ANTENATAL PELVIC EXAMINATIONS A CAUSATIVE FACTOR IN TERM PREMATURE RUPTURE OF MEMBRANES

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SUMMARY

The present study included retrospective and prospective patients. In the 200 prospective cases studied, 100 patients comprised the control group and 100 comprised the study group. There was a 4.4. fold increase in incidence of premature ruptured membrane in the study group. The difference in incidence in the study group and the control group is highly significant statistically (p less than 0.01). The present study also showed a definite relationship between routine antenatal pelvic examination and premature rupture of membranes. It is therefore recommended that no pelvic examinations should be done routinely in the IIIrd trimester unless a valid medical indication exists.

INTRODUCTION

Premature rupture of membranes (PROM) constitutes one of the most common complications of pregnancy. This incidence throughout the world being 5-40%.

Until now most of the studies on premature rupture of membranes have been devoted to its management, few have been done on its causes and prevention.

The present study is carried out to determine whether or not routine antepartum pelvic examination in the last trimester of pregnancy might cause premature rupture of membranes.

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MATERIALS AND METHODS

This study was carried out in Govt. Medical College and hospital, Nagpur from March 1988 to June 1989 with the aim to determine whether or not routine antepartum examination in the last trimester of pregnancy could cause PROM.

PROM is defined as gross leaking of amniotic fluid on speculum examination as well as either positive nitrazine paper test or

fering demonstrated on microscopic slide occurring before actual labour starts, time interval being one hour.

The study was carried out in two parts :

(1) Retrospective

(2) Prospective.

Retrospective Study :

This included 1224 patients admitted to the labour ward in two month period for deliveries. Out of these 44 patients presented with the PROM. The incidence of PROM was 3.58%. Of these 44 cases, 30 patients had been subjected to P.V. examination i.e. 68.18% patients in the A.N.C. clinic and 14 patients i.e. 31.18% patients had not been examined vaginally.

Prospective Study :

Two hundred patients attending the A.N.C. clinic were selected randomly. All patients who had any infection anywhere in the body, multiple gestation, hydramnios, abnormal presentation, previous caesarean section, H/O antepartum haemorrhage, P.I.H. illness were excluded from the study.

Out of these 200 cases, 100 patients were examined vaginally at 37 weeks of gestation and the remaining 100 patients served as controls.

Endocervical and cervical swabs were taken for culture and sensitivity in all the 100 study cases before pelvic examination. Repeat endocervical swabs for culture and sensitivity were taken at 7 days interval. All these 200 patients were followed upto delivery. Special emphasis was laid on occurrence of PROM and mode of delivery.

PROM was confirmed by : (1) Per speculum examination, (2) Arborisation test.

OBSERVATIONS

Retrospective study :

The incidence of PROM was 3.5% in the 1224 cases included in the study as shown in Table I.

TABLE I

Showing PROM in retrospective study cases with or without pelvic examination in last trimester

Total No. of Deliveries	No. of patients with PROM	Incidence of PROM
1224	44	3.58

The relationship between PROM and pelvic examination is shown in Table II.

TABLE II

Showing relationship of pelvic examination and PROM

Total of patients with PROM	PV done in A.N.C.	PV not done in ANC
44	30	14
Percentage	68.18%	31.18%.

With P.V. examination in 30 patients, the incidence was 68.18% and without examination it was 31.18%.

The incidence of PROM increased with frequent pelvic examination as shown in Table III.

TABLE III

Showing relationship between No. of P.V. examination and PROM

Patients with PROM	No. of Pelvic exam. done once	No. of pelvic exam. done twice
44	19	25
Percentage	43.18%	56.82%

Prospective Study :

Two hundred patients were studied out of which 100 patients served as controls. A comparison of the incidence of PROM is shown in Table IV.

TABLE IV

Showing incidence of PROM in study and control cases.

	Study cases	Control cases
Total No. of patients	100	100
Patients with PROM	44	10
Percentage	44%	10%

The incidence of PROM in the study and control group was 44% and 10% respectively. Thus there was a 4.4 fold increase in the incidence of PROM in study group. A comparison of the mode of delivery in the two group is shown in Table V.

TABLE V

Showing of Mode of Delivery

	Control Cases	Study group
Total No. of patients	100	100
Patients with PROM	10	44
Patients delivered by C.S. (From PROM patients)	6 (60%)	28 (63.63%)

60% and 63.63% patients were delivered by C.S. from control and study group respectively.

Microbiological data

A comparison of bacterial flora in the patients undergoing pelvic examination and others shown in Table VI.

TABLE VI

Showing Microbiological study of patients

	Pelvic Study		Study group
	Non-pathogenic Organisms grown	pathogenic organisms grown	No growth
Before pelvic examination was done	37	23	40
After 7 days	26	51	23

With pelvic examination the growth of pathogenic organisms have increased from 23 to 51 patients.

The relationship between PROM and microbiological data is outlined in Table VII.

TABLE VII

Showing relationship of PROM with microbiological study

	Patients showing no growth	Patients showing non-pathogenic growth	Patients showing pathogenic growth.
No. of patients	40	37	23
Patients shown growth (pathogenic) after 7 days	23	5	23
Patients with PROM	22	4	14

It is evident that there is an increase in the number of patients showing growth of pathogenic organisms after pelvic examination and also that the number of patients with PROM is more in patients showing pathogenic growth.

TABLE VIII

Showing microbiological study and their relationship to PROM (Control Group)

	Non-pathogenic organisms grown	Pathogenic organisms grown	No growth
No. of patients	40	25	35
Patients in whom PROM occurred.	2	7	1

7 patients who had growth of pathogenic organisms had PROM. Two and one patient had PROM who showed non-pathogenic and no growth respectively.

DISCUSSION

The incidence of PROM in retrospective study worked out to be 3.58% whereas it varies from 5 to 40% throughout the world. In a study conducted by Lenihan J. P. (1984) at Air Force Regional Hospital, it was 12%.

There was a 4.4 fold increase in PROM in our study group while in previous study by Lenihan (1984) it was 3 fold increase. This tallies with our study.

Out of control group patients with PROM 6 patients (60%) delivered by caesarean section while 28 patients (63.63%) required caesarean section in the study group. This is not relatively significant. It would be evident that digital pelvic examination in antenatal period with premature rupture of membranes is statistically significant. Microbiologically it can be shown that pelvic examination can introduce infection and cause increase in incidence of PROM.

Breese (1961) showed membranes at the site of PROM showed inflammatory changes and hyaline degeneration.

Kurt Benirschke (1962) stated the above explanation.

Philip M. Sarrel (1968) suggested that asymptomatic infections of genital tract may fluorish in suitable environment and cause PROM.

Ioannis et al (1976) showed significant increase in either or both. IgA and IgM in cord blood of foetus of patients of PROM showing that most infections were present before PROM.

Richard (1980) showed amniotic fluid infections were twice as common with PROM then without PROM, raising the strong possibility that infections could be the cause of PROM.

Knox and Horner 1950 and 1982 demonstrated that local defects of membranes were caused by ascending infection.

Creastas et al (1981) studied bacterial flora and suggested that high incidence of pathogenic and potentially pathogenic cervical flora in pregnancy is related to chorioamnionitis and PROM.

Thus it can be postulated that antenatal pelvic examination at 37 weeks of gestation might cause premature rupture of membranes.

CONCLUSION

The present study showed definite relationship between routine antenatal pelvic examination and premature rupture of membranes. It would therefore, seem prudent to recommend that no pelvic examination is to be done routinely in IIIrd trimester unless a valid medical indication exists to examine the cervix.

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