



ORIGINAL RESEARCH PAPER

Medical Science

OCCURRENCE OF *TRICHOMONAS VAGINALIS* IN WOMEN IN THE MUNICIPALITY OF POMBAL - PB IN CYTOLOGICAL DIAGNOSIS

KEY WORDS: Trichomoniasis, Cytopathologic Examination, Pap Smear.

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ABSTRACT

The trichomoniasis caused by the flagellated protozoan *Trichomonas vaginalis* is the most common non-viral sexually transmitted disease (STD) in the world. Aiming to verify the occurrence for *T. vaginalis*, in the last 4 years based on the results of the exams performed by women from the city of Pombal - PB. A retrospective study of data from eight PSF of the city was carried out, through the collection of data on cytological exams performed by the Papanicolaou technique in records of the health unit of laboratory diagnosis in the period from 2012 to 2015. A total of 7059 cytopathological exams registering 89 cases of the parasite, representing a mean percentage of approximately 1.25% of the frequency in the period studied, with 2012 being the year with the highest number of cases (n = 27). The age of the infected patients ranged from 17 to 62 years and the age group with the highest frequency of *T. vaginalis* was 41-45 years (n = 17). The low occurrence of the parasite in this study can be explained by the fact that the sensitivity and specificity of the Papanicolaou are not as high when compared to other techniques as the culture of the sample, but that it has the benefits of low cost and that can both search for malignancy and to track STDs. Although trichomoniasis is an STD, it has not been the target of many studies and prevention campaigns, demonstrating the need for work to clarify the form of transmission and the care needed to prevent and thus prevent infection.

INTRODUCTION

Sexually transmitted diseases (STDs) are considered to be one of the most common health problems worldwide and although their true magnitude is unknown, it is estimated that in developing countries it is one of the five most frequent causes of demand for health services. health (1).

Trichomonas vaginalis has been recognized as a major pathogen of the human urogenital tract and is associated with serious health complications, facilitating the spread of human immunodeficiency virus (HIV) by mobilization of the defense cells (leukocytes, TCD4 lymphocytes and macrophages). It is also cause of low weight, as well as premature birth, predisposition of women to atypical pelvic inflammatory disease, cervical cancer and infertility (2).

According to Bravo et al. (3), *T. vaginalis* is an extracellular parasite of the mucous membranes, especially the female, causing vaginal discharge, irritation and inflammation, and can be asymptomatic in almost 1/3 of the cases. Currently it has been little found in some centers, but continues as an important cause of vulvovaginitis in the world, remaining with rates of 10% of vaginal discharge in several epidemiological studies.

Trichomonas vaginalis is a protozoan in the form of trophozoites, a facultative anaerobic parasite that grows with pH elevation (3). This flagellate protozoan successfully promotes parasitism in a hostile environment through the various mechanisms by which it establishes its pathogenicity and also by its ability to evade host immune responses (4).

Preventive oncology cytology can contribute substantially to its laboratory diagnosis, in addition to being a low-cost test that can also be used to screen other STDs (5).

However, the absence of unified information, as well as the occurrence of trichomoniasis and its etiological agent, in the municipality of Pombal is a worrying factor since the public administration has no control of such data. Committing the planning and execution of public health policies focused on this STD. Certainly the lack of work related to *T. vaginalis*, together with the lack of reports, compromise the knowledge of the real magnitude of the health problems caused by this protozoan.

In this way, determining the occurrence of this infection is of great relevance for positive health conditioning, either in the prevention, diagnosis or even in the treatment of the disease, aiming at a control of a possible reinfection of the individual as well as contributing later to other studies.

Assuming that it is the duty of the state to offer economic and social policies in which to reduce diseases and other diseases in the establishment of conditions for the promotion, protection and recovery of the population's health, reducing diseases, controlling endemic and parasitic diseases, and improving the health surveillance, thus giving a better quality of life to the population (6). The large numbers of cases related to this pathogen in the world, and how the treatment for trichomoniasis is specific and efficient, but requires the identification of infected persons, thus avoiding sexual transmission and other pathways.

