

Bacteriological Study of Endocervix in Preterm Labour & Prelabour Rupture of Membranes

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Abstract: Infection is one of the etiological factors for preterm labour and pre-labour rupture of membranes causing perinatal morbidity and mortality in India. A i m: To study the balance of bacteria in endocervix in patients with preterm labour and pre-labour rupture of membranes . To study the significance of prevalent bacteria in endocervix in causing neonatal sepsis.

Materials and methods: The present study was done in 117 pregnant women' endocervical swab was taken for aerobic bacteriological culture and sensitivity patients with complaints of threatened preterm labour; preterm rupture of membrane in preterm and term neonatal cord.. Blood was sent for sepsis screening.

Results: Photo of 117 cases orphan dose culture 117(66.1) positive 6 and 60% and 60% word sterile. Neonatal sepsis was seen in 20.5% with positive endocervical culture in comparison to 3.3% it negative culture percentage of positive cultures were more in term prom then in preterm PROM. Staphylococcus coagulase positive was found to be the commonest microorganism in endocervical culture and cord blood culture of neonate., a total of 56 cases in preterm group out of which 39 cases work culture positive. Out of this 13 neonates had sepsis(.33.3%.) 77.7 percent had live Birds 11.1% stillbirths. and 11.1% of neonatal deaths. Occurrence of preterm prom is 4.6% and term p r o m is 24.5% positive cases in term p r o m all positive culture patients had live Birds neonatal sepsis neonatal deaths today infection in 69 cases and combination of e coli staphylococcus coagulase positive was 15.3 percent of total positive cases in preterm labour and PRM neonatal infection was seen in 2.5% and was associated with hundred percent neonatal deaths . Gentamicin ;amikacin, imipenam word found to be effect to antibiotics for most of the organisms. There were no maternal deaths.

Conclusion: significant occurrence of preterm labour pre-labour rupture of membranes and neonatal sepsis women with positive bacteriological cultures roll for antepartum screening and treatment.

Keywords:Threatened preterm preterm labour preterm birth premature rupture of membrane neonatal sepsis.

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I. Introduction

Preterm labour is defined as difference between 28 and 37 weeks of gestation p r o m is defined as spontaneous breech of chorioamnion with release of amniotic fluid with latent period before onset of labour.

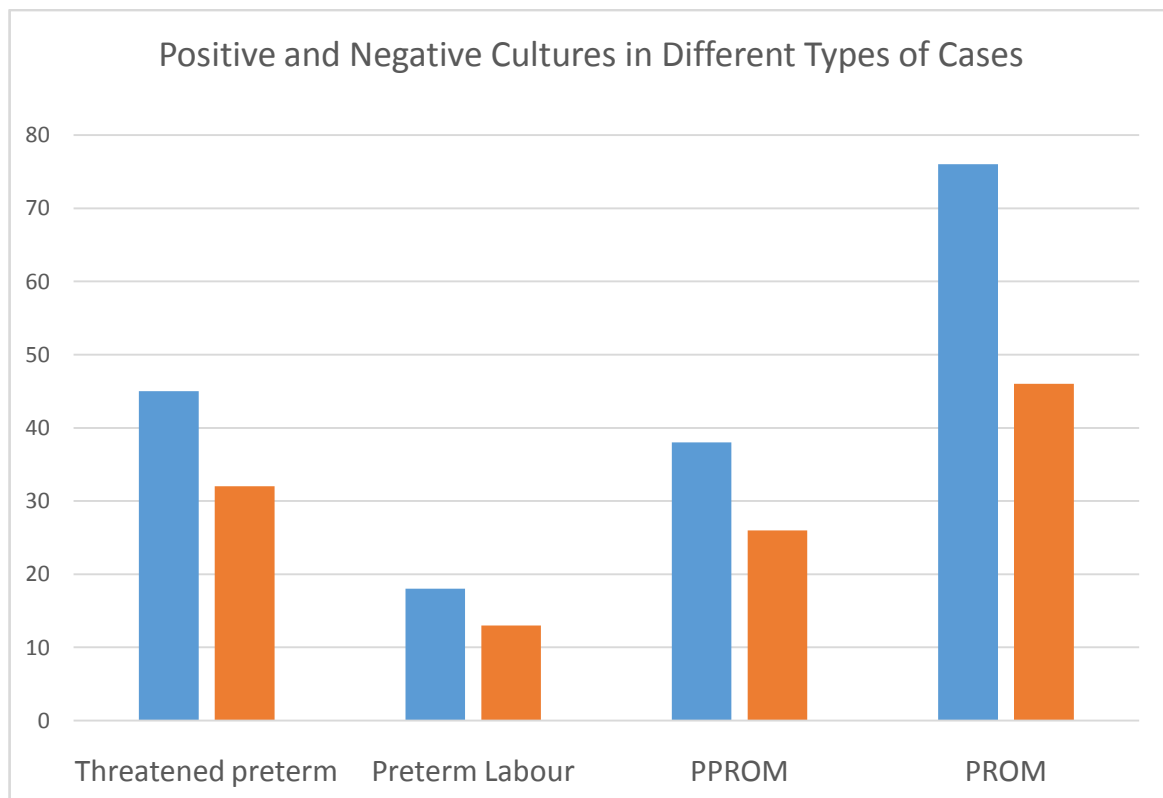
Incidence : 5 to 10 percent of all pregnancies. About 60% of cases of PRM occur in term patients p r o m is responsible for 30% of all preterm deliveries . Risk of chorioamnionitis after PROM is about 20% (general incidents 4.2to10.5). There is increased incidence of abruptio placentae dysfunctional labour cesarean section PPH andendometritis.The single greatest threat to neonates with preterm PROM preterm labour are respiratory distress syndrome seen in 2 to 3% of babies with p r o m at 33 to34 weeks and 14.8% at 32 weeks . There is increased incidence of perinatal mortality which is due to RDS(29 to 70%); . Infection 32 19% asphyxia 5% and congenital anomalies 10 to 20 inefficient blood brain barrier makes the preterm baby prone for brain damage since bacterial infection seems to be influenced by pre-labour rupture premature dilation of cervix prolonged labour and other obstetric complications, there is possibility that preventive techniques can significantly reduce the potential for maternal and neonatal infections and the associated phenomena of prematurity, neonatal infection, and death. Taking this factors into consideration the present study was undertaken to find out weather ascending infection results in preterm labour pre-labour rupture of membranes and neonatal sepsis.

