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STUDY OF THE PREVALENCE OF TRICHOMONAS VAGINALIS PARASITE IN FEMALES SUFFERING FROM VAGINAL INFLAMMATIONS

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ABSTRACT

Background & Objective: *Infection of trichomoniasis is accountable for disease transmitted by sex (non-virally), called trichomoniasis or vaginitis the most popular disease worldwide. The goal of current research was to determining spread rate of Trichomonas vaginalis among females suffering from genital inflammation in Najaf city of Iraq.* ***Methods:*** *Two hundred and sixty-four of the participating women were included in our current study, they were going to Al-Manathra Hospital, Al-Najaf Hospital, Al-Furat Hospital, and a few outpatient clinics between January and June of 2023. One hundred and thirty-two were included as a control group and one hundred and thirty-two were included as patients (they were suffering from vaginal inflammation). All participants in the study underwent direct microscopic examination and then immediately cultured in diamond culture media by taking a swab from the vagina to confirm the presence of the parasite Trichomonas Vaginalis.* ***Results:*** *Out of (264) swab samples that which examined microscopically for T. vaginalis by using light microscope under (40x), Trichomoniasis infection detected in 70 (53.03%) out of 132 women undergoing from vaginal inflammation while there was 62 (46.97%) of women negative for T.vaginalis, and this difference was statistically non-significant (Chi-square=0.618, P-value=0.432), while in the control subjects 116 (91.67%) of (132) were negative for Trichomoniasis infection, except 11 women (8.33%) were positive for T.vaginalis, but not suffered from any symptoms, this difference was significant in statistic (Chi-square = 86.811, P-value = 0.000). Out of (264) swab samples that which cultured on diamond liquid media, Trichomoniasis infection detected in 74 (56.07%) out of 132 women undergoing from vaginal inflammation while there was 58 (43.93%) of these women were negative for T.vaginalis parasite, and this difference according to Chi-square value (2.206) and p-value (0.137), it was statistically non-significant. regarding the control subjects, 112 (88.64%) of (132) were negative for Trichomoniasis infection, and 15 women (11.36%) were positive for T.vaginalis, but not suffered from any symptoms. This difference was statistically significant according to the Chi-Square (74.087) and P value (0.000).* ***Conclusions:*** *The prevalence of the Trichomonas vaginalis parasite in Najaf Governorate, according to the results of the current study, is 56%, and this is considered a high and interesting percentage.*

INTRODUCTION

The Trichomoniasis is an illness transmitted by sex intercourse, caused via a protozoon (unicellular), a kind of teeny parasite nameed *Trichomonas-vaginalis* (Speedie, 2021). The parasite moves between individualls through sexual intercourse, involving vaginal sex, anal sex or oral sex. Infection with Trichomoniasis can be transmitted between females and males (Cavanagh and White, 2022).

The period between exposure and infection with the parasite (incubation_period) is unbeknown. But it's thinking to spanned between 4-28 days. Yet absence manifestations, your partner or you can remain transmission the infection to people through sex (Van Gerwen *et al.,* 2018).

T. vaginalis make a response to various environmental variations such PH, temperature, iron, zink, oxygen, polyamines glucose, fundamental interaction with various cells of host, and further uncertain elements, host immune response, modifying the crossing of many genes, such as those encoding virulence factors, that are important for maintaining chronic infection persistence. *T.Vaginalis* parasite is a unicellular pathogen that excite in host heavy immune response (Lee *et al.,* 2017).

The risk factors for acquired infection of trichomoniasis involve having several sex partners, a historical events of another sex transmitted infections (STIs), a past incident of trichomoniasis infection and sexual intercourse in the absence of a condom (Hansman and Klausner, 2023).

The presence of trichomoniasis in fection in human give rise to agitation in the venerial region that may turn of it easier to expose for another STIs to come in the host or to cross them to others hosts (Al-Ethafa, 2021). Trichomoniasis infection also shows to make it very easy to be infective with (HIV) humans' immune deficiency-virus, this HIV virus cause gained immunodeficiency syndrome (AIDS) (Prabhu and van Wagoner, 2023).

Trichomoniasis is related with an elevated danger for cancer (prostate or cervical). Trichomoniasis untrated infection can persist from months to many years (Kissinger et al., 2022).

METHODOLOGY

Study Design

The study design that was applied in the immediate study was case-control; samples collected from Al-Manathra Hospital and Al-Najaf Hospital and Al-Furat Hospital and some outpatient's clinics at the period from January 2023 to June 2023.