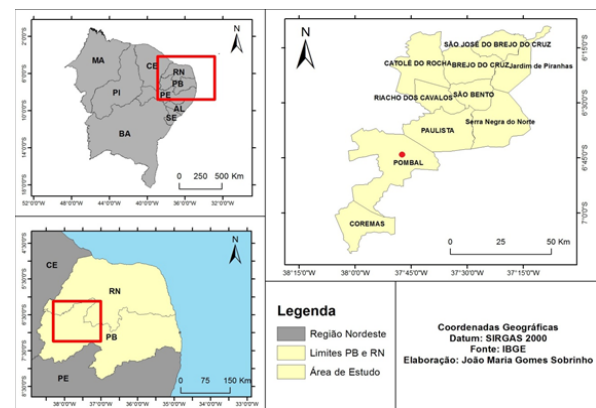
The present study aimed to verify the incidence of *Trichomonas vaginalis* in the last 4 years based on the results of the tests performed by women in the city of Pombal - PB, and in some way to make the population aware that prevention, diagnosis and treatment of trichomoniasis, it should be of great importance in terms of attention to public health and especially women's health, regarding epidemiological surveillance, training of professionals for better care and availability of adequate resources for patients.

MATERIAL AND METHODS

Study Area

The work was carried out in the city of Pombal (Figure 1), Paraíba, located 371 km from the capital João Pessoa. It is located in the western region of the state of Paraíba, Meso-region of Paraíba's hinterland and Micro-Region of Sousa. It is one of the oldest cities in the state and the second largest in territorial question, with 889km² (7), which represents 1.58% of the total area of the state. With estimated population in 2014 of 32,684 inhabitants.

Figure 1. Featured map for the city of Pombal - PB, red landmark, and some of the cities that are part of the region.



Created by law number 2,076 on April 30, 1959 and installed on June 3, 1959. The Municipality of Pombal is inserted in the geographic coordinates of 06^o 46' 13" South and 37^o 48' 06" West, standing at an altitude of 184 meters. With an annual growth of 1.86%, it has the 15th highest HDI in Paraíba, the average life expectancy in the municipality is 66.2 years (7).

The municipality of Pombal is located in the geo-environmental unit of the Sertaneja Depression, which represents the typical landscape of the northeastern semi-arid region, between the Piranhas river basin and the Piancó River sub-basin. Two large intermittent fluvial courses, running from the Paraíba mountain range to the confines of Ceará, and joining the Açu River in Rio Grande do Norte (8; 9).

The vegetation is basically composed of hyperoxerophilic Caatinga with stretches of deciduous forest, tropical semiarid climate, with summer rainfall, average annual precipitation of 431.8mm (8). The average annual temperature is 27^oC, with monthly averages varying slightly between them, having as main economic activities subsistence and livestock culture (10).

Pombal currently has a mid-sized hospital, recently renovated and expanded, where it was privileged with an Intensive Care Unit (ICU) and an increase in the number of beds. In addition to the Ruy Carneiro regional hospital, the municipality has a 24-hour Emergency Care Unit (UPA) located in the Pereiros neighborhood. It also has a Psychosocial Alcohol Care Center for Drugs (CAPS AD III), which currently operates in the former Hospital Sinhá Carneiro. Em relação ao saneamento, o esgotamento sanitário da cidade está em sua etapa final, praticamente concluído.

DATA COLLECTION AND METHOD EMPLOYED

The retrospective study was performed through the collection of data from cytological exams performed by the Papanicolau technique in records of the laboratory diagnostic health unit in the period from 2012 to 2015, in the city of Pombal-PB.

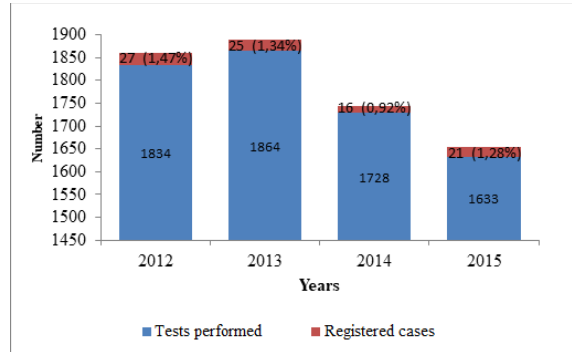
The collection was performed in eight Basic Health Units corresponding to the Dr. Avelino de Queiroga polyclinic in the center of the city, the results of the routine cytological tests were used to elaborate this research, in order to establish the occurrence of the etiological agent of trichomoniasis. For this, we collected information from records, results of preventive exams of patients benefited by the Unified Health System (SUS) that were later analyzed

The study was conducted in accordance with the recommendations of the National Health Council, through Resolution 466/12, which governs research ethics involving directly or indirectly human beings, with the preservation of the researcher's identity and all rights principles, respect and justice have been preserved (11).

