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# Communications

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## Cesarean Section Complicated by Gonococcal Ophthalmia Neonatorum

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Pregnancy complicated by gonorrhea has been a well-reported entity.<sup>1-5</sup> Infection rates of prenatal screening programs have varied from 1 percent to as high as 11 percent.<sup>2,4-7</sup> In addition, reinfection rates from 11 to 30 percent have been reported in some prenatal populations.<sup>1,4</sup>

An increased incidence of chorioamnionitis and intrauterine growth retardation have been reported in 178 pregnancies complicated by gonorrhea.<sup>8</sup> Handsfield et al, in a study of orogastric culture-positive cases, found a significant incidence of premature rupture of the membranes, chorioamnionitis, and prematurity.<sup>9</sup> Two previous reports cite the occurrence of gonococcal conjunctivitis following cesarean section.<sup>10,11</sup>

This case is being reported to bring attention to the relatively rare occurrence of gonococcal ophthalmia neonatorum following cesarean section.

### Case Report

The patient, a 19-year-old, gravida 2, para 2, abortus 1, white woman, was admitted to the hospital in active labor with a term intrauterine pregnancy. Prenatal parameters were unremarkable with the exception that the patient's spouse was diagnosed and treated for culture-positive gonococcal urethritis at the seventh month of pregnancy. The mother was also treated accordingly and followed with monthly cervical cultures, which were all negative.

On admission the mother was having contractions every five minutes. The membranes were intact and the cervix was 2 cm dilated and 75 percent effaced. The presenting part was vertex and minus two station. The patient's blood pressure was ele-

vated on admission to 130/88 mmHg in the left lateral Sims' position. Labor failed to progress in spite of amniotomy and oxytocin augmentation. In addition, the patient's blood pressure increased progressively so that magnesium sulfate was begun. Delivery was eventually accomplished by low transverse cervical cesarean section under general endotracheal anesthesia. A female infant was delivered from the occiput posterior position weighing 4062 gm with Apgar scores of eight and nine at one and five minutes, respectively. The placenta was removed manually and was intact. Both the mother and the infant were transferred satisfactorily from the delivery room.

The mother was given cefamandole nafate (Mandol) as routine prophylaxis prior to cesarean section. The infant at the time of delivery was treated with 1 percent silver nitrate solution without subsequent irrigation. The mother's immediate postpartum course was entirely unremarkable, and she was discharged home on the fifth postoperative day. The infant did well, except on the third day she developed a purulent discharge from the left eye. This was treated empirically with 10 percent sodium sulfacetamide ophthalmic solution (Sodium Sulamyd 10 percent Ophthalmic Solution). No culture or Gram stain was obtained at this time. The conjunctivitis showed clinical evidence of resolution, and child was discharged home with the mother.

Two days following discharge, the mother returned with a fever of 104 F and right lower quadrant pain. Examination revealed that the pain involved the right parametrial and fundal regions. The white cell count was elevated with a left shift. The patient was readmitted, and parenteral cefamandole nafate and tobramycin sulfate (Nebcin) were begun. The patient's fever defervesced, and she promptly became asymptomatic within the

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next 24 hours. She was discharged home three days later (ie, 48 hours after becoming afebrile). All cultures including blood, cervical, and urine were negative. Repeat cervical culture was negative at the six-week postpartum examination, and the patient was doing well.

At approximately twelve days after delivery the infant was brought back with bilateral purulent conjunctivitis. Gram stain and culture revealed *Neisseria gonorrhoeae*. The infant was admitted to the hospital and treated with 50,000 units of aqueous crystalline penicillin G intramuscularly twice daily for seven days. The infant responded well to treatment and was discharged home without residual sequelae. Follow-up at six weeks with the mother revealed the child was doing well.