Participants

One hundred thirty-two of the participating women were included in our current study, samples collected from Al-Manathra Hospital and Al-Najaf Hospital and Al-Furat Hospital and some outpatient's clinics at the period from January 2023 to June 2023. Two vaginal swaps were taken from all participants. Swap samples were taken from posterior fornix or vaginal wall using sterile cotton swaps after introducing asterile vaginal speculum then the vaginal swaps, one of them was inoculated into tube containing approximately 2 ml of Saline and examined microscopically during 10 minutes to identify the motile trichomonad and the other vaginal swaps inoculated in liquid diamond medium for culture.

Microscopic Examination

Wet Mounting

A vaginal swap sample was used straight for a wet mount. For the first microscopic analysis of the vaginal exchange and to illustrate the parasite (T. vaginalis), two types of wet mount were employed for each sample (saline and iodine) .

A drop of saline and a drop of iodine solution were placed on one side of the slide and the other, respectively, and mixed with an applicator swap that was picked up and covered with cover slips for the direct saline and iodine mount. High power magnification can be used to investigate T. vaginalis trophozoites (Elizabeth, 1997).

Culturing method in Diamond culture media

After receiving swab, implanted directly, by rotate the swab in the center, then cut off the protruding part of the swab, and replace the cap loosely . The antenna was incubated at 33-37°C for up to 5 days. The medium was examined thoroughly microscopically for the existence of moving *T.Vaginalis.*

RESULTS AND DISCUSSION

Basic Demographic Data of Cases and Control Subjects

The current study included 264 women who were between the ages of 15-54 years enrolled in this study composed the two studied groups, namely, first group (case) included the female patients *suffering from vaginal inflammation* (132), the second group (control), 132 included females who did not complain of vaginal infections for a period exceeding 6 months, were selected from Al-Manathra Hospital and Al-Najaf Hospital and Al-Furat Hospital and some outpatients clinics at the period from January 2023 to June 2023.

All of the women in this study had not taken any anti-inflammatory medication recently, and many cases who had been taking anti-inflammatory medications for the last 14 days were excluded. Also, gravid females, and women (< 15 years or > 55 years) and not sexually active were excluded from this study.

Table (1) shows their demographic characteristics where according to age groups, the results are shown, there were most cases appear in the age group 25-34 year (45.46%) while less cases appear in the age 45-54 year (12.88%). Whilst, the other age groups (15-24 year and 35-44 year) formed the following numbering and percentage: 30 (22.72%) and 25 (18.94%) respectively.

According to clinical diagnosis the cases group were divided into five groups (PCOS, BOH, Secondary infertility, primary infertility and endometriosis) groups. The results are shown in table (1) explain that there were most cases diagnosed with PCOS 33 (25%) while less cases diagnosed with secondary infertility 15 (11.36%). Whilst 22 (16.67) patients diagnosed with BOH, 31 (23.49%) patients diagnosed with endometriosis and 31 (23.49%) patients diagnosed with primary infertility.

Also, table (1) clarify that 64 patients (48.48 %) suffered from irregular bleeding, 59 patients (44.69 %) suffered from pain during intercourse, 34 patients (25.75%) suffered from foul smelling, 31 patients (23.48%) suffered from vaginitis, 28 patients (21.21%) suffered from cervicitis, 28 patients (21.21%) suffered from itching, 27 patients (20.45 %) suffered from lower abdominal pain, 20 patients (15.15%) suffered from burning pain on micturition and 19 patients (14.39%) suffered from dysuria.

As stated by recent international data, annually (156 million) individuals are infected with the parasite T. vaginalis, wherever the recrudescence in females mostly between [15-49 years] is 5.3%, meanwhile reach 0.6% in males. It is recognized that this trichomoniasis infection in females may include pruritus, cervicitis, dysuria, vaginitis and vaginal discharge. Or still without manifestations (Mabaso and Abbai, 2021).

Women infected with the T.vaginalis parasite may suffer from cervicitis, urethritis, and vaginitis, which in turn causes serious health risks such as infertility and patients' susceptibility to easy infection with herpes simplex virus, human papillomavirus, and cervical cancer (Paul, 2024).

In comparison with other studies, according to study conducted in city of Dohuk, included 425 swabs for vaginal that were gathered from females suffered from vaginal discharges and have pelvic inflammatory illness, cervicitis and vaginitis. The results of this study pointed out that young female aged (20-25 years) displayed the extreme rate of infection reach (7.6%) contrasted to other groups of ages (Al Saeed, 2011).

