

## SPERM AGGLUTINATING ACTIVITY IN CERVICAL MUCUS BY MICROSACLE AGGLUTINATING TEST IN UNEXPLAINED INFERTILITY

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### SUMMARY

Study for sperm agglutination in cervical mucus by microscale agglutinating test was performed on 60 patients at Mahila Chikatsalaya, Jaipur, 20 of them being control. Sperm agglutinating activity in CM by MIS-agg test was found in 25% cases of Prim Infertility. Test showed positive relation between frequency of coitus and age of 1st coitus. Quality of PCT had an inverse relation to the presence of Ab in Cx mucus. Combined condom and prednisolone therapy can help cases of immunological infertility to achieve pregnancy.

### INTRODUCTION

Unexplained infertility accounts for 15-30% of the infertile population. Knowledge about immunological factors involved in certain features of functioning of sexual and reproductive systems, might help in solving certain mysteries associated with unexplained infertility.

In sensitized female, spermatozoa may be unable to penetrate cervical mucus (CM) or become agglutinated or immobilized during sperm transport. Increasing

evidence is in favour of presence of local immune response offered by the cervix, which is most accessible and potentially important site of local immune response to sperms. Detection of local isoimmunity to sperm is definitely of greater importance than demonstration of systemic immunity. Positive test provides rationale

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BBT	-	Basal Body Temperature
MIS-agg	-	Microscale agglutination
Ag	-	antigen
PCT	-	Post coital test
CM	-	Cervical mucus
Ab	-	Antibodies

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Accepted for Publication on 21.05.1994.*

for condom therapy / immunosuppression. Chikatsalaya, Jaipur, in the year 1989 to 91 on 60 cases, out of which 20 were controls. The patients of infertility (not conceived after 2 years of married life)

**MATERIAL AND METHODS**

Study was conducted at Mahila

**Table I**

**Sperm agglutinating activity in cervical mucus in control and primary infertility cases**

MIS - agg test	Primary Infertility cases		Control	
	Number	Percent	Number	Percent
MIS - agg Positive cases	10	25	1	5
MIS - agg Negative cases	30	75	19	95

**Table II**

**Sperm agglutinating activity in cervical mucus of primary infertility cases in relation to frequency of coitus**

Frequency of coitus	MIS - agg positive		MIS - agg Negative	
	Number	Percent	Number	Percent
Once a week	-	-	14	46.66
Twice a week	2	20	6	20.00
Thrice a week	6	60	7	23.33
More	2	20	3	10.00

**Table III**

**Relation of MIS - agg test in primary infertility cases with age**

Age (Yrs.)	MIS-agg positive cases		MIS-agg Negative cases	
	Number	Percent	Number	Percent
16 - 20	-	-	5	16.66
21 - 25	5	50	14	46.66
26 - 30	4	40	10	33.33
31- 35	1	10	1	3.33

had regular normal periods, were in the fertile age group, had normal pelvic findings, had positive tubal patency on laparoscopy and were ovulating as confirmed by BBT, Palm leaf test and secretory endometrium.

Both control and study groups were subjected to cervical mucus scoring (volume, viscosity, ferning, spinbarkeit, cellularity) on 8th day of cycle and then alternately till time of ovulation and on 20th to 22nd day.

Post coital test was performed on all

patients on presumed day of ovulation and grading of test done on the basis of number of spermatozoa found/HPF.

Sperm agglutination phenomenon in cervical mucus was studied by the microscale agglutination test (MIS -agg). 0.1 ml of donor semen sample was added to 0.1 ml of cervical mucus extract, (cervical mucus collected 1-2 days prior to presumed day of ovulation, liquified and centrifuged), the mix shaken and incubated for 2 hrs. at 37 C at 1 and 2 hr. One drop of mix was examined

Table IV

Relation of MIS - agg test in primary infertility cases with age of first coitus

Age of first coitus (Years)	MIS-agg positive cases		MIS-agg Negative cases	
	Number	Percent	Number	Percent
13 - 17	5	50	7	23.33
18 - 22	1	10	14	46.66
23- 27	3	30	8	26.66
28 and above	1	10	1	3.33
Total	10	100	30	100.00

Table V

Post coital test in MIS - agg positive and MIS-agg Negative primary infertility cases

PCT	MIS-agg positive cases		MIS-agg Negative cases	
	Number	Percent	Number	Percent
Negative	4	40	-	-
Poor	2	20	-	13.33
Fair	2	20	3	10.00
Good	2	20	16	53.33
Excellent	-	-	7	23.33

under HPF and aggl. sperm and non-aggl, motile, immotile sperms counted. Test was judged positive for MIS -agg, if > 10% agglutination was seen.

### DISCUSSION

Recognition of immunological factors in CM require complicated impractical tests. A simpler test like PCT can serve as a screening procedure.

In our study sperm agglutinating activity was found in 25% (10 cases) of prim. infertility (Table I) which is comparable to studies of other western workers. Most of the prim. infertility cases with positive MIS - Agg (60%) practised coitus thrice a week while those with -ve MIS agg test did once a week (Table II).

Table III shows higher incidence of +ve MIS agg in age of 21-30 years. Incidence of a +ve MIS agg test was 50% in women who had first coitus before age of 17 years, indicating earlier and longer in the coitus, greater are the chances of immunologically adverse competence between sperm and cervical mucus (Table IV). No correlation was found between cervical score of mucus tested for MIS agg and its results, indicating even a low score CM producing epithe-

lium is competent enough to produce antibodies against sperm antigen (Ag.).

Table V shows that in presence of sperm agglutinating Ab in CM, there is noticeable decline in number of +ve PCTs indicating presence of agglutinating activity in cervical mucus hinders sperm mobility there by directly affecting quality of PCT.

Use of condom was advised to 10 patients who were MIS -agg positive. 2 out of these i.e. 20% conceived in 2 months and 3 out of remaining 8 i.e. 37.5% responded to combined condom + Immuno-suppression with 5 mg TID prednisolone for 3 months.

### CONCLUSIONS

- (1) Direct positive relation between frequency of coitus and presence of sperm agg activity in CM.
- (2) Age of 1st coitus bore direct relation to presence of sperm Ab.
- (3) No correlation between CM score and positive test.
- (4) Quality of PCT has inverse relation to presence of Ab in CM.
- (5) Condom therapy has a definite role in cases of immunological infertility.