### Comment

Comparisons with the two previous cases of ophthalmia neonatorum after cesarean section are somewhat limited. All three cases became clinically apparent at three days following delivery, but diagnosis was delayed in the present case until 12 days after delivery. Lossick indicates that 65 percent of infants who develop gonococcal ophthalmia do so four or more days after delivery, clearly after most infants are discharged home.<sup>12</sup> It is therefore imperative to maintain a high index of suspicion so that infected infants are not discharged home to subsequently develop clinically localized or systemic disease. This also points out the need to regard any conjunctival discharge as potentially serious and not to ignore appropriate smears and cultures.

Interestingly, prenatal cultures in both this and the Strand and Arango case were negative, although disease developed in the neonate,<sup>10</sup> a point made by others, particularly in regard to the high reinfection rate in certain populations of patients.<sup>1,4</sup> Reinfection of the mother focuses the need for obtaining appropriate cultures at the time of delivery in previously infected or locally high risk groups.<sup>11</sup> Apparent differences in sexual behavior in the pregnant female emphasizes the need for obtaining cultures not only from the cervix but from the pharynx, vagina, urethra, and rectum in selected patients.<sup>13</sup> This procedure is particularly important, since several authors have suggested that the pregnant female is seemingly more susceptible to disseminated gonococcal infections.<sup>14-16</sup>

As far as cultures in the neonate are concerned, Handsfield et al found correlation between prematurity, premature rupture of the membranes, and the diagnosis of maternal and fetal sepsis in 14 cases of orogastric gonorrhea.<sup>9</sup> Lossick recommends culture of conjunctivae, pharynx, vagina, umbilical cord, and ear canal in cases of suspected infection.<sup>12</sup> In deliveries complicated by prolonged rupture of the membranes, maternal or neonatal sepsis, or intrauterine neonatal distress, cultures of the orogastric secretions as recommended by Handsfield et al may be indicated.<sup>9</sup>

All three infants who developed ophthalmia neonatorum after cesarean section received 1 percent silver nitrate prophylaxis (one with subsequent saline flushing and two without). In spite of this fact, they still developed ophthalmia neonatorum. The American Academy of Pediatrics has recognized this fact and recommends the use of parenteral penicillin G in neonates born to mothers with clinically apparent disease.<sup>17</sup> It seems logical to extend this recommendation to patients previously infected during the pregnancy. In none of the three cases cited did the mother present with clinically apparent gonorrhea. As Rothenberg aptly points out, tetracycline, penicillin, and erythromycin are probably more effective than silver nitrate in prophylaxis.<sup>18</sup> This fact, coupled with the reduction in the confusion brought about by the chemical conjunctivitis elicited by silver nitrate, should improve on the diagnosis of gonococcal ophthalmia neonatorum.

### References

1. Allan CG, Cohen S, Kass MB, et al: Asymptomatic gonorrhea in prenatal patients. *Am J Obstet Gynecol* 108: 595, 1970
2. Armstrong JH, Zacarius F, Rein MF: Ophthalmia neonatorum: A chart review. *Pediatrics* 57:884, 1976
3. Corman LC, Levison ME, Knight R, et al: The high frequency of pharyngeal gonococcal infection in a prenatal clinic population. *JAMA* 230:568, 1974
4. Jones DE, Brame RG, Jones CP: Gonorrhea in obstetric patients. *J Am Vener Dis Assoc* 2:30, 1976
5. Spence MR: Gonorrhea in a military prenatal population. *Obstet Gynecol* 42:223, 1973
6. Cave VG, Bloomfield RD, Hurdle ES, et al: Gonorrhea in the obstetric and gynecology clinic: Incidence in a voluntary hospital in an urban community. *JAMA* 210: 309, 1969
7. Krause GW, Yen SS: Gonorrhea during pregnancy. *Obstet Gynecol* 31:258, 1968
8. Edwards LE, Barrada MI, Hamann AA, et al: Gonorrhea in pregnancy. *Am J Obstet Gynecol* 132:637, 1978
9. Handsfield HH, Hodson WA, Holmes KK: Neonatal gonococcal infection. Orogastric contamination with *Neisseria gonorrhoeae*. *JAMA* 225:697, 1973
10. Strand CL, Arango VA: Gonococcal ophthalmia neonatorum after delivery by cesarean section. *Sex Transm*

