

PREMATURE RUPTURE OF MEMBRANES A STUDY OF 100 CASES

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SUMMARY

A prospective controlled study of 100 cases of premature rupture of membranes was carried out. The incidence of premature rupture of membranes being 4.01%. Chief etiological factor was history of antecedent coitus in 65% followed by malpresentation in 31%. Maternal Morbidity was 21%. Neonatal Morbidity was 58.53%. Birth asphyxia was the commonest seen in 29.5% of cases. Membranitis was present in 36% as compared to 4% in control. Positive amniotic fluid culture reports were obtained in 51%. E Coli (20%) was commonest bacteria isolated in culture. Perinatal morbidity and mortality in patients with premature rupture of membranes is due to prematurity and therefore conservative treatment with antibiotics and corticosteroids, has a place in the management of premature rupture of membranes. Since number of cases (100) were limited the CHI2 test of significance was applied.

INTRODUCTION

The management of a case of premature of membranes is one of the most controversial problem in obstetrics and has gone through various cycles of obstetric activity from benign neglect to immediate intervention. Paralleling these cycles there have been varying degree of concern about infection and ravages of prematurity. The present study was undertaken to evaluate cases of premature rupture of membranes with emphasis on etiology and management of the

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same. Maternal and Neonatal outcomes have also been evaluated.

MATERIAL METHOD

This study was conducted from 1st September, 1988 to 30th September, 1989 at Civil Hospital, Belgaum. During this period 100 cases of premature rupture of membranes were studied and matched with 100 normal cases delivering during this period, which were taken as controls.

SELECTION OF CASES :

Cases satisfying the following criteria were included in the study.

- 1) Gestation more than 28 weeks
- 2) Spontaneous rupture of membranes.
- 3) Absence of active uterine contractions.
- 4) Cervical dilatation less than 3 cms.

All these patients were admitted to labour room and detailed history was taken. emphasis was laid on time and duration of rupture of membranes and association of pain and fever, and also history of recent coitus was elicited.

After a thorough general and obstetric examination, a sterile speculum examination was conducted to note presence of liquor. If frank leak was present, a swab was taken for culture and sensitivity. In case of doubt, fluid from the vagina was collected on a was conducted (Sarin et al 1987).

All with leaking received prophylactic antibiotics in the form of 500 mg. Ampicillin 6 hourly. Patients with gestation more than 37 weeks were observed for 24 hours for spontaneous labor, otherwise they were induced. Those with gestation less than 37 weeks with no evidence of maternal infection were given conservative management. After delivery placental membranes were sent for histopathology.

OBSERVATIONS AND DISCUSSION

INCIDENCE :

In this period the total number of deliveries were 2493 and incidence of premature rupture of membranes was 4.01%. This is comparable to that of AKTAR et al 1980 of 3.3%.

In the present study 46% of patients were in age group 21 to 25 years. 42% were primigravidae as compared to 22% in controls.

The chief etiological factor operating in these cases was antecedent coitus in 65 cases (65%) as compared to 11 cases (11%) in control. Malpresentation was seen in 31 cases (31%) as compared to 18 cases (18%) in control (TABLE

I). NAEYE AND ROSS 1982 concluded that there is two fold increase in PROM with recent coitus. Sexual activity acts by orgasm, semen contains prostaglandins which act on membranes, and also may be a source of infection.

TABLE I

| FACTORS | CONTROL (100) | PROM (100) |
|-------------------------|------------------|---------------|
| 1. Antecedent coitus. | 11 | 65 |
| 2. Malpresentation. | 18 | 31 |
| 3. Vaginitis. | 06 | 11 |
| 4. CPD. | 05 | 07 |
| 5. Hydramnios. | 03 | 05 |
| 6. Twins. | 03 | 03 |
| 7. Cervical encirclage. | — | 02 |
| 8. Unknown. | — | 17 |

MATERNAL MORBIDITY :

TABLE II

| MORBIDITY | CONTROL CASES | NUMBER STUDY CASES |
|--------------------|------------------|--------------------------|
| Puerperal Pyrexia. | 03 | 16 |
| Chorioamnionitis | — | 05 |

Maternal morbidity was present in 21 cases (21%), 19 cases (90.47%) of which had premature rupture of membranes for >24 hours. Puerperal pyrexia was present in 16 cases (16%) as compared to 3 cases (3%) in control. It was present in 33 cases (30.3%) of patients with 4 or

more pelvic examination. Clinical chorioamnionitis was present in 5% (AKTAR) quoted an incidence of chorioamnionitis to be 20% (TABLE II).