II. Materials and methods

A prospective study was done on 177 patients who attended with complaints of threatened preterm labour, preterm p r o m term p r o m. The study was done from December 2017to January 2019 in government Maternity Hospital, Kakatiya Medical College Warangal. A detailed history and careful clinical examination of patients was carried out carried out to find out time of rupture of membranes onset of labour gestational age all patient with p r o m and preterm labour work given prophylactic antibiotic injection amoxicillin 500 milligrams repeated 8 hrly.Before doing par vaginal examination, the endocervical swab was taken. Swap was replaced in sterile tube and send to microbiology laboratory within one hour. Swabs were cultured for aerobic bacteria on blood Agar and macconkey plate. And incubated 24to 74 hours. After every 24 hours the culture Was seen for the growth . If colonies were identified sensitivity was seen. No growth was seen for 72 hours the culture was sterile.For diagnosis of chorioamnionitis clinical trial criteria that is maternal pulse temperature uterine tenderness foul smelling vaginal discharge fetal tachycardia are used. Total leukocyte count was done at admission and repeated 8 hourly.spontaneous rupture of membranes occurring one hour or longer before the onset of regular contractions was designated as pre-labour . Duration of gestation was calculated on the basis of LMP , in cases where dates are in doubt, the duration of gestation wasestimatedby physical examination of the neonate during first 24 hours of life.Cord blood sent for sepsis screening which include culture for bacteria neutrophil segmentation : Micro ESR. P value taken as significant if less than 0.05.

III. Results

	Total Cases (n=177)	Positive Cultures (n=177) (66.1%)	Negative Cultures (n=60) (33.8%)
Threatened Preterm	45(25.4%)	32(18.07%)	13(7.3%)
Preterm Labour	18(10.1%)	13(7.3%)	5(2.8%)
PPROM	38(21.4%)	26(14.6%)	12(6.7%)
PROM	76(42.9%)	46(25.9%)	30(16.9%)



Out of total 177 cases, 117 were positive(accounting for 66.2%).and 60 were sterile accounting 33.8. 25.9%positive cultures were seen in PROM whereas in preterm PROM it is 14.6%. Cases of mixed infection

