

RESEARCH ARTICLE

Study the Correlation between Pathogenic Parasitic Infections and Infertility among Women in Kerbala province, Iraq

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ABSTRACT

This study indicated that infections with pathogenic-parasitic (PP) causes in healthy controls who do not suffer infertility will be higher than those of infertile women. Correspondingly, in parasitic infections in (protozoa) were prevalent among numerous parts of the world. Developed countries and infertile women were the major burden and infections, for example, the women's reproductive system through damage to infertile women. There were approximately parasitic infections such as *Trichomonas vaginalis* could reason cervical tumors, non-anomalous pelvic infections in women and tubal and genital tract abnormalities. *Toxoplasma gondii* reasons dysplasia of reproductive tract, synthetic disorders and endometriosis for example, intrauterine adhesions.

Keywords: Infertile women, *Trichomonas vaginalis*, *Toxoplasma gondii*.

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INTRODUCTION

Infertile Women (IW) was well-defined by way of a disorder affecting both (men and women) contraception for despite the occurrence of intercourse and at least six months without regularly using any means of despite the occurrence of pregnancy.^{1,2} Sterility was a public residence disorder that had an emotional influence on the generative structure, described via a clinical pregnancy to the absence of aptitude of a couple after one year or more of regular unprotected sexual intercourse. Owing toward conflicts in Iraq, about 2003, Deaths and large numbers of injuries were caused by radioactive materials and destructive chemicals. The Iraqi environment agonized from performances of dissent. The people who endured these overwhelming occurrences either cancer or suffered from infertility.

Nevertheless, only a few studies have examined the post-war inspection precisely on sterility.³ There were numerous parasites that would have been a role in females' failure in dissimilar behaviors. In about 35% of women with sterility agonized ovarian dysfunction (OD), changes in the ovarian post-inflammatory (PI) surrounding duct and Pretorian membrane tare Also, PI was caused the granulomatous salpingitis that it was infrequently caused by tubal obstruction.⁵ The contamination might cause important damage to animals,

counting chronic cervical dysplasia of endometriosis (DOE) and the human reproductive system, reduction of deformation, the reproductive tract, sperm movement, and disorders synthetic for instance, bonds inside Urged and Uterus. The fetal tissue or gametes do not interfere with the immune mediators.⁴ It has been exposed that protozoa were unicellular microorganisms to the details connected and were a main condition problem global meanwhile of their expansion spread or incidence. The medical indications were tightly related with their location in the host and the pathological effectiveness, whether in the intestines, blood or tissues. parasitic protozoa that would cause infertility in females was the (*Trichomonas vaginalis*), whipped that could live in the diffuse globally in urogenital system of man. Among women, in the stream of urine, prostate gland in males and in the epididymis.⁶ Then it was conveyed mostly by sexual contact, which was measured to be a sexually transmitted parasite. Then, it might stay communicated with wet clothing, the use of alternate towels, and western sanitary seats with these secretions of a parasite. Within some papers, Tubal-infertility (TI) be recurrent two times among females who described a non-patient women history with *Trichomonas* infection opposite to a history of trichomoniasis.^{7,8} The group of El-Shazly *et al.* (2001) that found *T. vaginalis* was present in (14.58) % of the females who

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were the control- group compared to germ-free.⁹ *Toxoplasma gondii* was an intercellular protozoan that consequence from (18–20)% of the global inhabitation among various regions,^{9,10} many of papers that have been pointed to association among toxoplasmosis, sterility within women, and that the incidence of non-symptomatic latent toxoplasmosis had been latent on the initial embryo growth. Also, several papers have been manage that the rate of natural disease in healthy women was lower than that of women with infertility.^{10,11}

At some papers on workroom animals had been exposed that infection with *T. gondii* due to sterility during chronic-toxoplasmosis, the laboratory -animals in (rat's female) maybe foundation Endometriosis, weak- follicles, debility ovaries, leanness in the ovaries and uterus, depression in adrenal glands inflation, genital action , cessation of reproduce to failure, vascular inflammation in experimental menstrual dysplasia and mice.¹²⁻¹⁴

MATERIALS AND METHODS

The cross-sectional descriptive approach was designed to meet the previously mentioned objectives of the current study. The study was conducted from (Oct. 2020 to Mar. 2021). It had taking 3 mL from venous blood for infertile women who hospital review in the obstetric education and hospital women in Karbala province, 3 mL of blood was putting in gel tube then left it for 30 minutes to a clot. After that, it was centrifuged at 3000 rpm for 10 minutes to obtain serum stored in deep freezing (-20°C) until it was used for serological assays. Sera were tested for anti- *T. gondii* antibody (IgG and IgM) by Enzyme-Linked- Immunosorbent- Assay (ELISA) technique, the manufacturer's instructions were applied as well as samples were obtained from a pap smear and the vagina, taken by a gynecologist, 2 swabs were approved. Then, the swab was fixed in (1 to 2) cm in the endocervical canal by (2 to 3) rotations. Finally, swabs were collected on the producer's advice.