TABLE III (A)

| TOTAL NO CASES | MEMBRANITIS | % |
|----------------|-------------|----|
| PROM (100) | 36 | 36 |
| CONTROL (100) | 04 | 4 |

TABLE III B

| GESTATION 9 IN WEEKS) | MEMBRANITIS | % |
|-----------------------|-------------|-------|
| 37 (69) | 21 | 30.43 |
| 37 (31) | 15 | 48.38 |

TABLE III C

| ANTECEDENT | MEMBRANITIS | % |
|--------------|-------------|-------|
| PROM (65) | 25 | 38.46 |
| CONTROL (11) | 02 | 18.18 |

Incidence of membranitis in premature rupture of membranes was 36% as compared to 4% in control. It was common in preterm rupture of membranes, 15 cases (48.38%). (SHUKLA AND MISHRA) 1989 found the incidence in preterm patients to be 60%. History of recent coitus was present in 25 cases (38.46%) patients with membranitis and 21 cases (63.63%) had 4 or more P.V. Examinations (TABLE III A,B,C.)

In 51 cases (51%) specific amniotic fluid culture reports were obtained as compared to 8

cases (8%) in control. E Coli (20%) was the commonest bacterium isolated (TABLE IV).

TABLE IV

| ORGANISM | NUMBER OF FROM IN 100 | CONTROL (100) |
|-------------------------------|-----------------------|---------------|
| 1. E Coli | 20 | 03 |
| 2. Klebsiella. | 11 | 02 |
| 3. Bacteroids | 09 | 01 |
| 4. Staphylococcus Aureus | 06 | 01 |
| 5. Streptococcus Hemolyticus. | 05 | 01 |
| 6. Commensals. | 21 | 33 |
| 7. No Growth. | 28 | 59 |

NEONATAL MORBIDITY & MORTALITY :

In the present study the neonatal morbidity was present in 41 cases (39.8%). Birth asphyxia being commonest seen in 18 neonates (29.5%) followed by R.D.S. in 5 cases (27.7%) Congenital anomalies were present in 4 babies (13.3%) (TABLE V). Neonatal morbidity was common in preterm babies 24 (58.43%). The incidence of neonatal morbidity increased as duration of PROM increased. Thus birth asphyxia was present in 13 cases (41.93%) when duration was >24 hours, as compared to 5 cases (7.24%) when duration was >24 hours.

The perinatal mortality was 97.03/1000 births compared to 68/1000 births in control, the commonest cause being R.D.S. 4 causes (40%).

MANAGEMENT :

In the present study 69 cases (69%) were term, while 31 cases (31%) were preterm. Spontaneous onset of labor was seen in 77 cases (77%) and 70 cases (89.61%) of which delivered in 24 hours. According to (RUSSEL'S) 1962 80% established labor in 24 hours. Prolonged premature rupture of membranes more than (24 hours latent period) was seen in 23 cases (23%)

TABLE V

| MOBILITY | TOTAL CASES IN EACH GROUP | IN CONTROL | IN FROM | PERCENTAGE |
|--------------------|---------------------------|------------|---------|------------|
| Birth Asphyxia | (61) | 10 | 18 | 29.5 |
| R.D.S. | (18) | 01 | 05 | 27.7 |
| Septicaemia | (50) | 02 | 06 | 12.0 |
| Cord Sepsis | — | 01 | 05 | — |
| Conjunctivitis | — | — | 02 | — |
| Congenital anomaly | (30) | — | 07 | 13.3 |
| Pneumonia | — | — | 01 | — |

out of which 22 cases (95.65%) were less than 36 weeks.

TABLE VI A

CONSERVATIVE TREATMENT

| GESTATION (IN WEEKS) | FAILED | SUCCESSFUL |
|----------------------|--------|------------|
| 28 to 33 (06) | 06 | — |
| 34 to 36 (07) | 06 | 01 |

Conservative treatment was given in 13 cases (41.93%) out of 31 cases less than 37 weeks. In the group 28 to 30 weeks, 6 were given conservative treatment and in them none was successful, while in the group 34 to 36 weeks, out of 7 cases, 1 was successful (4.34%). According to (GUNN). 1970 only 8% could be conserved beyond I week (TABLE VI A).