Dis 6:77, 1979

11. Thompson TR, Swanson RE, Weisner PJ: Gonococcal ophthalmia neonatorum: Relationship of time of infection to relevant control measures. *JAMA* 228:186, 1974

12. Lossick JG: Prevention and management of neonatal gonorrhoea. *Sex Transm Dis* 6:192, 1979

13. Goodrich JT: Treatment of gonorrhoea in pregnancy. *Sex Transm Dis* 6:168, 1979

14. Chapman DR, Fernandez-Rocha L: Gonococcal arthritis in pregnancy: A ten year review. *South Med J* 68:1333, 1975

15. Holmes KK, Counts GW, Beaty HN: Disseminated gonococcal arthritis in pregnancy. *Ann Intern Med* 74:979, 1971

16. Taylor HA, Bradford JA, Patterson SP: Gonococcal arthritis in pregnancy. *Obstet Gynecol* 27:776, 1966

17. American Academy of Pediatrics. Prophylaxis and treatment of neonatal gonococcal infection. *Pediatrics* 65:1047, 1980

18. Rothenberg R: Ophthalmia neonatorum due to *Neisseria gonorrhoeae*: Prevention and treatment. *Sex Transm Dis* 6:187, 1979

# Expectant Fatherhood and First Pregnancy

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The expectant father has been portrayed in popular literature as a comic figure, a bumbling ignorant man whose only concern is getting his wife to the hospital on time. Even this he does poorly. This humorous portrayal is certainly inappropriate, given the increased involvement of husbands in Lamaze and other childbirth education classes, physician or clinic visits, coaching during labor and delivery, attachment toward newborns, and infant care.

## Literature Review

Two important studies have looked at expectant fathers. One is Fein's study of 82 men from four weeks prior to the delivery of their first child to six weeks after birth.<sup>1</sup> Comparisons of pre- and post-adjustment indicated that five factors contributed to a healthy adjustment: preparation for parenting, health of the infant, support from families, support from work, and agreement about roles between the couple.

Another study of expectant fathers by Wapner followed 128 fathers from the seventh month of pregnancy through to the last childbirth class.<sup>2</sup> The major concerns of the fathers were the breadwinner role, loss of sexual drive and activity, and physical discomfort (self, not wife). LaRossa has studied the husband-wife system prior to and during pregnancy<sup>3</sup>; a more specific focus for

LaRossa has been sexuality for the couple during a first pregnancy.<sup>4</sup>

The literature of expectant fatherhood yielded only two longitudinal studies. Gurwitt, a psychoanalyst, described a single case study in which his newly married patient, in the course of a four-year analysis, fathered a child.<sup>5</sup> Gurwitt saw his patient's preparation for pregnancy as involving "a major reworking of the past and current relationships with his father, mother, siblings, and wife as well as a shift and resynthesis of his sense of self." Bobak, in her doctoral dissertation, followed a group of expectant fathers throughout pregnancy.<sup>6</sup> Bobak's phases describe vivid and descriptive clinical vignettes, yet as data for theoretical considerations they are limited.

## Methods

The purpose of this initial cross-sectional study was to establish what changes take place during a first pregnancy for expectant fathers. This developmental process is believed to be linked to the biological events of pregnancy. It was hypothesized that men would undergo major changes due to the pregnancy and the anticipation of a child. These reactions have been clinically viewed as related to the trimesters of the pregnancy. The sample population was contacted by phone for consent and a mailed questionnaire was completed and returned to the researcher. The sample consisted of 83 men in the following five groups: prepregnancy (20), first trimester (12), second trimester (17), third trimester, (20), and new fathers (14).

The return rate was 75 percent, quite high for mailed questionnaires.

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