

Prevalence of *Chlamydia trachomatis* in women of Al-Diwanyia city

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Abstract:

This work included three groups of women who attended to the maternity and pediatrics hospital in the period march to July 2010, group A were healthy asymptomatic unmarried women included 168 sample, group B was 122 asymptomatic married women and group C included 123 women who were suffering from spontaneous abortion identified by gynecologist and sera samples were screened by anti-Chlamydia IgG Elisa kit .

Obtained results showed that the total tested cases was 413 included 383 (92.74%) case were negative and 30 (7.26%) sample gave positive result to *C. trachomatis* . Most cases were recorded the highest ration during the age group 20-40 years old .Prevalence of *C. trachomatis* in healthy asymptomatic unmarried women was 4 (2.38 %) as shown in , while in the second group of healthy asymptomatic married women was 5 (4.09%) . The highest prevalence ratio was documented in the group of women who were suffering from spontaneous abortion ,about 21(17%) . Obtained results indicate the importance of chlamydia infections among women in which abortion and other medical complication could occur, which needs an early testing for the infection .

الخلاصة

تضمن هذا العمل ثلاثة مجاميع من النساء اللواتي راجعن مستشفى النسائية والأطفال في مدينة الديوانية من الفترة آذار إلى تموز 2010 . المجموعة الأولى كانت من النساء الأصحاء الغير متزوجات والتي تضمنت 168 عينة و المجموعة الثانية شملت 122 عينة من النساء المتزوجات بدون أعراض ، المجموعة الثالثة تضمنت 123 عينة من النساء اللواتي عانين من إسقاط شخصت عينات الأمصال بفحص الادمصاص المناعي المرتبط بإنزيم (الاليزا) لأضداد الكلاميديا نوع IgG ، عدد الحالات الكلي الذي اختبر كان 413 عينة تضمنت 383 (92.74%) كانت سالبة و 30 (7.26%) عينة أعطت نتيجة موجبة بسبب الكلاميديا. تركزت الإصابة في الفئات العمرية ما بين 20-40 سنة.

كذلك بينت النتائج المستحصلة إلى أن انتشار الكلاميديا بين النساء الأصحاء غير المتزوجات 5(2.38%) ، بينما في المجموعة الثانية كانت النتيجة موجبة 5(4.09%) عينة. وسجلت نسبة الانتشار الأعلى عند المجموعة التي شملت النساء اللواتي عانين من الإسقاط حيث كانت حوالي 21(17%). وأشارت النتائج المسجلة إلى أهمية الإصابة بالكلاميديا بين النساء اللواتي عانين من إسقاط وأعراض جانبية و التي تحتاج إلى الكشف المبكر عن الإصابة بوصفه خطرا على النساء وخاصة من هن بعمر الحمل.

Introduction:

Chlamydia trachomatis is an obligate intracellular gram negative bacteria that infect the epithelial cells of the lower genital tract in both males and females. These organisms are members of the family Chlamydiaceae, an unusual group of obligate intracellular bacteria (Brooks *et. al.*,2001) . The members of this family are considered to be Gram negative, but are difficult to stain with the Gram. They have metabolic and structural differences from most bacteria, including a dependence on adenosine triphosphate(ATP)and guanosine triphosphate (GTP) from the host(Mims *et.al*, 1995).

Infection with *C. trachomatis* can led to severe complications of the reproductive tract and adverse pregnancy outcomes. The common clinical manifestations of this infection include cervicitis, pelvic inflammatory disease and tubal factor infertility (Singh *el. al.*, 2010). In pregnant women, *Chlamydia* infection has been associated with an increased risk of ectopic pregnancy, preterm delivery, spontaneous abortion, low birth weight, premature rupture of membranes, perinatal mortality and postpartum endometritis (Mardh, 2002). Reports of spontaneous abortion in women caused by *Chlamydia* date back to 1950s. *Chlamydia* is the most common reported noticeable disease in the USA and the leading cause of bacterial STI in unindustrialized countries (Popischil *et. al.*,2002). It is estimated that as many 50% of infected men and 70% of infected women unknowingly harbour *C. trachomatis* (Gerbase *et. al.*,1998), which can persist for up to 3 months (Rahm *et. al.*,1986) and probably longer. The asymptomatic nature of *C. trachomatis* infection may facilitate its spread in the at risk population and promote a reservoir of infection (Ripa,1990). Abortion represent an important problem in Iraq, several epidemiological studies had been carried in an attempt to determine the nature and causes of such cases. Abortion in human cases was caused mainly by *Toxoplasma gonidii* and Cytomegalovirus. This study was aimed to investigate the focusing on the prevalence of *C. trachomatis* in both healthy asymptomatic and aborted women of Al-Qadisya city/Iraq.