RESULTS AND DISCUSSION

In the period from 2012 to 2015, in the city of Pombal, a total of 7059 cytopathological examinations were performed, in which 89 cases of *Trichomonas vaginalis* were recorded, representing an average percentage of approximately 1.25% of this parasite frequency (Graph 1). 2012 was the year with the highest number of cases (n = 27) and 2014 the year with the lowest number (n = 16), although this year the number of examinations was lower than in the year 2012. In 2013, (n = 25) cases of the pathogen, a result similar to that found in the year 2015 (n = 21), but with a number of tests performed less than the previous years.

Graph 1. Number of cytopathological examinations performed in the period from 2012 to 2015 and number of registered cases of *T. vaginalis* for the same period in the city of Pombal.



The occurrence of *T. vaginalis* in general was approximately 1.25%. It is close to what was found by Consolaro et al. (12) when analyzing 6129 samples, recorded the protozoan in only 2.2% of the cases (n = 135). In a study by Adad et al. (13) at the Gynecology and Obstetrics outpatient clinic of the Triângulo Mineiro School of Medicine in four different decades, with the objective of investigating the frequency of *T. vaginalis*, Candida sp and *G. vaginalis*, obtained the following results: 1968 (10%) , 1978 (17.3%), 1988 (9.8%) and 1998 (3.4%).

Giuseppe; Maria (14) found an incidence of 24.6% in the study performed through the analysis of 630 patients at the Hospital Antônio María Pineda. Lopes; Dionello (15) also found a rate higher than that registered in this study, of 20% positivity for *T. vaginalis* in 100 patients.

These data differences, found in the literature, vary according to the population served, where the first authors had the objective of detecting trichomoniasis through the routine colpocitology of women between 15 and 75 years, which is next to the methodology used for this work. The other teams analyzed the prevalence of specific and nonspecific vaginitis in postmenopausal women. The difference between the results can also be related to several factors, such as region where the research was carried out, type of sample analyzed, diagnostic technique, etc. In short, it will depend largely on the methodological characteristics adopted.

The age of infected patients ranged from 17 to 62 years old and were grouped into groups as shown in Table 1. The age group with

the highest frequency of *T. vaginalis* was 41-45 years, with 17 cases recorded for the period studied. Only one case was observed in patients over 60 years of age in the year 2013 (62 year old patient).

Table 1. Distribution of patients with *T. vaginalis* according to age groups in the period from 2012 to 2015.

Years Age Ranges	2012	2013	2014	2015	Total
17 – 20	3	4	1	4	12
21 – 25	4	4	1	4	13
26 – 30	3	-	-	2	5
31 – 35	7	2	2	2	13
36 – 40	1	4	5	5	15
41 – 45	7	6	2	2	17
46 – 50	2	1	2	1	6
51 – 55	-	3	3	1	7
56 – 60	-	-	-	-	0
61 – 65	-	1	-	-	1
Total					89

According to Rey (16), trichomoniasis occurs preferentially in the age group of 16 to 35 years. Other authors (17; 18) add that this infection is uncommon in childhood (1 to 10 years), since vaginal conditions (low pH) do not favor the development of parasitosis because of the preference for estrogen. Therefore, when found in the child, it should be thoroughly investigated, investigating the possibilities of both sexual abuse and other sources of infection, other than sexual.

For the age group of 17 to 20 years, 12 cases were registered in the period, at this stage of human development trichomoniasis has a greater chance of being transmitted through sexual intercourse. Since adolescence is characterized by high estrogenic activity that accompanies anatomical and physiological changes of the genital organs (17) including the abnormal alkalinity of the vagina, which promotes an environment conducive to the development of *T. vaginalis* (19,20).

For patients over 50 years of age, 8 cases (8.98%) were recorded and according to Dan et al. (21) the reduction of estrogen and progesterone levels and the modification of the vaginal epithelium disfavor the installation and development of this parasite, which explains the decreasing prevalence with the advancement of the years after menopause.

Analyzing data on age, it was observed that women of practically all ages were affected by *T. vaginalis* infection and that parasitosis was more common between 31 and 45 years (50.56% of cases, n = 45). However, in different studies it is possible to observe variations regarding the age group of greater prevalence of the parasite. Consolaro et al. (12), found the predominance in the age group of 26-30 years in a study carried out at the State University of Maringá. Oliveira; Soares (22), in their research, describe as predominant the age of 15-34 years. The variations for age range most frequently for this pathogen may be related to the greater sexual activity between the age groups.

