THE BACTERIOLOGY OF HIGH VAGINAL SWAB AND CUL-DE-SAC ASPIRATE IN WOMEN WITH INFERTILITY AND PELVIC INFLAMMATORY DISEASE

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SUMMARY

Thirty patients of infertility and 12 patients of chronic pelvic inflammatory disease (PID) were studied with high vaginal swab (HVS) and cul-de-sac aspiration culture for aerobic organisms and their antimicrobial sensitivity was determined. Difference in prevalance of aerobes in HVS (87%) and pouch of douglas (POD) (70%) in infertility group of patient was not significant. In chronic PID group, prevalance of aerobic pathogen was same in both the samples. Organisms isolated from cul-de-sac was found to be different from that of high vaginal swab in majority (72%) of patients, which substantiates the role of cul-de-sac aspiration in management of chronic PID and infertility cases.

Introduction

Pelvic inflammatory disease and infertility together comprise a large proportion of attendance in gynaecological outpatient in any hospital in India. Large number of patients with PID has associated infertility.

For the diagnosis of infecting organisms controversies still exist whether high vaginal swab (HVS) is ideal or peritoneal fluid sample by culdocentesis is a superior method. However, Sweet et al, (1979) and Grimes (1981), have shown that microbial population of tubes closely resemble to microbials found in peritoneal fluid. In order to resolve this dilema the present study was undertaken to isolate and corelate the aerobic organisms from vagina and pouch of douglas in cases of infertility and chronic pelvic inflammatory disease and to determine the antimicrobial sensitivity of the isolated organisms.

Material and Method

A total of 42 patients attending Gynae OPD of G.T.B. Hospital and UCMS were studied. Thirty patients presented with complaints of infertility and 12 patients with PID. A detailed history was taken including presenting complaints, menstrual and obstetrical history, past history of use of IUCD, acute, PID, any surgery,

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MTP or D & C. A general physical examination followed by per abdomen and per-vaginum examination was conducted.

Two samples were collected from each patient after putting the patient in lithotomy position.

a) High vaginal swab from posterior fornix with a sterile swab stick.

b) Cul-de-sac aspiration from POD with medicut no.18 under all aseptic precautions. The aspirate was transferred to RCM media. Organisms were identified aerobically by standard procedure (Cruickshank 1980). In vitro antibiotic sensitivity was done according to stocks methods.

Results

Out of 42 patients taken in this study 30 were of infertility and 12 were of chronic PID. There were 14 patients of primary infertility and 2 of them had associated PID, while out of 16 patients of secondary infertility 9 had associated PID (Table I).

TABLE - I
DISTRIBUTION OF INFERTILITY PATIENTS

Group	*With PID*	*Without PID*	*Total*
Primary infertility	2	12	14
Secondary infertility	9	7	16

Prevalance of Infecting Organism

In infertility group of patients (30) high vaginal swab and cul-de-sac aspiration revealed pathogenic aerobes in 87% and 70% respectively (Table II). Out of 12 patients of chronic PID 75% revealed aerobic pathogenic in both the sample.

TABLE - II
PREVALANCE OF INFECTING ORGANISM

Group (No.)	*HVS*	*POD*
Infertility (30)	87%	70%
Chronic PID (12)	75%	75%

HVS - High vaginal swab
POD - Pouch of douglas

Infection in Infertility

Staphylococcus albus was found to be the commonst organism in both HVS (42%) and cul-de-sac aspirate (47%) (Table - III). The next commonest organism was E-Coli (23%). N.Gonococcus was isolated in one patient of secondary infertility from both HVS and cul-de-sac. Out of 18 infertility patients who had both HVS & POD positive culture, 73% of them had different organism from HVS and cul-de-sac while 3 patients had negative HVS but positive cul-de-sac culture.

