida albicans* with 76.3%, and a total of 14 mothers pregnant in the third trimester was found positive *Candida albicans* with 77.7% and study

This in line with research (Noviriyanti et al., 2023) a total of 46 (49.7%) mothers pregnant positive mold *Candida albicans*. Research conducted by Santri (2016), 7 samples of maternal urine pregnant woman visiting to Labuang Hospital Makassar wedge found 2 samples positive with percentage of 28.6% found *Candida albicans* and 5 samples negative with 71.4% not found found mold *Candida albicans*.

Hygienic to infection *Candida albicans* capable involved like error in clean the vagina from behind to front, not from front to behind as well as use trousers in tight as well as capable increase humidity so that push For infected fungus (Chen et al., 2017) . Vaginal discharge pathological capable found Because caused by found mushrooms, as well as existence change hormones, and how caring for underdeveloped genital organs good. Cleanliness self as well as the environment is also capable influential to growth mold (Chen et al., 2017) . Reproduction mold around tool sex can happens in cleanliness self from Respondent like after urination No to dry with tissue or towel clean (Abrori et al., 2017) . An increase in estrogen results decline glycogen as well as trigger the occurrence vaginal discharge (Tasik et al., 2016) . Candidiasis vulvovaginal during pregnancy is reason broken amniotic fluid Premature Rupture Of Membrane (PROM) as well birth premature (Venugopal et al., 2021) .

Respondents who experienced vaginal discharge as well as itchy in the vaginal area or the exit fluid clear colored green or yellowish similar mucus as well as smells, and doesn't preventive carry out countermeasures about vaginal discharge worrying can impact on the health of reproductive organs which are capable of result in disease (Wahyuni, 2019).

Candida albicans fungus capable develop in the vaginal area especially Mother less pregnant guard reproductive organ hygiene (Thanomsridetcha et al., 2023) . Poor hygiene of reproductive organs. Good capable result in change environment in the vagina so that the normal flora will grow become pathogen (Mashatan et al., 2023) .

Production estrogen in the placenta will Keep going increase over time pregnancy. Increase hormone estrogen in the placenta capable causes the vagina to experience change during pregnancy because of the pH (4.5) and vaginal secretions will become more acid. During increase age in pregnancy will become prone to infected with *Candida* namely with found improvement symptoms in the third trimester (Baines & West, 2023) .

Candida infections can caused by internal factors as well as external. Internal factors such as change physiological like pregnancy resulting in change pH balance, obesity that increases production sweat, factor iatrogenic like use catheter intravenous as well as channel urinary, factors endocrine such as diabetes and blood sugar. (Martins et al., 2014) . Endogenous factors are factor which cover age (parents) as well as baby will more tend caught infection due to his immunological status which is not perfect). Exogenous factors capable covering climate heat that causes moisture in the vaginal area as well cleanliness skin (hygiene skin) which is capable result in perspiration increase (Martins et al., 2014) .

Check up result to identification mold *Candida albicans* in maternal urine pregnant in the third trimester so capable concluded that which is willing as Respondent obtained 27.8% of mothers pregnancy in the third trimester is stated positive *Candida albicans*, as well as 72.2 % of mothers pregnancy in the third trimester is stated negative *Candida albicans*.

CONCLUSION

Identification results on maternal urine samples pregnant in the third trimester shows that as many as 5 respondents or 27.8% stated positive infected mold *Candida albicans*, while 13 respondents or 72.2% negative. Colonies *Candida albicans* grown on Sabouraud Dextrose Agar (SDA) media has characteristic features shaped round, colored white, and smells of yeast. On examination microscopic with Lactophenol Cotton Blue (LPCB) dye, was discovered hyphae and yeast cells, while in the germ tube test, it was observed form typical sprouts from *Candida albicans*. Based on findings This, it is recommended that mothers pregnant more notice vaginal area hygiene, such as clean from direction front to back and often replace clothes in For prevent humidity that can trigger infection. For study Next, it is recommended use method molecular such as Polymerase Chain Reaction (PCR) for identify *Candida albicans* in a way more specific and accurate.

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