Methods:

This work included three groups of Iraqi women who were attended to the central bank of blood testing and the Maternity and pediatrics teaching hospital of Al- Diwanyia city , group A were healthy asymptomatic unmarried women included 168 sample, group B was 122 asymptomatic married women and group C included 123 women who were suffering from spontaneous abortion identified by gynecologist, sera samples were collected in clean containers and were tested for anti-*Chlamydia trachomatis* IgG Elisa kit (abcam.USA). Procedure was carried as recommended by manufacture, Elisa for Detection of *Chlamydia trachomatis* by direct immunoenzymatic method of the sandwich type(Baron *et. al.*,1994).

Statistical analysis included estimation of LSD on probability level $p < 0.01$ by using SPSS soft were version 10.0, graphs were done by using Excel (Niazi, 2000).

Results:

Obtained results showed that the total tested cases was 413 included 383 (92.74%) case were negative and 30 (7.26%) sample gave positive result to *C. trachomatis* (fig-1). Most cases were recorded the highest ration during the age group 20-40 years old (fig-2). Prevalence of *C. trachomatis* in healthy asymptomatic unmarried women was 4 (2.38 %) as shown in (fig-3), while in the second group of healthy asymptomatic married women was 5 (4.10%) (fig-4). The highest prevalence ratio was documented in the group of women who were suffering from spontaneous abortion ,about 21(17.07%) (fig-5).

