

CHLAMYDIA TRACHOMATIS AND CANDIDA SPS IN SEXUALLY TRANSMITTED DISEASE

SANDHYA AGARWAL ● B.M. AGARWAL ● KHALID H. ANSARI ● GHIZALA RIZVI

SUMMARY

The present study is based on 200 cases of sexually active women with sexually transmitted disease. The germ tube positive candida species were isolated in 60% of sexually active women and significant rise of chlamydia trachomatis (C.T.) antibody titre (IgG) was seen in 86% cases, while in control group it was only in 2% and 6% cases respectively. The association of germ tube positive Candida sps and significant rise of C.T. antibody titre were seen in 77.1% cases of severe anaemia and 55.0% cases of moderate degree of anaemia as against none of the case in control group. The association was statistically significant ($p < .01$). The underlined hypothesis has been discussed.

INTRODUCTION

Chlamydia trachomatis, a pleomorphic intracellular organism is world-widely distributed (Schachter (1986) and Ehret and Judson (1989). Its presence has been recognized in female genital tract infections like acute salpingitis, chronic PID, cervicitis, STD and abortions, causing great degree of morbidity (Oriel et al., 1972,

Cates, 1984). Further, it may lead to ectopic plantation of decidual tissue ultimately terminating into ectopic pregnancy or recurrent spontaneous abortion (Baumgardner et al. (1988), Sharma et al. (1989). The association of chlamydia with secondary organisms like anaerobic organism or non- H_2O_2 producing lactobacilli has been documented in few studies (Hiller et al. (1992). However, its association with candida sps has not been explored as yet in India.

Therefore, the present study was aimed

to explore the possible association of *Candida* sps which is one of the most common etiological agent of STD group with *Chlamydia trachomatis* in women attending STD clinic.

MATERIAL AND METHOD

The present study was carried out at the Department of Obst. and Gynaecology and Department of Microbiology, SN Medical College and Hospital, Agra, between January 1993 and December 1995. All the cases in the control and study group were between 15-30 years of age.

The control group comprised of 100 cases (non-pregnant para medical workers) while study group comprised of 200 cases of sexually active women with STD. In each case Hb concentration was estimated (Cyne Meth Method). Two high vaginal

swabs were collected; one swab was used for inoculation on Sabouraud's and Cornmeal Tween-80 medium (for *Candida* sps and *Chlamydiospores* of *Candida* respectively) (Ghosh et al. (1994). The second one was used for Giemsa stain, Gram's stain and wet mount preparation.

Simultaneously sera was collected and subjected for *C. trachomatis*, IgG antibody (Immuno Comb Kits supplied by Organics Ltd., New Delhi).

The pure isolated *Candida* colonies were mixed with human serum and further incubated at (37°C) for 30 minutes for germ tube test and only germ tube positive cases were included in the study (Ghosh et al. (1994).

RESULTS

The Table I reveals *Candida* sps isolated

Table I
ISOLATION OF CANDIDA SPS (GERM TUBE POSITIVE) IN VARIOUS DEGREE OF HB CONCENTRATION SUB-GROUPS

Subgroup	Hb. Conc.	Control Group (N=100)		Study Group (N=200)			
		No. of cases	Candida Sps recovered	No. of cases	Candida Sps recovered		
			Yes	No	Yes	No	
a	>9 gm%	76	0	76	50	30 (60.0%)	20
b	6-9 gm%	20	4 (4.0%)	16	80	50 (62.5%)	30
c	<6 gm%	4	2 (2.0%)	2	70	60 (85.7%)	10
Total			6 (6.0%)			140 (70.0%)	
Germ Tube Positive			2 (2.0%)			120 (60.0%)	

in 6% cases in control group and 70% cases in study group. The germ tube test positive cases were 2% in control group and 60% in study group. The variation between the study and control group in germ tube positive cases was statistically significant ($z = 2.397, p < .05$). The isolation rate of *Candida Sp.* increased with decrease in Hb concentration.

Table II depicts C.T. antibody titre in control and study group and its association with Hb concentration. In control group only 6 cases had C.T. antibody titre 1:16 dilution while in study group their was a marked increase (86%).

