



## Detection of Antiphospholipid Antibodies Syndrome in Aborted Woman by ELISA Test

Ahmed A. Nasir Al-Amery<sup>1\*</sup>, Hiba Abdul-Adheem<sup>1</sup> and T. Aziz Abbas<sup>2</sup>

<sup>1</sup>College of Medicine, Cancer Research Unit, University of Thiqr, Iraq

<sup>2</sup>College of Medicine, Clinical Biochemistry Dept, University of Thiqr, Iraq

\*Corresponding author

### Abstract

This study was conducted to detect the role of *T. gondii* in abortion case and its association with the mentioned parasite and neutralize the possible relation between the infection in this parasite autoantibodies against phospholipids (APL) among women who consulted Children and Maternity Hospital in AL-Nasiriya province during the two months June and July 2014. Out of serum samples 10 (14.2%) were positive for anti-*Toxoplasma* Antibodies IgG antibodies and 2 (2.8%). Besides, results were positive for IgM antibodies and one sample (1.4 %) were positive for Antiphospholipid IgG antibodies and all results were negative for antiphospholipid IgM.

### Article Info

Received: 12 September 2024

Accepted: 28 October 2024

Available Online: 20 November 2024

### Keywords

Aluminium toxicity, Aluminium oxide (Al<sub>2</sub>O<sub>3</sub>).

## Introduction

*Toxoplasma gondii* (*T. gondii*) as Skariah *et al.*, (2010) state is an obligate intracellular protozoan parasite (Skariah *et al.*, 2010). One of the major consequences of pregnant women becomes infected by *Toxoplasma gondii* is vertical transmission to the fetus. Although they were rare, congenital toxoplasmosis can cause severe neurological or ocular disease which leads to blindness), as well as cardiac and cerebral anomalies.

The three main routes of transmission are ingestion of raw or undercooked meats, exposure to oocyst-infected cat feces, and vertical transmission. Elmore and *et al.*, (2010) in addition to Jones *et al.*, (2001) point out that in pregnancy, the most common mechanisms of acquiring infection are through consuming raw, very undercooked meats, contaminated water, exposure to soil specially

through gardening without gloves or cat litter (Elmore *et al.*, 2010; Jones *et al.*, 2001).

The production of autoantibodies is an abnormal immune system response, where the body produces antibodies against itself. Anti- Pregnancy loss is one of the leading problems in women's health issues (Shapiro, 1996). The presence of antiphospholipid and Anticardiolipin antibodies in serum has been associated with the antiphospholipid-antibody syndrome which is characterized by arterial and venous thrombosis or recurrent pregnancy loss attributed to placental thrombosis (Heine and Eckhardt, 1994). Gris remarks that antiphospholipid syndrome (APL) is an autoimmune thrombophilic condition which is significantly associated with a history of thrombosis, recurrent miscarriages, late fetal death and thrombocytopenia (Gris, 2009). APL antibodies are considered to be a significant predictor of

fetal loss. Women who are positive for APL antibodies increased risk of repeated early miscarriages and second or third trimester fetal deaths because sera of these women contain antibodies reactive against trophoblastic cells which are involved in the establishment of uteroplacental vasculature and maintenance of placental blood fluidity. These antibodies may exert a direct pathogenic effect by interfering with hemostatic process that takes place on the phospholipids membranes of cells such as platelets or endothelium. It was also suggested that APL autoantibodies may cause intravascular coagulation leading to recurrent abortions (Daboubi, 2001; Salehi *et al.*, 2007).

Furthermore, antiphospholipid syndrome (APS) is a major reproductive complication in women which is characterized by recurrent fetal loss, thrombosis, and thrombocytopenia in association with anticardiolipin antibodies (aCL). Besides, anticardiolipin antibody is found to be the most important factor for recurrent abortion. In addition, women with negative anticardiolipin antibody are having positive for another antiphospholipid antibodies like aPS which may involve in recurrent abortion (Velayuthaprabhu and Archunan, 2010).