Epidemiological research was also carried out for screening for trichomoniasis in 440 women ages (16-60 years old) in Erbil city, the age group of 16-26 years recorded the highest infection rate 4% compared to other age groups of 16-26 years and 27-37 years, who recorded 3.3% and 3.1%, respectively (Nouraddin and Alsakee, 2015).

According to study of khalis Al-Masoudi, (2016) that conducted on polymerase chain reaction and method of wet mount in city of Babylon to reveal trichomonas infection in females with symptoms, this study indicated that the elevated infection averages were registered in females in (30-40 years) age group.

Table (1): Demographic Data of Study Groups

Demographic data	Groups	Patients No. (%)	Controls No. (%)
Age groups	15-24 year	30 (22.72)	27 (20.45)
	25-34 year	60 (45.46)	30 (22.73)
	35-44 year	25 (18.94)	35 (26.52)
	45-54 year	17 (12.88)	40 (30.30)
	Total	132 (100.00)	132 (100.00)
Clinical diagnosis	PCOS	33 (25.00)	-
	BOH	22 (16.67)	-
	Secondary infertility	15 (11.36)	-
	Primary infertility	31 (23.49)	-
	Endometriosis	31 (23.48)	-
	Total	132 (100.00)	-
Symptoms	Itching	27 (21.21)	-
	Foul smelling discharge	18 (25.75)	-
	Dysuria	18 (14.39)	-
	Burning pain on micturation	19 (15.15)	-
	Cervicitis	28 (21.21)	-

	Irregular bleeding	64 (48.48)	-
	Vaginitis	31 (23.48)	-
	pain during intercourse	59 (44.69)	-
	Lower abdominal pain	27 (20.45)	-

Isolation and Diagnosis of The Trichomonas Vaginalis Parasite from Women Suffering from Inflammation

Microscopic examination (wet mount method)

A wet mount method was conducted immediately from samples of vaginal swap. The two type of wet mount were used for each of vaginal swap sample (Saline and Iodine) were used for the initial microscopic examination of vaginal swap and to demonstrate the parasite (*T. vaginalis*).

Out of (264) swab samples that which examined microscopically for *T. vaginalis* by using light microscope under (40x), Trichomoniasis infection detected in 70 (53.03%) out of 132 women undergoing from vaginal inflammation while there was 62 (46.97%) of women negative for T.vaginalis, and this difference was statistically non-significant (Chi-square = 0.618, P-value = 0.432), as shown in Table (2) while in the control subjects 116 (91.67%) of (132) were negative for Trichomoniasis infection, except 11 women (8.33%) were positive for *T.vaginalis*, but not suffered from any symptoms, this difference was significant in statistic (Chi-square = 86.811, P-value = 0.000). This means that a person can be infected with this parasite for many months or years without knowing that he is infected. This is due to the lack of symptoms or they have very light symptoms that are difficult to notice.

Diagnosis of trichomoniasis traditionally relies on microscopic examination of vaginal or cervical swabs, or even secretions or urine samples (Ibáñez-Escribano and Nogal-Ruiz, 2024).

Microscopic diagnosis of the parasite in Iraq is considered one of the main methods and is done by examining a vaginal swab or general urine examination (Al-Marjan and Sadeq, 2022).

Al-Hasnawy and Rabee, (2023) mentioned that in Iraq, Trichomoniasis can be diagnosed by several techniques, including; direct examination of fresh urine and vaginal discharge, culture using specific media, the wet mount preparation based on urine and vaginal discharge is routinely used to detect T. vaginalis directly. In addition, subsequent culture is also conducted for detection of the infection in the laboratory.

In Arabic countries, a previous study using clinical and wet-mount examination was conducted to investigate the Trichomonas infection in 2,450 women in Benghazi City, Libya, from 2000 to 2001. The findings showed that 29 out of 2450 (1.2%) were infected with symptomatic clinical signs, including vaginitis discharge, burning, vulvar pruritus, dyspareunia, dysuria, and strawberry appearance **(**Kassem and Majoud, 2006).

Another descriptive study was conducted among 430 pregnant women in Gaza, Palestine; its results found that 77 out of 423 women 18.2% were favorable to *T. vaginalis* infection (Al-Hindi and LUBBAD, 2006).

