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# Seroprevalence of toxoplasmosis between aborted ladies in Atbara district, Sudan

## Abstract

**Background:** Toxoplasma gondii is an oblige intracellular protozoan parasite leading to toxoplasmosis in animals and humans. Principal maternal infection with toxoplasmosis throughout pregnancy is frequently associated with vertical transmission to the fetus. However it is not convinced whether Toxoplasma infection can cause frequent abortion.

**Justification:** There is no formerly published data about the occurrence of toxoplasmosis between aborted women in Atbara district.

**Objectives:** To recognize the Seroprevalence of toxoplasmosis among aborted women in Atbara district

**Method:** Cross sectional, descriptive study, 152 aborted women from Atbara district were examined for anti-Toxoplasma gondii antibodies, three diagnostic techniques were used (latex agglutination, ICT and ELISA).

**Result:** Generally the Seroprevalence rate of Toxoplasma parasite between aborted women according to the techniques used; 33.6 % by latex agglutination, 22.4 % by ICT and 35.5 % by ELISA method.

**Conclusion:** The study conclude that there was high prevalence of toxoplasmosis among the participants and indicated that ELISA is the best serological method for detection of Toxoplasma gondii infection.

**Keywords:** toxoplasmosis, abortion, Atbara, gondii, infection, life, cycle, agent

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Rayan Khalid Mohamed Taha,[1] Mosab Nouraldein Mohammed Hamad,[2] Khalid Mohamed Taha,[3] Ali Elamin Nasir Hamad[1]

[1]Department of Medical Parasitology, University of Science and Technology, Sudan
[2]Department of Medical Parasitology, Elsheikh Abdallah Elbadri University, Sudan
[3]Laboratory of veterinary Research, Sudan

**Correspondence:** Mosab Nouraldein Mohammed Hamad, Department of Medical Parasitology, Faculty of Health Sciences Elsheikh Abdallah Elbadri University, Sudan, Email musab.noor13@gmail.com

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## Introduction

Toxoplasma gondii is an oblige intracellular protozoan parasite with a complex life cycle. This agent causes toxoplasmosis between humans and animals and is one of the most prevalent chronic infections, infecting one third of the globe population.[1–5] It's an important cause of reproductive failure in humans and farm animals leading to significant socio-economic losses worldwide.[6] Three major sorts are accountable for fetal: consumption of including raw or semi-cooked meat, eating the oocysts defecated by cats and transplacental transmission from an infected pregnant mother to her fetus.[7,8] Consideration of toxoplasmosis between pregnant ladies (owing to the danger of maternal transmission) and immunocompromised patients is of great significance for control programmes since infection can lead to severe pathologic endings amongst neonates with congenital toxoplasmosis and patients with immunodeficiency status.[9,10]

Many serological methods, for example the latex agglutination test, enzyme-linked immunosorbent assay (ELISA) and indirect fluorescence antibody test, have been applied in the detection of antibodies against T.gondii in pregnant ladies. Though, ELISA is the most frequently used diagnostic method.[8,10]

Earlier research has revealed that toxoplasmosis infection was more frequent between those with history of close contact with cats, raw meat and vegetable consumption, and low learning level.[3] The most significant benefit in the serology of Toxoplasma is to detect whether the pregnant lady has acute infection or not, and if so, whether it happened before pregnancy.[11] The major trouble in diagnosis between pregnant ladies is long-term antibody IgM, but T. gondii-specific antibody (IgM) does not necessarily indicate acute illness.[12]

Though the infection is frequently asymptomatic or mild and self-limiting (fever, agitation, lymphadenopathy), infection happening throughout pregnancy leads vertical transmission to the fetus.[3]

Scarce is known about the epidemiology of T. gondii infection in ladies with abortions. Seroprevalence of infection with T. gondii changeable from 17% to 43.8% in women with abortions have been reported in Pakistan,[13] Egypt,[14] and India.[15]

## Justification

There is no previously published data about the prevalence of toxoplasmosis among aborted women in Atbara district.

## Objectives

To know the Seroprevalence of toxoplasmosis among aborted women in Atbara district.

## Material and method

### Study design

Cross sectional, descriptive study.

### Study area

Atbara district, River Nile State, Sudan.

### Study period

February –January, 2017.

### Study population

Aborted ladies from Atbara district.