## Materials and Methods

In this study, 70 aborted pregnant women were selected randomly from visitors of hospital patients of Maternity and Children Hospital in Nasiriya province. First of all, Blood sample was taken from each patient and centrifuged for about 5min at 4000 r.p.m. to obtain serum sample. Then, the serum samples were stored at 20 until tested By ELISA technique for quantitative determination of anti-toxoplasma and anti-phospholipids IgG and IgM following Bio Check instructions in ELISA of IgG and IgM.

## Results and Discussion

Distribution of the examined sera for anti-toxoplasma antibody by ELISA technique has been achieved. The Main age of the patients was  $26.8 \pm 7.2$ . From this test, twelve aborted women were found carrying specific anti toxoplasma IgG and IgM antibodies.

Anti-toxoplasma IgG antibody was positive in 10(14.2%) aborted women which indicates previous exposure and only 2(2.8%) aborted women were considered positive for anti- toxoplasma IgM antibody who were positive for anti- toxoplasma IgM antibody. Also the result revealed

that 8 (11.4%) were equivocal. Besides, the result showed that 1 (1.42%) and zero sample of examined women were seropositive for phospholipid IgG and IgM antibodies respectively.

After all, this result may be due to the availability of optimum environmental conditions for survive and spread the parasite in addition to the presence of more than one risk factor affecting the occurrence of toxoplasmosis as the habits of people and the sanitary conditions and many sources of infection including the ingestion of sporulated oocyst in soil, eating under cooked meat contaminated with cysts, eating unwashed raw vegetables or unpeeled fruits (Al-Saeed *et al.*, 2008). What is more, negative cases indicate the presence of other causes of abortion rather than Toxoplasma, CMV and APL antibodies.

With respect, the causes of fetal loss are myriad, and many will have implication for future pregnancy. As a result, the risk of recurrence depends upon the cause of the first pregnancy loss, but adverse pregnancy outcomes appear to be more common in these women. Their pregnancies should be regarded as a high risk and monitored accordingly (Empson *et al.*, 2002). Equally, known causes of maternal defects include coagulation disorders, autoimmune defects. Thus, the etiology in approximately 50% in recurrent pregnancy loss is unknown (Regan *et al.*, 2000). The exact prevalence of the etiological factors remains unclear. Accordingly, primary antiphospholipid syndrome has been associated with adverse pregnancy outcomes including three or more consecutive pregnancy losses of morphologically normal fetuses (Wilson *et al.*, 1999).

In this study, the test showed the low percent (1.42%) that positive for IgG and zero percent for IgM antibody was different from other study. It was found that the percentages of positivity for APL IgM, IgG, and both (IgG and IgM) were 27.0%, 8.0 % and 7.0 % respectively. While in other studies, the positivity of APL IgM, IgG, and both (IgG and IgM) were 8%, 7%, 4% and 13 %, 5 %, and 3 % respectively.

It showed that IgM positivity 0% was low as it was compared to other studies (Parazzini *et al.*, 1991). Therefore, this may be due to transient and non-specific nature of IgM antibodies simply because these antibodies also increase secondarily to drug exposure and infections. Additionally, negative cases indicate the presence of other causes of abortion rather than Toxoplasma and APL antibodies.

## Conclusion

The evidence seems to indicate that *Toxoplasma gondii* important causes of aborted women with recurrent first trimester miscarriage and all women with one or more second trimester miscarriage should be screened before pregnancy for toxoplasma and antiphospholipid antibodies.