ORGANISM	THREATENED PRETERM	PRETERM	PPROM	TERM PROM
Coagulase positive staphylococci	10(31.2%)	3 (23%)	7(26.9)	20(43.4%)
Coagulase negative staphylococci	6(18.7)	2(15.3%)	4(15.3%)	4(8.6 %)
Klebsiella	2(6.2 %)	1(7.6 %)	5(19.2 %)	7(15.2 %)
Pseudomonas	2(6.2%)	2(15.3 %)	2(7.6%)	4(8.6%)
Diphtheroids	2(6.2%)	-	-	-
Acinitobacter	-	1(7.6%)	-	3(6.5%)
E.Coli	2(6.2%)	2(15.3%)	2(7.6%)	1(2.1%)
citrobacter	1(3.1 %)	-	-	-
Betahaemolytic streptococci	3(9.3 %)	2(15.3%)	2(7.6 %)	1(2.1%)
enterobacter	2(6.2 %)	-	-	-
enterococci	2(6.2 %)	-	-	-

In this table staphylococcus coagulase positive cultures were seen more in number than other organisms .

In term PROM there were more number of positive cultures than in preterm PROM

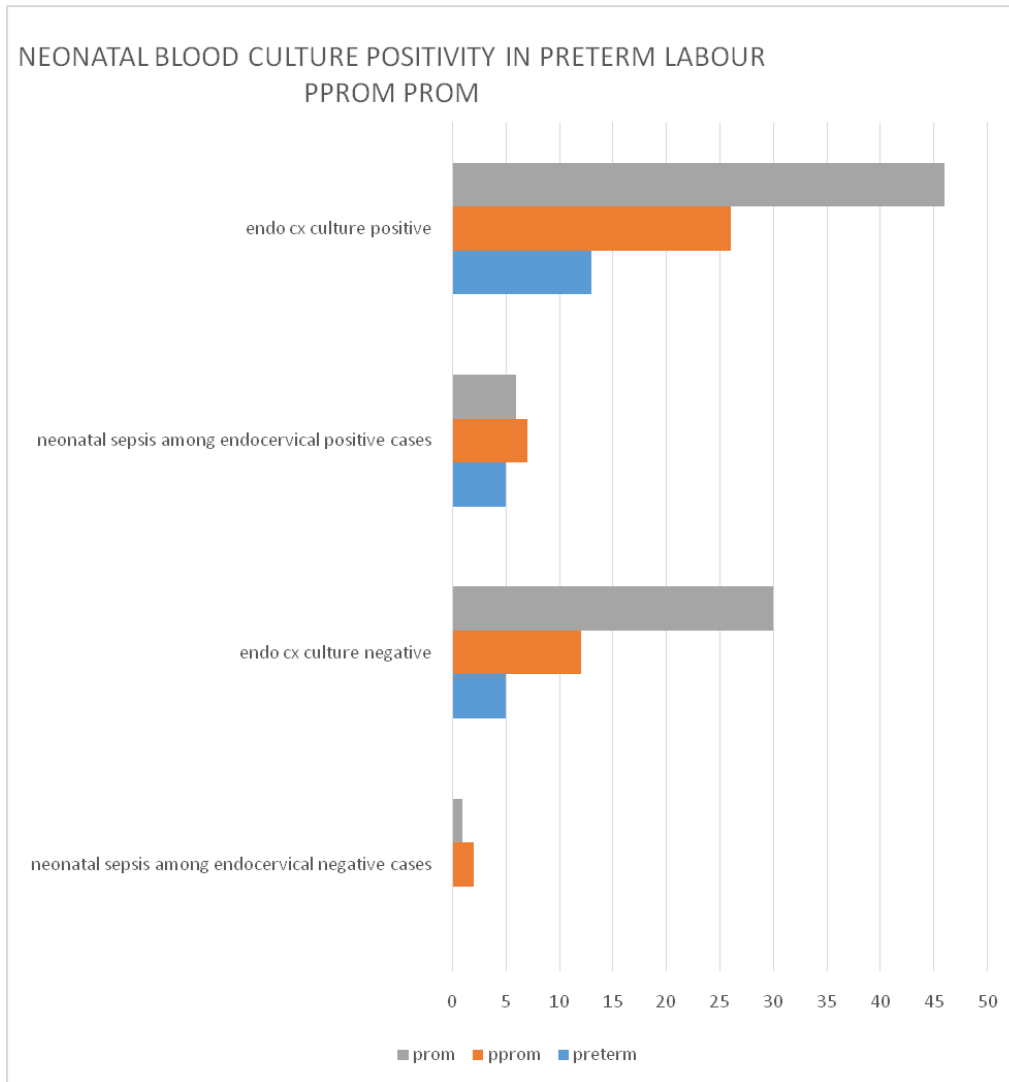
In the threatened preterm 10 culture positive cases were seen positive for staphylococcus coagulase positive.