In this study, a sterile tube was immersed by swabs in containing tubes, 1-mL from physiological solution, the swabs were check-up for 10 minute. atleast the infected samples (+ve), including one parasite or more, labeled by the movement of jerky and some of the demographic details labeled with the person's name and date of collection. Additionally, the wet swab was checked up in wet base preparation.¹⁵⁻¹⁷

Statistical Analysis

The analysis of this paper data was performed by means of Statistical Package for the Social Sciences (SPSS) version (23.0) and the results were expressed as (mean ± standard deviation) SD.¹⁸

RESULTS AND DISCUSSION

In this study, among 165 infertile females inspected, (115) it was 30.3% in both of age groups of the current paper and 26.5% were positive (+) for toxoplasmosis. Toxoplasmosis is a global spread illness that affects most groups of people. Stats found when measuring the parasite's immunoglobulin in people's blood refer to global injury occurrence between more

than 10–90%.¹⁹ Also, the considerable variances among the types of *T. gondii* races remain significant facts, differences in the intensity of virulence were noticed among the parasite's races, some of them were non-virulence and virulence.²⁰ Few medical papers showed the association between *T. gondii* and women's infertility. (Kaňková and Flager, 2007) recorded that latent toxoplasmosis had opposing effects on the primary advance of mother's embryos.²¹ Quantity of lately published papers recorded that chronic toxoplasmosis in healthy females was less significant than infertile women.^{22,23} (Zhou *et al.*, 2002) recorded that the distribution of chronic toxoplasmosis in infertile pairs had been about 12.11% and was meaningfully 34.83% higher than fertile couples.²⁴ In addition, toxoplasmosis had affected on the reproductive capacity of couples (females and males). The unpredictably high association was detected between *T. gondii* (66.7%) and infertility,²⁵ *T. gondii* would affect semen quality, damage deformities of the genital tract and tubal inflammation.²⁶⁻²⁸

The incidence of infection of Trichomonas was found that forty-four and four percent in female women, in previous papers had been exposed that *T. vaginalis* injury had high proportions of reappearance because of metronidazole to increase in resistance.²⁹ Trichomoniasis was regularly examined in sick people who suffered from the symptoms and infection could continue for a range 3–12 months in a genital female canal. Trichomoniasis asymptomatic in patients' elderly were classified as a cause the long occurrence of disease without symptoms.³⁰⁻³² Infected individuals with *T. vaginalis* had no signs in women 35–85% versus 70–100% of males. Lately, the parasite had been insulated from the tubes of Fallopian and peritoneal fluid, signifying that touching the parasite may be an entire female canal stream.^{33,34} Several papers confirm that the parasite could cause the lesion to various types of cells, the genitourinary system and tissues such as muscular tissues or connectives because of the higher toxic influence leading to an elevated danger in childbearing loss (Tables 1 and 2).^{35,36} The parasite was linked with tissue cause to contraction of the membrane's cell, apoptosis and bleeding in cells, these effects in the installation's cell could look under a microscopic examination, clarified by form dense vacuoles also intensive chromatin in the cell.³⁵

The result of this paper, inflammation in females, were related with Trichomoniasis to endometritis of vagina could cause immune reactions of the mucosal tissue in a female reproductive canal, which elevate out of danger of injury in pelvic disease.^{37,38} Then Trichomoniasis in the vagina is related to acute salpingitis in the rate of 30% and to postpartum

Table 1: The infection controls and infertile women.

Collection	No. of causes	No. of positive(+) causes (%)		p-value
		<i>T. vaginalis</i>	<i>T. gondii</i>	
Infertile women	115	75(65.2)	40(34.7)	0.000
Controls	50	27 (54)	23 (46)	
Total	165	102 (61.8)	63 (38.2)	

Table 2: The association among the parameter under the study of sterile female

Parameters no= 115	Parameters no= 115	r	p-value
Infertile women	Age	0.015	0.190
	Abortion	0.000	0.426*
Age	Abortion	0.043	-0.160*
Abortion	Infertile-women	0.000	0.357**

endometriosis in the rate of 60% cases in pregnancy in addition to thirty percent of premature birth and low birth weight of infants.³⁹ The infection with *Trichomonas* would pave infection to other types of microbes like parasites, bacteria and viruses such as HIV, with (1.5–3) times of infection or thus increases the risk of reproductive failure (Table 3).⁴⁰⁻⁴²

CONCLUSIONS

Our study suggests that the infection with protozoa animals cause a significant reason to infertile women, rendering them an extensive feast of the parasites. Consequently, more education were suggested to better comprehend the association between this infertility and infection and screening both the couple (female and male) as soon as treating sterility as these parasites were sexually transmitted diseases.

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Table 3: The infection in protozoa by infertile- women according to their ages

The age (Year)	Total no. of examined causes	Direct test		ELISA	
		no. of (+) causes <i>T. vaginalis</i>	Prevalence of infection (%)	no. of (+) causes <i>T. gondii</i> (IgG, IgM)	Est Prevalence of infection (%)
18-25	66	32	48.48	34	51.51
26 - 33	49	22	44.89	27	55.10
Total	115	54	46.95	61	53.04

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