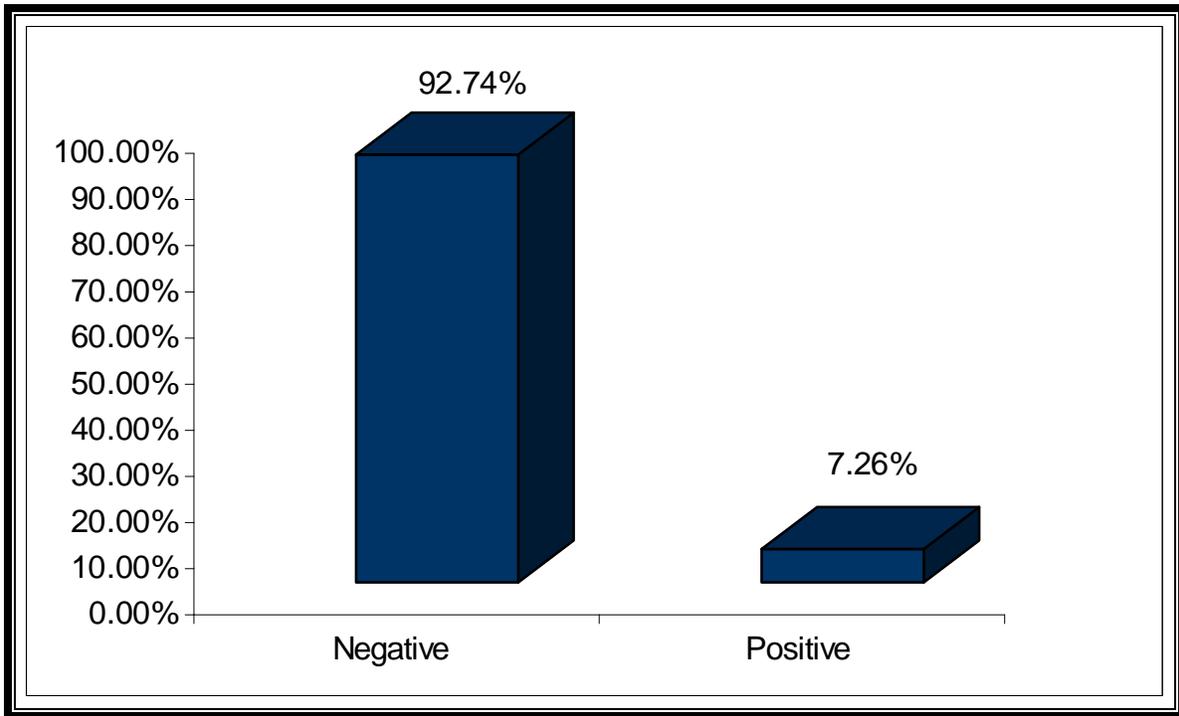


Figure-1: Over all prevalence of *C. trachomatis*

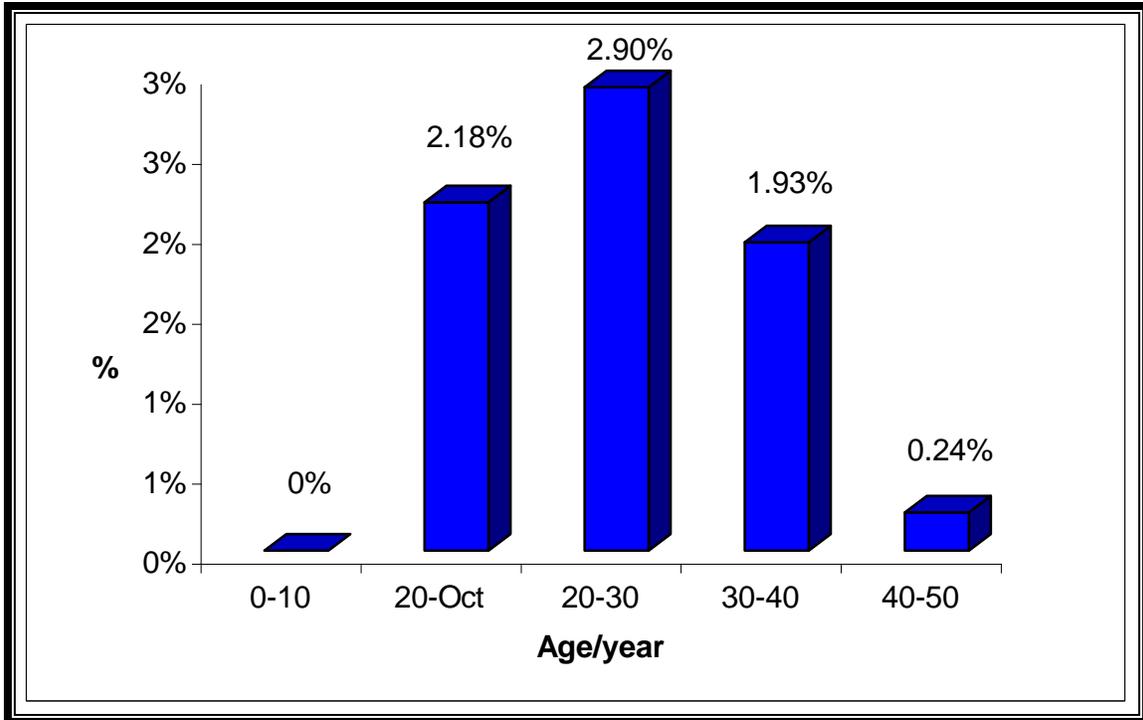
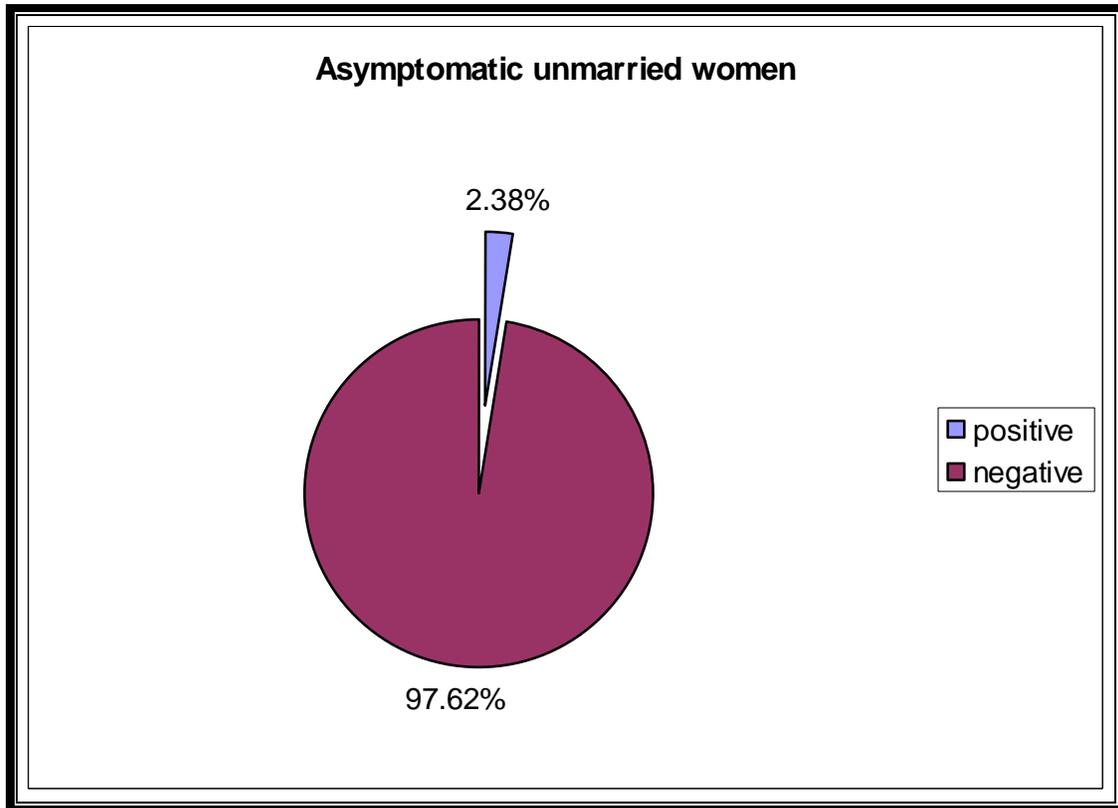
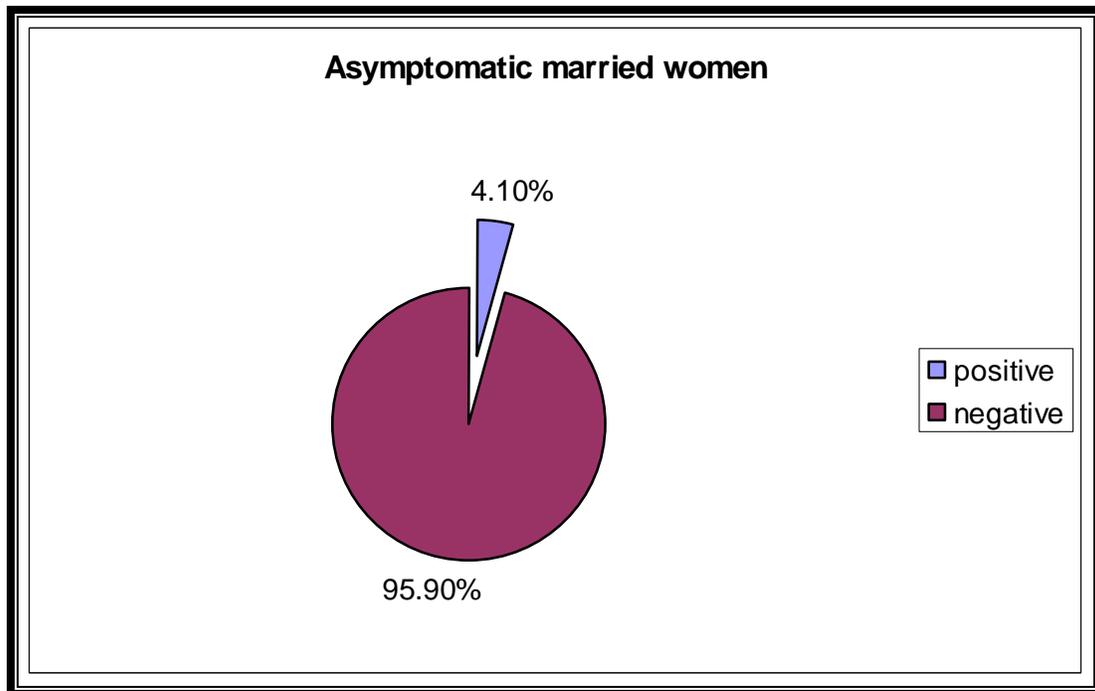