In Iraq, several studies are already conducted to detect this infection in humans, particularly symptomatic women. This may be an indicator that trichomoniasis considers an endemic disease in Iraqi populations. For instance, A study in Basra province used wet preparation and culture methods to examine 300 females to detect this parasite. The results show that 34 females 11.3% suffering from vaginal discharge were favorable to the infection (Mahdi, 1996).

In 2010, 600 women who attended the gynecological outpatient clinic and hospitals in Sulaimania were examined for T. vaginalis infection. The infection rates are 1.66% and 5% based on direct wet mount examination and culture techniques (Fattah and Kadir, 2010).

In Dohuk city, 425 vaginal swabs were collected from women with vaginal discharge associated with vaginitis, cervicitis, and pelvic inflammatory disease. The finding appeared that the infection was positive in 10 (2.4%), 15 (3.5%), 17 (4.0%), 23 (5.4%) swabs by wet smear preparation, hematoxylin-eosin-stained smear, Papanicolaou stain, and Diamond modified culture, respectively (Al Saeed, 2011). In 2010, T. vaginalis infection was checked in 600 women who visited the hospitals and gynecological outpatient clinic in Sulaimania. According to direct wet mount analysis and culture methods, the infection rates are 1.66% and 5%, respectively (Fattah and Kadir, 2010).

425 vaginal swabs were taken from women in Dohuk City who had vaginal discharge linked to pelvic inflammatory illness, cervicitis, and vaginitis. According to the results of wet smear preparation, hematoxylin-eosin-stained smear, Papanicolaou stain, and Diamond modified culture, the infection was found to be positive in 10 (2.4%), 15 (3.5%), 17 (4.0%), and 23 (5.4%) swabs (Al Saeed, 2011).

According to a study conducted in the province of Babylon, which examined 250 cervical swap samples in order to detect the parasite, the infection rate is 22% by mediated centrifuge and 20% by mediated wet swab (Al-Quraishi et al., 2014).

Additionally, epidemiological research was done in Erbil city to test 440 women (16–60 years old) for trichomoniasis. According to Nouraddin and Alsakee (2015), the results indicated that 12 (2.73%) were infected using the direct wet mount approach, while 14 (3.18%) were positive using the culture technique.

To identify the infection in symptomatic women in Babylon City, a recent investigation using polymerase chain reaction and wet mount technology was also carried out. According to the findings, 19.1% of the samples were positive for wet mount (Khalis Al-Masoudi, 2016).

According to these studies, T. vaginalis infections are widespread and thoroughly studied in the majority of Iraqi cities, demonstrating the significance of this parasite and its consequences for general health. Therefore, people should always be informed about the risk of this infection and offered counsel, especially women.

Wet mount microscopy's sensitivity and specificity were reported as 60% and 100% in 2012, whereas the culture's sensitivity and specificity were reported as 73.33% and 100%, respectively (Patil et al., 2012).

Culture of Trichomonas Vaginalis on Liquid Diamond Medium

Out of (264) swab samples that which cultured on diamond liquid media, Trichomoniasis infection detected in 74 (56.07%) out of 132 women undergoing from vaginal inflammation while there was 58 (43.93%) of these women were negative for *T.vaginalis* parasite, as shown in Table (2) and this difference according to Chi-square value (2.206) and p-value (0.137), it was statistically non-significant. regarding the control subjects, 112 (88.64%) of (132) were negative for Trichomoniasis infection, and 15 women (11.36%) were positive for *T.vaginalis*, but not suffered from any symptoms. This difference was statistically significant according to the Chi-Square (74.087) and P value (0.000). This percentages is higher than what was detected by microscopic examination, and this indicates the accuracy of this method in detecting this parasite.

The current study's selection criteria, which limited enrollment to symptomatic women, were one of its shortcomings. This could be the cause of the high prevalence of T. vaginalis (about 56.0%)

among these women, even though many diagnostic techniques were employed. The high sensitivity and specificity of the clinical diagnostic itself may be another factor contributing to the high incidence of T. vaginalis among the women in the current investigation .

Geographical differences also exist in the prevalence of infection among women; in Asia, the percentage is 0.8%, whereas in Africa, it is between 17 and 20 percent (Muzny, 2018; Joseph Davey et al., 2019).

252 (84.8%) and 253 (85.2%) of the 297 women examined in Suddan were positive for T. vaginalis using wet mount microscopy and Diamond's medium, respectively. In comparison to Diamond's medium, which had sensitivity and specificity of 100.0% and 86.4%, respectively, wet mount microscopy had values of 99.2% and 97.7%, respectively (Saleh et al., 2014).