TABLE VI B

MODE OF DELIVERY IN RELATION TO GESTATIONAL AGE

| MODE | GESTATION (IN WEEKS) | GESTATION (IN WEEKS) | | |
|------------------------|----------------------|----------------------|----------|----|
| | | 28 to 33 | 34 to 36 | 37 |
| 1. Spontaneous vaginal | (74) | 05 | 20 | 49 |
| 2. Induced | (07) | 02 | 03 | 02 |
| 3. Caesarean Section | (19) | — | 01 | 18 |

TABLE VI C

INDICATIONS FOR LSCS

| INDICATIONS FOR LSCS | NUMBER OF CASES |
|----------------------------|-----------------|
| 1. C.P.D. | 07 |
| 2. Fetal Distress. | 04 |
| 3. Breech. | 03 |
| 4. Face. | 02 |
| 5. Deep Transverse Arrest. | 01 |
| 6. Brow | 01 |
| 7. BOH. | 01 |

Out of 100 cases, 74 (74%) had spontaneous vaginal delivery. 7 patients underwent induction and all had vaginal deliveries, 5 cases (71.42%) of which were preterm. Induction was done in patient with clinical chorioamnionitis or culture proved amnioitis. Caesarean Section was done in 19 patients for other obstetrical conditions. (TABLE VI B & C)

CONCLUSION

Premature rupture of membranes is more common in patients with history of recent coitus. It is also seen frequently in patients with malpresentations. Premature rupture of membranes occurring at term has favourable outcome with 70% going into spontaneous labor within 24 hours, and majority having vaginal delivery. Maternal

morbidity in patients with PROM rises as duration of PROM increases. Fetal morbidity especially septicaemia increases as duration of PROM increase and is common in patients with prolonged PROM, while R.D.S. develops in preterm babies who have delivered within 24 hours of PROM.

It is seen that premature rupture of membranes though common in term patients, is not responsible for increased maternal and fetal morbidity and mortality in them. Premature rupture of membranes is a common cause of preterm delivery and so responsible for increased perinatal mortality.

In preterm group, conservative treatment has a definite role to prolong gestation and decrease ravages of prematurity. Antibiotics according to culture and sensitivity combined with steroids may help to reduce neonatal morbidity. But then it is upto the Obstetrician to decide when the fetus is more safe in cradle than in utero. In such cases PROM delivery interval is to be minimised

by quick termination of pregnancy.

Vaginal examination should not be done since they increase incidence of maternal morbidity.