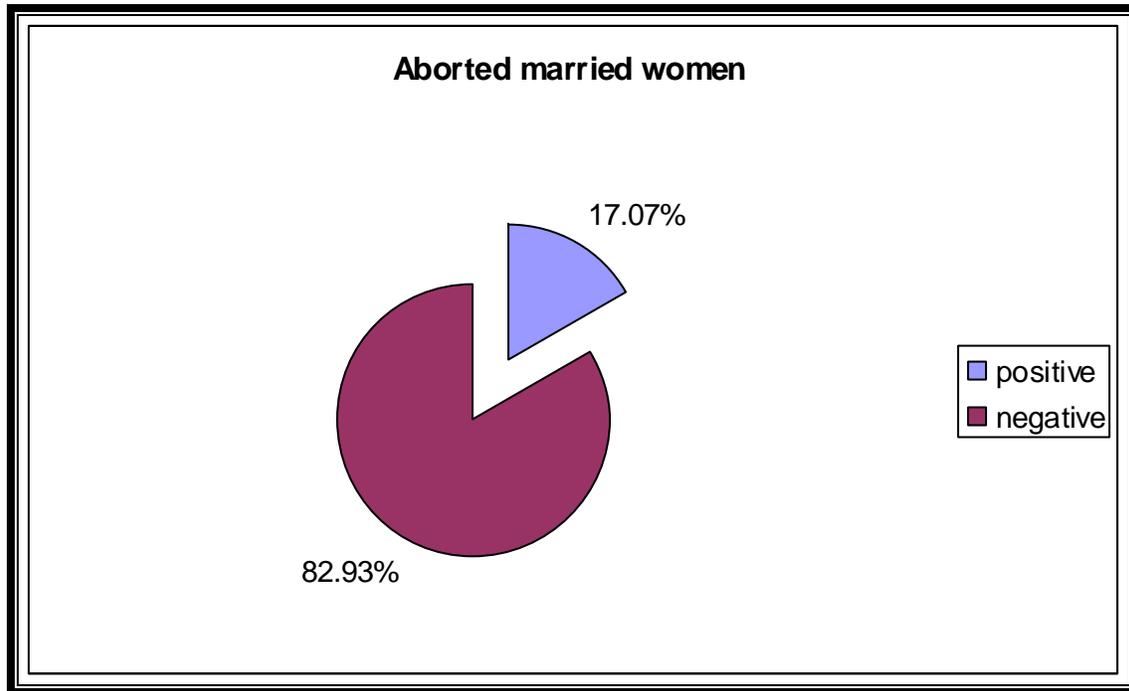
Figure-2: Distribution of infection according to age



