

Table 2. Prediction of Preterm Labor by Fetal Fibronectin

		Fetal fibronectin test		
		Positive	Negative	Total
Preterm labor	Yes	5	1	6
	No	3	35	38
	Total	8	36	44

Sensitivity = 83.3% (5/6); specificity = 92.1% (35/38); positive predictive value = 62.5% (5/8); and negative predictive value = 97.2% (35/36).

Overall, 5 women with positive results experienced preterm labor or labor pain that required tocolytic therapy within 2 weeks after the test. Three of them experienced preterm labor in spite of tocolysis. The other 2 women delivered at term after tocolytic therapy. Twenty-seven women with 35 negative results had uneventful gestational courses. One woman with a negative result experienced labor pain within 2 weeks after the test. She was admitted for tocolytic therapy. Positive fFN test was found at the time of her admission. Her uterine contractions subsided after therapy, and she ultimately delivered spontaneously at term. Three positive tests were obtained from 2 women who experienced no labor pain. One woman had a twin pregnancy, and the other woman was suffering from diarrhea.

Analysis of the above data gave a sensitivity of 83.3% (5/6), specificity of 92.1% (35/38), positive predictive value of 62.5% (5/8), and negative predictive value of 97.2% (35/36), as shown in Table 2.

DISCUSSION

The disappearance of cervicovaginal fibronectin between 16 and 20 weeks of gestation parallels the fusion of the chorion and adjacent decidua capsularis with the decidua parietalis of the uterine wall. The fusion presumably creates a seal that prevents further release of chorionic fetal fibronectin.⁹ Since preterm delivery is invariably preceded by separation of the chorion from the decidual layer of the lower uterine

segment, the reduced binding affinity of fetal fibronectin may facilitate this separation and permit release of the protein into the cervicovaginal secretions.⁹ Alternatively, fetal fibronectin may be released into the cervix and vagina in response to inflammatory-mediated proteolysis of the chorionic extracellular matrix.^{9,10}

We excluded patients with premature rupture of membranes because high levels of fetal fibronectin have been detected in the amniotic fluid and in the cervical or vaginal secretions of these women.⁹ Although high levels of fFN are present in the amniotic fluid, it is unlikely that occult leakage will occur and result in a positive test in patients with intact membranes for 2 reasons. First, the high molecular weight of fetal fibronectin (approximately 500 kDa) would significantly hinder diffusion across both the amnion and chorion. Therefore, it is unlikely the fFN can pass across the membranes without simultaneous passage of substantial quantities of water and lower-molecular-weight proteins. Second, the 4- to 5-week interval between the first appearance of a positive specimen and preterm delivery is inconsistent with the clinical course of patients with premature rupture of membranes.^{9,11,13}

Lockwood et al. reported that the presence of cervicovaginal fibronectin at concentrations above 0.05 µg/ml indicated a subgroup of women at increased risk for preterm delivery. They found that the mean (± SD) fetal fibronectin concentrations in maternal plasma were 2.0 ± 2.3 µg/ml in the second trimester and 3.5 ± 2.2 µg/ml in the third trimester.¹⁴ To prevent contamination of our samples by maternal blood, we excluded those patients with placenta previa and abruptio placentae as well as patients with profuse vaginal bleeding.

Mechanical factors may cause chorio-decidual separation and loss of fFN.^{8,9,11} One patient was suffering from diarrhea during sampling. Although the test was positive, no regular uterine contractions were noted. Leakage of fFN may have been due to sudden and short-term insensible uterine contractions during the period of diarrhea. Diarrhea combined with infec-