In control group, there was no specific association of CT antibody titre with that of Hb concentration. On the other hand,

in the study group, out of 70 cases in subgroup c, 66 cases (94.2%) had raised C.T. antibody titre (more than 1:16 dilution).

In subgroup b, out of 80 cases, 70 cases (87.5%) had raised CT antibody titre while in subgroup a, it was only in 36 cases (72%).

Table III shows the association of C.T. antibody titre and *Candida sps* in study and control group. In the study group (subgroup a, b, c), 20 cases (40.0%), 44 cases (55%) and 54 cases (77.1%) respectively had a positive germ tube test *Candida sps* and C.T. antibody titre 1:16, while 16 cases (32%), 24 cases (30%) and 12 cases (17.1%) respectively had only raised C.T. antibody titre without germ tube positive *Candida*

Table II
ASSOCIATION OF C.T. ANTIBODY TITRE WITH RESPECT TO HB CONCENTRATION IN CONTROL AND STUDY GROUP

Subgroup	Hb. Conc.	Control Group (N=100)		Study Group (N=200)	
		No. of Cases	C.T. Antibody Titre	No. of Cases	C.T. Antibody Titre
		>1:16	<1:16	>1:16	<1:16
a	>9 gm%	76	2	50	36 (72.0%)
b	6-9 gm%	20	18	80	70 (87.5%)
c	<6 gm%	4	2	70	66 (94.2%)
Total		6 (6.0%)	94 (94.0%)	172 (86.0%)	28 (14.0%)

* The significant titre of CT antibody titre is 1:16 dilution

Table III
ASSOCIATION OF C.T. ANTIBODY TITRE WITH CANDIDA
SPS IN SUBGROUPS A,B AND C OF STUDY GROUP

Pattern of Association	No. of Cases	Subgroups		
		a Hb >9 gm%	b Hb 6-9 gm%	c Hb <6 gm%
(Positive Germ Tube Test) With Candida Sps and C.T. Antibody > 1:16 titre	118	20 (40.0%)	44 (55.0%)	54 (77.1%)
Recurrence		1	5	9
Without Candida Sps but C.T. Antibody > 1:16 titre	52	16 (32.0%)	24 (30.0%)	12 (17.1%)
With Candida Sps but without C.T. Antibody > 1:16 titre	20	10 (20.0%)	6 (7.5%)	4 (5.7%)
Without Candida as well as C.T. Antibody titre	10	6 (12.0%)	2 (2.5%)	2 (2.8%)
Total	200			

sps and 10 cases (20%), 6 cases (7.5%) and 4 cases (5.7%) respectively were having only Candida sps without raised C.T. antibody titre. Six cases (12.0%) in group a, 2 cases (2.5%) in group b and 2 cases (2.8%) in group c had neither Candida nor raised CT antibody titre. The association of Chlamydia trachomatis IgG antibody titre and Candida sps was statistically significant in the study group ($X^2 = 7.9$, $df = 4$, $p < 0.1$). In control group only 6 cases had Candida sps while germ tube positive candida sps were seen in only 2 cases. None of these 2 cases had raised C.T. antibody titre.

DISCUSSION

The C. trachomatis a recently recognised

microbial agent has been isolated from female genital tract infections (Martin et al. 1982 and Bhujwala et al. 1991) with its reported prevalence ranging from 33% to 69.85%. However, the germ tube positive Candida sps particularly in anaemic patients favours the colonization by various factors including (a) Histomorphological change in squamous epithelium like cellular edema, partial atrophy, loosening between the adjacent cell membrane; (b) decreased phagocytic activity of polymorphs; (c) impaired response to mononuclear cells (Winngr (1969); (d) decreased level of transferrin having bacteriostatic and fungicidal effect (Agarwal et al, 1987) and (e) the anoxic state of vaginal epithelium

with decreased O₂ tension further lowers the vitality of the vagina allowing the colonization of microbial organisms including *Candida* and *Chlamydia*.