The low prevalence for *T. vaginalis* in this study can be explained by the fact that the sensitivity and specificity of the Papanicolaou are not so high when compared to other techniques such as the culture of the sample (considered the gold standard with the best sensitivity) and the examination the freshness of the material. Despite this, this technique is considered acceptable by several authors (23; 5). Moreover, it is a low-cost exam that can both search for malignancy and track STDs, so the method is often used as a data source. According to Paula (24), the oncotic cytology examination, by Papanicolaou method, is the main means to monitor STDs in basic care services.

The morphological bases of this pathology for the cytological diagnosis must be carefully reviewed and known to the cytologists in order to be correctly applied and no pseudopositive or negative diagnoses occur, seeking to aid in the maximization of morphological efficiency (25).

According to Santos (26), it is important that cytologists are properly trained to observe not only the premalignant and malignant processes of the cervicovaginal epithelium, but also the presence of microorganisms or their cytopathic effects that may lead to different states morbid, or potentially contributing to the development of malignant diseases.

The approach of these pathologies during adolescence is of significant importance, since the prevention of fertility is fundamental. The educational approach must always be present, allowing adolescents to acquire knowledge about vulnerability, prevention, complications, prejudices, taboos and emotional difficulties (27).

In the last decades the sexual behavior among adolescents has changed considerably, raising the prevalence of this protozoan in this population. However, the literature is scarce in relation to data regarding the prevalence of this parasite among adolescents (28).

Trichomoniasis is an STD that has methods of prevention similar to others, but has been the subject of few studies, consequently it is necessary to continue the work to clarify the form of transmission and the necessary care for prevention and its aggravations. For women over the age of 30, this study reported a higher occurrence of *T. vaginalis*, probably attributed to a lack of knowledge or even resistance to putting prevention methods into practice. Further clarification is needed, both among the younger ones, since a considerable frequency of the parasite causing the disease was also observed, as well as in women under the age of 25 as in the other age groups.

Like most sexually transmitted diseases, the risk factors related to trichomoniasis are low social and economic levels, prostitution related to youth and adults, sexual intercourse without a condom, promiscuity, alcohol and drug abuse etc. (29). Prioritizing the target population with adequate care, availability of resources and preventive campaigns makes the path feasible to control this STD and thus promote health protection.

The WHO recommendation to prevent them in the field of public health is based on the provision of comprehensive strategies of simple character, but of complex dimensions, promoting safe and rapid access to services, horizontal integration of prevention and treatment actions with other lines of care and health programs, expanded approach to care access to medicines, health education, contact with partners, promotion of condom use and effective conduct in cases (24).

For Alves et al. (30), the high percentage of asymptomatic cases and the low sensitivity of the tests used in the diagnosis of this parasitosis reflect the need to understand the epidemiological profile in the general population. Therefore, it is important to carry out studies also in populations not considered to be at risk for doubts about the occurrence of this parasite.

Due to the lack of research carried out in the municipality and the lack of information on the part of the pollution in this area, they are exposed to serious health complications related to this pathogen. Not taking into account the importance of control actions in the daily life of the woman who has active sexual life, especially in women between 17 and 50 years who have been shown as the group with the highest prevalence of the protozoan. It is also important to emphasize the importance of the training of health professionals, aiming at an adequate and equal care for all.

CONCLUSION

The results of this research showed relatively low data when compared with other studies, but still is a significant occurrence when referring to the high risks offered to the health caused by the parasite. Certainly, data collection and identification of this protozoan is of great importance for further in-depth studies regarding the recovery and treatment of the affected population. Early diagnosis through routine examinations is the best way to treat trichomoniasis and its etiologic agent *Trichomonas vaginalis*.

The prevalence data of *T. vaginalis* demonstrate the need for dissemination work that gives greater visibility to issues related to Sexually Transmitted Diseases (STDs) in the city of Pombal, prioritizing actions and strategies for prevention and control of STD infections, and in this case trichomoniasis, as well as systematic screening strategies for the diagnosis and treatment of women, as a way of intervening and avoiding the possible seriousness of infections.

Thus, it is essential to promote these actions at all levels of attention, especially in basic care, where women are seen for cytopathological examinations. On the other hand, there is a need for programs in schools and universities for public health education that provide young people and adults with a new vision based on general and specific knowledge about parasitic processes, which are the gateway to development of other infectious agents.

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