



USING SONOGRAPHICALLY ESTIMATED MYOMETRIAL THICKNESS IN PREDICTION OF LATENCY INTERVAL IN CASES OF PRETERM PREMATURE RUPTURE OF MEMBRANES (PPROM) A PROSPECTIVE STUDY

Gynaecology

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KEYWORDS

INTRODUCTION

- Preterm premature rupture of membranes (PPROM) and preterm delivery are very challenging obstetric problems.
- The main problem for an obstetrician in the management of PPRM is to predict when such a patient is likely to go in labor especially in cases of expectant management.
- Expectant management gives us the time for fetal lung maturity but with a risk of infection to both mother and the baby.
- If there is some factor which can give us an idea about how long a pregnancy will continue after PPRM, it can be a boon for obstetricians to shift the patient to a better neonatal center and prepare her better psychologically. Hence, in this study, we were aiming to find out the relation between MT and PPRM and if we can predict the latency interval depending on them.

STUDY DESIGN

- The data were collected in a prospective manner from the antenatal patients between May 2019 and August 2019, in the Department of Obstetrics and Gynecology, Civil hospital, Ahmedabad. 40 patients with the periods of gestation (POG) of 28–40 weeks were studied, out of which 20 were PPRM cases and 20 were controls, (term) not in labor.
- This study is a type of prospective observational study.
- The inclusion criteria periods of gestation between 28 and 36 weeks with singleton pregnancy presenting with complaints of leaking per vaginam which was confirmed on clinical examination and ultrasound.

- The exclusion criteria in this study included
 - (1) Fetal anomalies.
 - (2) Suspected intrauterine growth restriction
 - (3) Any other medical or obstetric complication in the mother requiring immediate delivery or any contraindication for continuation of pregnancy.
 - (4) Patients already in labor at the time of their presentation to the hospital.
 - (5) Suspicion of chorioamnionitis.

- A control group was selected from the same population presenting to civil hospital and were randomly selected from among those patients followed up in OPD or admitted inward.
- Diagnosis of PPRM was confirmed by sterile speculum examination and determination of amniotic fluid index (AFI).
- All patients were investigated for

- (1) Hemoglobin.
- (2) Total and differential counts.
- (3) Blood group and Rhesus typing.
- (4) HIV, Hepatitis B, and VDRL.
- (5) Obstetric Ultrasonographic examination.
- (6) CRP

- In the absence of signs or symptoms of chorioamnionitis and/or abnormalities of fetal heart rate, PPRM was managed expectantly. All these patients were admitted in the ward and were given the expectant management practices which included mainly

- (1) Bed rest
- (2) Antibiotics
- (3) Two doses of injection Betamethasone 12 mg intramuscular, 24 h apart for fetal lung maturity after ruling out any contraindication for its administration.

- The myometrium was sonographically identified as the echogenic

homogeneous layer between the serosa and the decidua. The MT was noted at Lower uterine segment (LUS) (approximately 2 cm above the reflection of urinary bladder).

- Patients with confirmed diagnosis of PPRM were monitored for evidence of chorioamnionitis. Also, biweekly total and differential counts were done to detect chorioamnionitis at an early stage. AFI was estimated periodically. The latency interval is defined as the time period from the time of leaking (as reported by the patient) to the time of delivery. Statistical analysis was done using correlation, scattergram.

RESULTS

- We have enrolled 40 cases, out of which 20 have presented as PPRM (28–36 weeks) and 20 patients were full term not in labour as control.
- In our study, maximum numbers of cases were in the age group of 19–26 years, accounting for 75 % of cases. Age >27 accounted for 25 % of cases. Mean maternal age in our study was 24.1 ± 4.2 (at 95% CI) years.

Age of patients	No. of patients	percentage
19-26 years	15	75%
> 27 years	5	25%

- In our study, PPRM occurred more in primigravidas (65 %) than multigravidas (35 %). In our study, 40% of multigravidas were 2nd gravida, 60% were 3rd gravida, Mean parity was 1.55.

parity	No. of patients	percentage
primi	13	65%
2 nd gravida	3	15%
3 rd gravida	4	20%

- In this study, 20 % patients presented at a gestational age between 28 weeks and 32 weeks, 20% presented between 32 weeks +1 day and 34 weeks, and 60 % presented at gestational age beyond 34 weeks. Mean gestational age in our study was 34 weeks and 2 days.

POG	No. of patients	PERCENTAGE
28-32 weeks	4	20%
32 +1 day -34 weeks	4	20%
> 34 weeks	12	60%

- 65 % of our patients delivered within 24 h of leaking and 80 % within 48 h, 90 % in less than 7 days. Only 10 % patients continued pregnancy for 7 days and beyond. Mean latency interval in our study was 70 hrs.

- We observed that those patients who delivered within 48 h of PPRM had the mean gestation period of 32–34 weeks and those who delivered beyond 6 days had an average gestation period of 31.2 weeks. Hence, we found significant inverse relation between POG and latency interval implicating that the lesser the POG at the time of PPRM the longer the latency interval.

- We found a positive correlation between MT LUS thickness, and latency interval implicating that a thicker myometrium at admission in cases of PPRM predicts a longer latency period. Table shows that patients who delivered beyond 6 days had a thicker LUS compared to those who delivered early and compared to our controls.

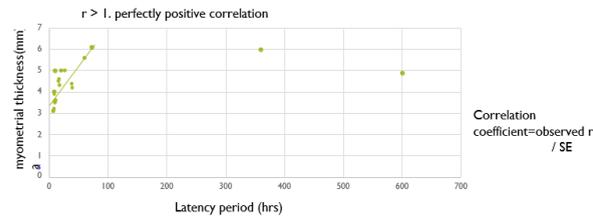
	PPROM Cases (test)	TERM (Control)
Myometrial thickness (MEAN) of LUS	5.9	3.1

RELATION BETWEEN MT AND LATENCY INTERVAL

Latency period	Number of patients	percentage	LUS Thickness (mean)
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<12 h	9	45%	4
12-24 h	4	20%	4.8
25-48 h	3	15%	4.66
49h -7 days	2	10%	5.16
>7 days	2	10%	6.27

SCATTERGRAM



DISCUSSION

- PPROM affects 3 % of pregnancies and is responsible for one third of preterm births. In our study, we have aimed to study factors which could influence the latency interval and hence affect the course of PPROM and fetal outcome, and interpret whether these factors can be used as predictors to estimate the probable prolongation of time of delivery so as to give time for fetal lung maturity.
- Hence there is still controversy in deciding whether to terminate at 34 weeks or wait till 37 weeks in PPROM (as at 34 weeks risks for fetus are more like HMD and in waiting till 37 weeks risks of chorioamnionitis are more) so this prediction might be helpful.
- In our study, LUS MT were found to be significantly thicker in PPROM cases than in controls. We found a positive correlation between LUS thickness, and latency interval.

CONCLUSION

- As the etiology of PPROM remains obscure, prevention is difficult, and hence, one has to concentrate more on its management where the antibiotics and steroids play a major role. In the present study, we found that thicker myometrium at LUS predict a longer latency interval so that the fetus can remain inside the best incubator known to mankind which is the maternal womb. Myometrial thickness has emerged as a promising tool to predict the latency interval and might be approved for regular use in future for the same.