Upon reviewing all scholarly research articles, it was discovered that there was variation in the number of T. vaginalis infections recorded across governorates. For example, the lowest percentage of infections (3.1%) was found in Erbil in 2015 (Nouraddin and Alsakee, 2015), while the highest percentage (85.5%) was found in Baghdad in 2016 (Saheb et al., 2016). The high rate of infection that has been documented in Baghdad is linked to the city's large female population, who is infected with this parasite and serves as a major source of the parasite's human-to-human transmission. Additionally, the prevalence of multi-sexual partner females in this area, along with health education, personal hygiene, and a lack of knowledge about this parasite, pose significant challenges to the control of parasites (Al-Marjan and Sadeq, 2022).

The difference in the infection rate among people of Iraqi descent supported the differences reported by Nouraddin and Alsakee (2015) in the sample size, sample population, study site, and diagnosis method.There were certain parallels among the outcomes from the various Iraqi governorates.

The current study's infection prevalence of 56.06% is nearly identical to that of a previous report by Salman (2017), who found that the prevalence of T. vaginalis was 54% in 2017 during his Baqubah investigation.

Furthermore, our findings corroborated those of Al-Mayah and Al-Quraishi, who reported that the parasite was 50% more common in Babylon and 55% more common in Baghdad, respectively (Al-Mayah et al., 2013; Al–Quraishi, 2015).

Our study's findings exceeded those of Salman and Rahi, whose research was done in Kirkuk and Kut and found that the prevalence of the parasite T. vaginalis was 20.49% and 20%, respectively (Salman and Kareem, 2013; Rahi et al., 2014).

The findings of our investigation differed from those of a prior study carried out in the city of Najaf since our study's prevalence of the parasite was significantly higher than that of Al-Kafajy's 2014 report, which claimed that the parasite's prevalence had reached 17.64%.

Furthermore, our study's findings differed from those of earlier research that found that the parasite's prevalence was 7.5%, 27.48%, 33.8%, and 12.41%, respectively, in the cities of Tikrit, Babylon, and Baghdad (in 2014) and Baqubah (in 2017) (Al-Marjan and Sadeq, 2022).

This makes it evident that factors such as the governorates' geographic location, population density, tourism and industrial cities, gender distribution within the population, personal hygiene practices, educational attainment, and types of parasite diagnostic techniques all play a fundamental role in determining the prevalence of trichomomiasis in Iraq.

Figure (1): Positive Growth of *T.Vaginalis* on Liquid Diamond Medium

Table (2): Methods used to diagnose the parasite, with a comparison of the diagnostic results for each method

Methods of Diagnosis	Groups	Parasite status	NO.	%	Chi-Square	Asymp. Sig.
Microscopic examination for *T.vaginalis*	Patients	Positive	70	53.03	0.618	**0.432 ns**
		Negative	62	46.97		
		Total	132	100.00		
	Control	Positive	11	8.33	86.811	**0.000 *****
		Negative	116	91.67		
		Total	132	100.00		
Culture of *T.vaginalis*	Patients	Positive	74	56.07	2.206	**0.137 ns**
		Negative	58	43.93		
		Total	132	100.00		
	Control	Positive	15	11.36	74.087	**0.000 *****
		Negative	112	88.64		
		Total	132	100.00		

Correlation between Study Groups

According of results that shown in table (4-) there is significant positive correlation between clinical diagnosis and age (R= 0.427, P-value = 0.000). Between itching and burning pain on micturition (R= 0.246, P-value = 0.004). Between dysuria and vaginitis (R= 0.180, P-value = 0.039). Between foul smelling discharge and age (R= 0.256, P-value = 0.003). Between burning pain during micturation and itching (R= 0.246, P-value = 0.004) and vaginitis (R = 0.214, P-value = 0.014). Between irregular bleeding and burning pain during micturation (R = 0.591, P-value = 0.000). Between vaginitis and dysuria (R = 0.180, P-value = 0.039), burning pain during micturation (R = 0.214, P-value = 0.014). Between pain during intercourse and vaginitis (R = 0.591, P-value = 0.000). Between age and clinical diagnosis (R = 0.427, P-value = 0.000), foul smelling discharge (R = 0.256, P-value = 0.003).