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TABLE I
MORBIDITY IN RELATION TO GESTATIONAL AGE

| MORBIDITY | PRETERM | TERM | POST TERM |
|-----------------------------------|---------|------|-----------|
| 1. Septicaemia | 100% | 0% | 0% |
| 2. R.D.S. | 100% | 0% | 0% |
| 3. Premature rupture of membranes | 100% | 100% | 100% |
| 4. Placental abruption | 100% | 100% | 100% |
| 5. Preeclampsia | 100% | 100% | 100% |
| 6. Gestational diabetes | 100% | 100% | 100% |
| 7. Gestational hypertension | 100% | 100% | 100% |
| 8. Gestational thrombocytopenia | 100% | 100% | 100% |
| 9. Gestational anaemia | 100% | 100% | 100% |
| 10. Gestational hypocalcaemia | 100% | 100% | 100% |
| 11. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 12. Gestational hypokalaemia | 100% | 100% | 100% |
| 13. Gestational hypophosphataemia | 100% | 100% | 100% |
| 14. Gestational hypocalcaemia | 100% | 100% | 100% |
| 15. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 16. Gestational hypokalaemia | 100% | 100% | 100% |
| 17. Gestational hypophosphataemia | 100% | 100% | 100% |
| 18. Gestational hypocalcaemia | 100% | 100% | 100% |
| 19. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 20. Gestational hypokalaemia | 100% | 100% | 100% |
| 21. Gestational hypophosphataemia | 100% | 100% | 100% |
| 22. Gestational hypocalcaemia | 100% | 100% | 100% |
| 23. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 24. Gestational hypokalaemia | 100% | 100% | 100% |
| 25. Gestational hypophosphataemia | 100% | 100% | 100% |
| 26. Gestational hypocalcaemia | 100% | 100% | 100% |
| 27. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 28. Gestational hypokalaemia | 100% | 100% | 100% |
| 29. Gestational hypophosphataemia | 100% | 100% | 100% |
| 30. Gestational hypocalcaemia | 100% | 100% | 100% |
| 31. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 32. Gestational hypokalaemia | 100% | 100% | 100% |
| 33. Gestational hypophosphataemia | 100% | 100% | 100% |
| 34. Gestational hypocalcaemia | 100% | 100% | 100% |
| 35. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 36. Gestational hypokalaemia | 100% | 100% | 100% |
| 37. Gestational hypophosphataemia | 100% | 100% | 100% |
| 38. Gestational hypocalcaemia | 100% | 100% | 100% |
| 39. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 40. Gestational hypokalaemia | 100% | 100% | 100% |
| 41. Gestational hypophosphataemia | 100% | 100% | 100% |
| 42. Gestational hypocalcaemia | 100% | 100% | 100% |
| 43. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 44. Gestational hypokalaemia | 100% | 100% | 100% |
| 45. Gestational hypophosphataemia | 100% | 100% | 100% |
| 46. Gestational hypocalcaemia | 100% | 100% | 100% |
| 47. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 48. Gestational hypokalaemia | 100% | 100% | 100% |
| 49. Gestational hypophosphataemia | 100% | 100% | 100% |
| 50. Gestational hypocalcaemia | 100% | 100% | 100% |
| 51. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 52. Gestational hypokalaemia | 100% | 100% | 100% |
| 53. Gestational hypophosphataemia | 100% | 100% | 100% |
| 54. Gestational hypocalcaemia | 100% | 100% | 100% |
| 55. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 56. Gestational hypokalaemia | 100% | 100% | 100% |
| 57. Gestational hypophosphataemia | 100% | 100% | 100% |
| 58. Gestational hypocalcaemia | 100% | 100% | 100% |
| 59. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 60. Gestational hypokalaemia | 100% | 100% | 100% |
| 61. Gestational hypophosphataemia | 100% | 100% | 100% |
| 62. Gestational hypocalcaemia | 100% | 100% | 100% |
| 63. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 64. Gestational hypokalaemia | 100% | 100% | 100% |
| 65. Gestational hypophosphataemia | 100% | 100% | 100% |
| 66. Gestational hypocalcaemia | 100% | 100% | 100% |
| 67. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 68. Gestational hypokalaemia | 100% | 100% | 100% |
| 69. Gestational hypophosphataemia | 100% | 100% | 100% |
| 70. Gestational hypocalcaemia | 100% | 100% | 100% |
| 71. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 72. Gestational hypokalaemia | 100% | 100% | 100% |
| 73. Gestational hypophosphataemia | 100% | 100% | 100% |
| 74. Gestational hypocalcaemia | 100% | 100% | 100% |
| 75. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 76. Gestational hypokalaemia | 100% | 100% | 100% |
| 77. Gestational hypophosphataemia | 100% | 100% | 100% |
| 78. Gestational hypocalcaemia | 100% | 100% | 100% |
| 79. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 80. Gestational hypokalaemia | 100% | 100% | 100% |
| 81. Gestational hypophosphataemia | 100% | 100% | 100% |
| 82. Gestational hypocalcaemia | 100% | 100% | 100% |
| 83. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 84. Gestational hypokalaemia | 100% | 100% | 100% |
| 85. Gestational hypophosphataemia | 100% | 100% | 100% |
| 86. Gestational hypocalcaemia | 100% | 100% | 100% |
| 87. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 88. Gestational hypokalaemia | 100% | 100% | 100% |
| 89. Gestational hypophosphataemia | 100% | 100% | 100% |
| 90. Gestational hypocalcaemia | 100% | 100% | 100% |
| 91. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 92. Gestational hypokalaemia | 100% | 100% | 100% |
| 93. Gestational hypophosphataemia | 100% | 100% | 100% |
| 94. Gestational hypocalcaemia | 100% | 100% | 100% |
| 95. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 96. Gestational hypokalaemia | 100% | 100% | 100% |
| 97. Gestational hypophosphataemia | 100% | 100% | 100% |
| 98. Gestational hypocalcaemia | 100% | 100% | 100% |
| 99. Gestational hypomagnesaemia | 100% | 100% | 100% |
| 100. Gestational hypokalaemia | 100% | 100% | 100% |