TABLE - III
AEROBIC ORGANISMS ISOLATED IN INFERTILITY AND CHRONIC PID CASES

Aerobic Organisms	*Infertility No.of Cases*		*Chronic PID No.of Cases*	
	HVS	*POD*	*HVS*	*POD*
Staph alubs	11	10	5	4
Staph aureus	5	1	3	1
Strept faecalis	5	4	2	2
Strept pyogenes	0	1	0	0
E.Coli	6	9	1	2
Atypical E. Coli	1	2	0	1
Klebsiela	3	2	0	0
Pseudomonas	0	1	0	1
N.Gonococcus	1	1	0	0

Infection in Chronic PID

Amongst the 9 patients who had the positive culture in chronic PID group,

Staphylococcus albus was the commonest aerobic pathogen (Table III). Out of 7 patients who had both HVS & POD positive for aerobes, 71% (5/7) had different organism in HVS & POD. Two patients had sterile HVS but positive culture from cùl-de-sac.

Antimicrobial Sensitivity

Most of the gram positive organism isolated were sensitive to ampicillin and penicillin while gram-ve-organisms were mostly sensitive to gentamycin (Table IV). Both group of organisms were found to be least sensitive to tetracycline.

TABLE - IV
ANTIMICROBIAL SENSITIVITY OF GRAM POSITIVE AND GRAM NEGATIVE ORGANISMS ISOLATED

Gram Positive

No. of Org.	*AMP*	*PEN*	*CEPH*	*ERYTH*	*STREPT*	*TETRA*	*CEFOTAXIME*
HVS (31)	28	24	15	20	15	4	14
POD (20)	15	13	8	12	10	3	8

Gram Negative

No. of Org.	*AMP*	*CEPH*	*STREPT*	*GENTA*	*CHLORO*	*TETRA*	*KANA*	*CEFO TAXIME*
HVS (11)	5	5	5	10	9	3	8	6
POD (18)	8	9	7	15	8	2	10	10

Discussion

There is no unanimity as to which micro organism might be of general importance in the causation of pelvic infection. The etiology is probably multifactorial (Naib 1972). Cuningham et al (1978), stated that chances of cul-de-sac aspirate being contaminated by vaginal flora is especially high in patients with salplingitis as these patients invariably have infection of lower genital tract as well. Contrary to this we found that the organism isolated from cul-de-sac were different from those isolated from HVS sample in individual patients, thus ruling out the theory of contamination.

Prevalance of various organism in PID patients in 9 studies has been reported by Bell and James 91980) (Table-V). They found N.Gonorrhoea as the commonest organism followed by streptococci and E.Coli. Kocher (1980) found E.Coli as the commonest infecting organism in chronic PID whereas in this study staph albus was found to be more prevalent than E.Coli.

In India, N.Gonorrhoea was not isolated from PID patients in studies conducted by Rohtagi (1971) and Gulati (1979). The rate of isolation of Gonococci by culdecentesis is much lower than from cervical swab in patients of PID (Mickel et al, 1969, Chow et al, 1975, Mardh, 1980) Gonococci have been indicated to be short lived in tubes and cul-de-sac. Several bactericidal substances, such as lysolecithin, has been

TABLE - 7
PREVALANCE OF ISOLATES IN NINE STUDIES (BELL AND JAMES 1980)

Organism	*Prevalance %*
N.Gonorrhoeae	13%
Streptococcus GPD	9%
Streptococcus Viridans	9%
E.Coli	8%
Staph Epidermidis	6%
Staph Aureus	1%
Proteus Mirabilis	1%
Klebsiella	1%

found in the tissue homogenates which may be responsible for the low isolation rate of Gonococci from cul-de-sac. In the present study only in one patient out of 42, Gonococci was isolated in both high vaginal swab and cul-de-sac.

Conclusion

The cul-de-sac aspiration has definite role in management of patients of infertility and chronic PID cases because the organism isolated from cul-de-sac are different from those of high vaginal swab and organism of cul-de-sac aspirate corelates better with that of fallopian tube.

Contrary to the usual believe that most of the organisms are resistant to penicillin groups of drugs, we found that the most of the gram positive cocci were sensitive to ampicillin and pencillin thus they still should be used as the first line of treatment.

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