In beta hemolytic streptococcus were seen in 3 culture positive cases of threatened preterm, two positive cases in term labour, 4 positive cases in PPROM one positive case in PROM.

In term PROM there were more number of positive cultures than in preterm PROM .

cases	Endocervical culture swab	Neonatal sepsis among endocervical culture positive cases	Endo CX culture negative	Neonatal sepsis among Endocervical culture negative cases
Preterm labour(n=18)	13(72.2 %)	5(38.4 %)	5(27.7%)	-
PPROM (n=38)	26(68.4%)	7(26.9%)	12(31.5%)	2(16.6%)
PROM (N=76)	46(60.5%)	6(13%)	30(39.4%)	1(3.3%)

staphylococcus coagulase, e coli combination accounts 26% route of 69Staphylococcus coagulase positive and klebsiella combination were seen positive in 21% out Of 69 cases of mixed infection.



Among the patients who had preterm labour, 13 were culture positive, five neonates had sepsis accounting for 38 percent and none of the babies had sepsis where mother had sterile end cervical culture. In PPROM 7 neonates had sepsis out of 26 (endocervical) culture positive mothers. 2 neonates had sepsis in mother with sterile endocervical culture. In PROM six neonatal sepsis cases were seen where mothers had positive cervical culture accounting for 13%. One neonate had sepsis among 30 sterile cervical culture in mothers with PROM. In preterm labour group out of 13 positive cultures in mother five babies 38.4 percent had neonatal sepsis where in mothers with negative endocervical culture none of the among the patients who had preterm labour, 13 were culture positive, five neonates had sepsis accounting for 38 percent and none of the babies had sepsis where mother had sterile end cervical culture.

IV. Discussion

Maternal genital tract infection main cause preterm delivery and pre labour rupture of membrane. A total of 117(66.2 percent) were show positive for cervical swab culture and 60(33.8 percent) were sterile . Preterm labour and p p r o m 21.9 percent were culture positive which were isolated in preterm group. Term p r o m 25.9 percent cases were culture positive in term group. In study done by sesha Sai¹ Get al 54% of p p r o m while 34.7 2% in pTL. In studies by vaishali T et al out of 31 cases 20 cases of positive cultures in threatened preterm labour two cases were culture positive.

Most Common Organism

Study	first	second	third	fourth
Vaishali et al	E-coli	candida	---	---
Seshasai et al	E-coli	Staph-aureus	Klebsiella	Mixed Organisms
Present study	Staph-aureus	E-coli	Klebsiella	Mixed Organisms

In study by sasha Sai et al¹ e coli was most common isolated organism followed by staph.aureus, klebsiella, and mixed organisms. In study done by vaishali a t al⁸ e coli followed by candida were commonly isolated organism's. In the present study staph aureus 30% was most common isolated organism followed by e coli 10% klebsiella 10% mixed infections.

Anti Biotic Resistance of Organisms

Study	Sensitivity	Resistance
Vaishali et al	GM,CTX cephalixin	-----
Seshasai et al	AK,GM,IMP	CTX,AMP
Present study	GM,AMK,IMP	CTX,AMP

The study done by vaishali a t al⁸ showed gentamicin, cefotaxim, cephalixin is effective in E coli. In study by sasha Sai t organism is sensitive to amikacin gentamycin and imipenem while resistant to ampicillin and cefotaxime. The present study is in accordance with about study done by sasha Sai T et al.

Foetal Outcomes

study	RDS	Neonatal Deaths
Vaishali et al	38.7%	4.17%
Seshasai et al	11.48%	11.48%
Present study	32.5%	4%

In the study by vaishali at al⁸ of total 72 births, 31 neonates had complications.RDS 38.7 percent neonatal deaths were seen in 3 neonates out of 72 births . In study by sasha Sai t at all out of 122 births 39 neonates had complications, RDS 11.4 8% NS 1.64 percent ,BA 2.46 percent MAS 0.82 percent, NC 0.82 percent neonatal deaths in 14 neonates out of 122 births. In the present study, in Preterm group among culture positive cases 12 neonates had sepsis accounting for 29.5 percent. Among culture negative cases one of the neonates had sepsis.32.5% had RDS, neonatal deaths 4%.

V. Conclusion

This significant occurrence of preterm labour / pre labour rupture of membranes and neonatal sepsis in women with positive bacteriological cultures suggest a role of antepartum screening and treatment.

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