Figur-3- Asymptomatic unmarried women



Figur-4: Asymptomatic married women



Figur-5: Aborted married women

Discussion:

Abortion is a problem in the pregnant woman , there etiology are vary from congenital, genetic, microbial causes (Toxoplasmosis, rubella, *Chlamydia*) (Howell *et. al.*,1998). Most sexually transmitted infections(STIs) caused by bacteria have been declining in industrialized countries since 1980, but they are the major public health concern in developing countries (Lee *et. al.*,1991).

In most cases, the initial symptoms have been nonspecific and influenza like with fever , headache, dizziness and vomiting. Abortions usually occurred soon after the onset of the clinical signs and were reported between the 14th and 36th weeks of pregnancy(Abdolreza *et. al.*, 2010).

In the present study the rate of total *Chlamydia* infections are about 30(7.26%) in Iraqi women, which was 4(2.38%) in unmarred women ,while reach to 5(4,10%) in asymptomatic marred women which is come in conformity to rate in its influence of *Chlamydia* spp. In world . *Chlamydia* infection rates reported increased in pregnant women as reported in USA and Canada , its rate was vary from (5%) to (20%). As well as, in Iraqi women that 21(17.07%) that reported were aborted their fetal. *Chlamydia* replicates within the trophoplast epithelium leading to a dysfunction of the placenta and fetal death(Abdul-Karim *et. al.*, 2009) .In comparison with the

results of (Omer and Alkhafaji, 2003; Abdul-Karim *et. al.*, 2009) obtained results were disagreed and lower ratio of infection was recorded. It was recorded that infection with *C. trachomatis* among normal people was about 66% (Omer and Alkhafaji, 2003) this may be due to the type of samples and size of tested group also the social conservative fashion of Al-Diwanyia people .

Children born to mothers harbouring cervical chlamydia run a (30-50%) risk of inclusion conjunctivitis and a(10-20%) risk of neonatal pneumonia (Omer and Alkhafaji, 2003; Chaudhuri *et. al.*,1986; Bringer *et.al.*,1982). Because of its high sensitivity and negative predictive value, serology would effectively exclude women not requiring direct testing and at the same time it could lead to a more careful follow up of the seropositive women (Chaudhuri *et. al.*,1986; Bringer *et.al.*,1982; Casango *et. al.*, 1988; Wilson *et. al.*,2002; Jonsdottir *et. al.*, 1995).

Obtained results indicate the importance of *Chlamydia* infections among women in which abortion and other medical complication could occur, which needs an early testing for the infection .