### Sample size

152 ladies were involved in the study

Data collection: Well constructed questionnaire was established to collect data from each participant.

### Statistical analysis

SPSS was used in analysis of the results.

## Method

Latex agglutination, Immunochromatographic and Enzyme linked immunosorbent assays methods were applied in the study.

### Ethical consideration

Each participant was informed about the objective of the study and they were consent to be involved in the study.

## Result

The overall Seroprevalence rate of Toxoplasmosis between aborted ladies according to the techniques used; 33.6 % by latex technique, 22.4 % by ICT technique and 35.5 % by ELISA technique

## Conclusion

We conclude that there was high prevalence of toxoplasmosis among the participants and indicated that ELISA is the best serological method for detection of Toxoplasma gondii infection.

## Recommendation

Further studies must be done with large sample size applying both serological and molecular diagnostic methods.

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## Conflicts of interest

The author declares there are no conflicts of interest.

## References

1. Galvan Ramirez ML, Troyo R, Roman S, et al. A systematic review and meta-analysis of Toxoplasma gondii infection among the Mexican population. *Parasit Vectors*. 2012;26;5:271.
2. Saki J, Mohammadpour N, Moramezi F, et al. Seroprevalence of Toxoplasma gondii in women who have aborted in comparison with the women with normal delivery in Ahvaz, southwest of Iran. *Sci World J*. 2015;764369.
3. Daryani A, Sarvi S, Aarabi M, et al. Seroprevalence of Toxoplasma gondii in the Iranian general population: a systematic review and meta-analysis. *Acta Trop*. 2014;137(1):185–194.
4. Dubey JP, Hotea I, Olariu TR, et al. Epidemiological review of toxoplasmosis in humans and animals in Romania. *Parasitology*. 2014;141(3):311–325.
5. Saadatnia G, Golkar M. A review on human toxoplasmosis. *Scand J Infect Dis*. 2012;44(11):805–814.
6. Hamad MNM. Prevalence of toxoplasmosis among selected group of unmarried volunteers Sudanese females. *MOJ Womens Health*. 2018;7(6):202–203.
7. Yad MJ, Jomehzadeh N, Jafar Sameri M, et al. Seroprevalence of Anti- Toxoplasma gondii Antibodies Among Pregnant Woman in South Khuzestan, Iran. *Jundishapur J Microbiol*. 2014;7(5):e9998.
8. Hajsoleimani F, Ataeian A, Nourian A, et al. Seroprevalence of Toxoplasma gondii in pregnant women and bioassay of IgM positive cases in Zanjan, Northwest of Iran. *Iran J Parasitol*. 2012;7(2):82–86.
9. Borna S, Shariat M, Fallahi M, et al. Prevalence of immunity to toxoplasmosis among Iranian childbearing age women: systematic review and meta-analysis. *Iran J Reprod Med*. 2013;11(11):861–868.
10. Fallah M, Rabiee S, Matini M, Taherkhani H. Seroepidemiology of toxoplasmosis in primigravida women in Hamadan, Islamic Republic of Iran, 2004. *East Mediterr Health J*. 2008;14(1):163–171.
11. Golkar M, Rafati S, Abdel-Latif MS, et al. The dense granule protein GRA2, a new marker for the serodiagnosis of acute Toxoplasma infection: comparison of sera collected in both France and Iran from pregnant women. *Diagn Microbiol Infect Dis*. 2007;58(4):419–26.
12. Petersen E. Toxoplasmosis. *Semin Fetal Neonatal Med*. 2007;12(3):214–223.
13. Pal RA, Qayyum M, Yaseen M. Seroprevalence of antibodies to Toxoplasma gondii, with particular reference to obstetric history of patients in Rawalpindi-Islamabad, Pakistan. *J Pak Med Assoc*. 1996;46(3):56–58.
14. Attia RA, el-Zayat MM, Rizk H, et al. Toxoplasma IgG. & IgM. Antibodies. A case control study. *J Egypt Soc Parasitol*. 1995;25(3):877–882.
15. Gogate A, Deodhar LP, Shah PK, et al. Detection of Chlamydia trachomatis antigen & Toxoplasma gondii (IgM) & Mycoplasma hominis (IgG) antibodies by ELISA in women with bad obstetric history. *Indian J Med Res*. 1994;100(1):19–22.