## References

- Al-Saeed, M. S; Muhsin; M. A; AL-Juburi. (2008) G. Study the Role of *Toxoplasma gondii*, Cytomegalo-virus and Anti-phospholipids Antibodies in Cases of Abortion among Women in Hilla City. QMJ VOL. 4 No.6.pp:3 <https://doi.org/10.28922/qmj.2008.4.6.27-34>
- Elmore S A, Jones J L, Conrad P A, Patton S, Lindsay D S, and Dubey J P. (2010). *Toxoplasma gondii*: Epidemiology, Feline Clinical Aspects, and Prevention. Trends Parasitol 2010;26(4):190–6. <https://doi.org/10.1016/j.pt.2010.01.009>
- Empson, M., Lasses M, Graig J C *et al.*, (2002). Recurrent Pregnancy Loss with Anthphosphlipid Antibody: a Systemic Review of Therapeutic Trials. Obstet Gynecol.2002; 99:135-144. [https://doi.org/10.1016/s0029-7844\(01\)01646-5](https://doi.org/10.1016/s0029-7844(01)01646-5)
- Gias Daboubi, M. (2001). Anticardiolipin in Women with Recurrent Abortion. East MediterrHealth J. 2001; 7:95-9
- Gris, J. (2009). Thrombophilia and Pregnancy Loss: Cause or Association. Thrombosis Research. 2009; 123(2): 105-10. [https://doi.org/10.1016/s0049-3848\(09\)70022-2](https://doi.org/10.1016/s0049-3848(09)70022-2)
- Heine, O. Eckhardt, G. (1994). Intravenous Immune Globulin in Recurrent Abortion. ClinExpImmunol. 1994; 97 (1):39-42.
- Jones, J L, Kruszon-Moran, D., Wilson M., McQuillan, G., Navin, T., McAuley, J B. (2001). *Toxoplasma gondii* Infection in the United States: Seroprevalence and Risk Factors. Am J Epidemiol 2001; 154(4):357–65. <https://doi.org/10.1093/aje/154.4.357>
- Parazzini, F., Acala, B., Faden, D., Lovotti, M., Maralli, G., Cartellazo, S. (1991). Antiphospholipid Antibody and Recurrent Rbortion. Obstet Gynecol.1991; 77(6):854.
- Regan, L. and Rai, R. (2000). Epidemiology and the Medical Causes of Miscarriage. Baillies'sClinObstetGynecal., 2000 14,839-854. <https://doi.org/10.1053/beog.2000.0123>
- Salehi, R., Alizaden, A., Alizaden, M., Sayyasmelli, M., Azafarin, R. (2007). Comparison of Antiphospholipid Antibody in Hypertensive with Normotensive Pregnant Women.Rawal Med J. 2007; 32:173-5.
- Shapiro, S S. (1996). The Lupus Anticoagulant/ Antiphospholipid Syndrome. Annu Rev Med 1996; 47:533-53. <https://doi.org/10.1146/annurev.med.47.1.533>
- Skariah, S., McIntyre, M K., Mordue, D G., (2010). *Toxoplasma gondii*: Determinants of Tachyzoite to Bradyzoite Conversion. Parasitol Res;107(2):253–60 <https://doi.org/10.1007/s00436-010-1899-6>
- Velayuthaprabhu, S.; Archunan, (2005). Evaluation of Anticardiolipin Antibodies Antiphosphatidyl serine Antibodies in Women with Recurrent Abortion. Indian J Med Sci.... 2005; 59(8): 247-352.
- Wilson, W A., Gharavi, A E., Koike, T., Lockshin, M D., Branch, D W., Piette, J C., Brey, R., Derksen, R., Harris, E N., Hughes, G R., Triplett, D A., Khamashta, M A (1999). International Consensus Statement on Preliminary Classification Criteria for Definite Antiphospholipid Syndrome: Report of an International Workshop. Arthritis Rheum 1999; 42: 1309–11.

### How to cite this article:

Ahmed A. Nasir Al-Amery, Hiba Abdul-Adheem and Aziz Abbas, T. 2024. Detection of Antiphospholipid Antibodies Syndrome in Aborted Woman by ELISA Test. *Int.J.Curr.Res.Aca.Rev.* 12(11), 150-152. doi: <https://doi.org/10.20546/ijcrar.2024.1211.013>