References:

Abdolreza SJ; Mohammad R.F., Farideh M., Malihe A., Mahin JM., Abdolhossien M., Ali D., Hossien D., Mahmoud H. and Gita M.(2010).*Chlamydia trachomatis* in women with full-term deliveries and women with abortion. American Journal of Infectious Diseases 6(3):66-69,2010

Abdul-karim E.T.; Abdul-Muhymen N. and M. Al-Saadie (2009).*Chlamydia trachomatis* and rubella antibodies in women with full-term deliveries and women with abortion in Baghdad. Eastern Mediterranean Health Journal, Vol.15, No. 6, 2009.

Baron, E. J.O.; Peterson, T. R.; Finegold, S. M.(1994).Diagnostic microbiology 9/E Mosby. USA.

Birger R. Moller, Steen A., Jan L.and Per- Anders M.(1982). Pelvic infection after elective abortion associated with *Chlamydia trachomatis*.Vol.59, N.2, February 1982.

Brooks; G. F.; Butel, J. S.;and Morse, S. A. C.(2001). Medical Microbiology . 26/E. Lange. Medical book. Me Graw: Hill. VSA.124-127.

Chaudhuri P.; Sng EH. And Yuen WS.(1986).*Chlamydia trachomatis* infection in unmarried women seeking abortions.Genitourin med 1986;62:17-18.

Csango PA.; Sarov B., Schiotz H. and Sarov I.(1988).Comparison between cell culture and serology for detecting *Chlamydia trachomatis* in women seeking abortion. J Clin Pathol 1988; 41:89-92.

Gerbase A.C., Rowley JT.,Heymann D.H.L., (1998).Global prevalence and incidence estimates of selected curable STDs. Sex. Transm Infect., 74, S12-S16.

Howell, M.R.; Thomas, M.A.; Quinn, M.D.; Brathwaite, W.B.; and Gaydos, C.A.(1998). Screening women for *Chlamydia trachomatis* in family planning clinics. J., Sexually transmitted diseases.Vol.25, No.2, pp108-117.

Jonsdottir,K.; Geirsson, R.T.; Steingrimsson, O.;Olafsson,J.H.;Stefansdottir, S.(1995).Lower genital tract infection with *Chlamydia trachomatis* in women requesting induced abortion.J. Laeknablaoio, 81:550-552.

Lee, S.T.; P Chaudhuri, B L Tay.(1991). Prevalence of *Chlamydia trachomatis* in women seeking termination of pregnancy. Singapore. Med J 1991;Vol 32:31-33.

Mardh,P.A.(2002).Influence of infection with *Chlamydia trachomatis* on pregnancy outcome, infant health and life-long sequelae in infected offspring. Best Pract. Res. Clin. Obstet. Gynaecol.,16:847-864.PMID.1247-3286.

Mims,C.A.; Palfire, J.HL.;Roitt, I.M.;Derek, W.; Rosamurd, W.; and Roy, M.A.(1995). Medical Microbiology. Mosby, USA. 343-347.

Niazi, A.D.(2000). Statistical analysis in medical research. Republic of Iraq. Al-Nehrien University. Iraq.

Omer, A.R.; and Alkhafaji, Z.M.(2003). Prevalence of *Chlamydia trachomatis* among some groups in Baghdad. J. Community Med. Vol.,17, No.1, pp19-23.

Popischil, A.; Thoma R., Hilbe M.,Grest P. and Gebbers JO.(2002). Abortion in women caused by caprine *Chlamydia abortus* (*Chlamydia psittaci* serovar 1).J. Swiss Med. WKLY. 132, 64-66.

Rahm,V.A., Belsheim J., Gleerup,A. (1986). Asymptomatic carriage of *Chlamydia trachomatis* . A study of 109 teenage girls. Eur.J., Sex Transm. Dis., 3, 91-94.

Ripa, T. (1990).Epidemiologic control of genital *Chlamydia trachomatis* infections .Scand.J. Infect, Dis. Suppl., 69, 157-167.

Singh, D.; Fine, D.N.; and Marrazzo, J.M.(2010). *Chlamydia trachomatis* infection among women reporting sexual activity with women screened in family planning clinics in the pacific Northwest,1997 to 2005. Am. J. Public health. (in press)PMID:20724697.

Wilson J.S.; Honey E., Templeton A., Paavonen J., Mardh P.A., Stary A. and Stray B.(2002).A systemic review of the prevalence of *Chlamydia trachomatis* among European women .J. Human Rep. Update, Vol.8, No.4,pp 385-394.