In our study, in sexually active women the germ tube test positive *Candida* sps were isolated in 60% cases. From India it has been reported in 38 cases (15.2%) in same age group in both symptomatic and asymptomatic cases (Pal et al. (1993)). Since we have studied only symptomatic group, our prevalence is higher. The raised CT antibody titre was 86% in our study while others have reported it as 69.85% in pelvic inflammatory disease (Bhujwala et al. (1991)).

In our control group, the *Candida* sps and the CT IgG antibody titre were 6% and 4% respectively. While others (Pal et al. 1993) have recorded *Candida* in 2.5% cases. The CT antibody titre was recorded from 1 to 33.7% cases (Quinin et al 1987), Gogate et al 1994).

In the present study the association of germ tube positive *Candida* sps and significantly raised CT antibody titre was seen in 54 cases (77.1%) (Hb less than 6 gm%) and 44 cases (55.0%) (Hb between 6.1 to 9 gm%). Out of 190 cases having either *Candida* sps and/or raised C.T. antibody titre only 175 were available for follow up upto a period of 8-12 months. The underlined anaemia was treated in all the cases along with suitable antibiotics. The recurrence with germ tube positive *Candida* was seen in 9/54 (16.7%), 5/44 (11.4%), 1/20 (5.0%) respectively in subgroup c, b and a. This very much suggests that anaemic patient favours the colonization and recurrence of *Candida*.

Therefore, a perfect cure for *Chlamydia*

trachomatis and *Candida* sp shall be, not only by suitable antibiotics but also by correcting the underlined factor i.e. anaemia.

ACKNOWLEDGEMENT

This study was supported by Lady Tata Memorial Trust, Bombay, India. We are thankful and grateful to the Trustees for the grant provided by them to carry out the project.

REFERENCES

1. Agarwal, S; Agarwal, BM; Nandan D; Pandey, DN: *J. Obstet and Gynec* 37: 264, 1987.
2. Baumgardner, DJ; Christophersons A; Mount S : *South eastern Wisconsin. Wis. Med. J.* 88: 1, 12, 1988.
3. Bhujwala, RA; Bhargava, VL; Amatyia, S, Sengupta, S: *Ind. J. Med. Res.*, 93, 359, 1991.
4. Cates, W Jr: *Sexually. Trans. Dis.* 11, 113, 1984.
5. Ehret, JM and Judson, FN : *Clin. Lab. Med.*, 9, 481, 1989.
6. Gogate, A; Deodhar LP; Shah, PK, Vaidya, AP: *Ind. J. Med. Res.*, 100, 19, 1994.
7. Ghosh, SK; Ganguly, U; Banerjee, S; Neogi DK; Roy, AK: *Ind. J. of Dermatology*; 39, 65, 1994.
8. Hiller, SL, Krohn MA; Rabe, LK; Klebaoff, SJ; Eschenbach, D : *J. Obstet. and Gynec* 7, 369, 1992.
9. Martin, DH, Koutsky, L, Eschenbach, DA, Dabing, JR; Alexander ER; Venedetti JK; Holmes KK : *J. A. MA*, 247, 1585, 1982.
10. Oriol, JD; Reeve, P; Povis, P; Miller, A and Nicol CS : *Brit. J. Ven. Dis.* 48, 429, 1972.
11. Pal, A; Ghosh, UK, Ganguli, G; Baveja, R, Pandey RC : *J. Obstet and Gynec India*, 43: 649, 1993.
12. Quinin, PA; Petric M; Barkin, M, Butany, J, Derzko, C, Gyster, M, Shewchuck, AB; Shuber, J, Ryan, E; Chipman, ML : *Am. J. Obstet Gynec* 56, 291, 1987.
13. Schachter, J: *Chlamydia trachomatis infection Rec. Adv. Sex. Tranm. Dis.*, 3, 39, 1986.
14. Sharma, M; Nayak, N; Malhotra, S; Kumar, B and Hemal A. : *Ind. J. Med. Res.*, 89, 87, 1989.
15. Winner, III : *Brit. J. Dermatol.*, 81, 1;2, 196