While there is significant negative correlation between clinical diagnosis and pain during intercourse (R= -0.337, P-value = 0.000). Between dysuria and age (R= -0.181, P-value = 0.038). Between cervivitis and itching (R= -0.179, P-value = 0.041). Between irregular bleeding and age (R= -0.182, P-value = 0.037). Between pain during intercourse and clinical diagnosis (R= -0.337, P-value=0.000), age (R= -0.338, P-value=0.000). Between age and dysuria (R= -0.181, P-value = 0.038), irregular bleeding (R= -0.182, P-value = 0.037), pain during intercourse (R= -0.338, P-value = 0.000).

Table (3): Correlation between study groups

		Clinical diagnosis	itching	dysuria	Foul smelling	Burning	cervicitis	Irregular bleeding	vaginitis	Pain during intercours	age
Clinical diagnosis	Pearson Correlation	1	-.029	-.154	.160	-.038	.096	.007	.125	-.337**	.427**
	Sig. (2-tailed)		.741	.079	.068	.666	.276	.938	.153	.000	.000
	N	132	132	132	131	132	132	132	132	132	132
itching	Pearson Correlation	-.029	1	.051	.031	.246**	-.179*	-.058	-.069	.055	-.039
	Sig. (2-tailed)	.741		.560	.724	.004	.041	.506	.433	.529	.658
	N	132	132	132	131	132	132	132	132	132	132
dysuria	Pearson Correlation	-.154	.051	1	.017	.128	-.002	.164	.180*	.152	-.181*
	Sig. (2-tailed)	.079	.560		.851	.145	.985	.061	.039	.081	.038
	N	132	132	132	131	132	132	132	132	132	132
Foul smelling discharge	Pearson Correlation	.160	.031	.017	1	.102	.074	-.012	.092	-.072	.256**
	Sig. (2-tailed)	.068	.724	.851		.245	.403	.890	.297	.414	.003
	N	131	131	131	131	131	131	131	131	131	131
Burning pain during micturation	Pearson Correlation	-.038	.246**	.128	.102	1	.039	-.029	.214*	-.040	-.032
	Sig. (2-tailed)	.666	.004	.145	.245		.656	.737	.014	.649	.719
	N	132	132	132	131	132	132	132	132	132	132
cervicitis	Pearson Correlation	.096	-.179*	-.002	.074	.039	1	-.021	-.025	-.168	.078
	Sig. (2-tailed)	.276	.041	.985	.403	.656		.808	.775	.054	.376
	N	132	132	132	131	132	132	132	132	132	132
Irregular bleeding	Pearson Correlation	.007	-.058	.164	-.012	-.029	-.021	1	-.037	.591**	-.182*
	Sig. (2-tailed)	.938	.506	.061	.890	.737	.808		.675	.000	.037
	N	132	132	132	131	132	132	132	132	132	132
vaginitis	Pearson Correlation	.125	-.069	.180*	.092	.214*	-.025	-.037	1	-.103	-.021
	Sig. (2-tailed)	.153	.433	.039	.297	.014	.775	.675		.241	.807
	N	132	132	132	131	132	132	132	132	132	132
Pain during intercourse	Pearson Correlation	-.337**	.055	.152	-.072	-.040	-.168	.591**	-.103	1	-.338**
	Sig. (2-tailed)	.000	.529	.081	.414	.649	.054	.000	.241		.000

	N	132	132	132	131	132	132	132	132	132	132
Age	Pearson Correlation	.427**	-.039	-.181*	.256**	-.032	.078	-.182*	-.021	-.338**	1
	Sig. (2-tailed)	.000	.658	.038	.003	.719	.376	.037	.807	.000	
	N	132	132	132	131	132	132	132	132	132	132
**. Correlation is significant at the 0.01 level (2-tailed).											
*. Correlation is significant at the 0.05 level (2-tailed).											

CONCLUSION

The prevalence of the Trichomonas vaginalis parasite in Najaf Governorate, according to the results of the current study, is 56%, and this is considered a high and interesting percentage. The method of diagnosing the parasite by culture on the diamond medium was the most accurate in diagnosing Trichomonas vaginalis compared to microscopic examination.

AUTHORS CONTRIBUTIONS

SA collected samples and data, diagnosed the submitted samples, conducted tests, analyzed the data, and prepared the draft. RA supervised the study, developed the study design, assisted in data analysis, and corrected the manuscript.

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CONFLICT OF INTEREST

There is no conflict of interest.

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