Use of amniotomy in spontaneous labor

Bottom line
Evidence is conflicting whether early or routine amniotomy in spontaneous labor significantly decreases the length of labor. It does not appear to change the risk of cesarean section, risk of low Apgar score, or use of pain medications. Better studies are needed. For now, the information available should be discussed with women when deciding whether to perform an amniotomy during spontaneous labor.

Evidence summary
Seventy percent of spontaneously laboring women will have intact membranes at the beginning of the second stage of labor.\(^1\) Leaving membranes intact has been proposed to provide a protective cushion of amniotic fluid around the fetal head and pressure on the cervix to aid in effacement and dilation.\(^2\) Traditionally, amniotomy has been used to increase strength and frequency of contractions, allow for placement of internal monitors, and examine the character of the amniotic fluid. Potential complications of amniotomy are listed in the TABLE. Experts have argued that early amniotomy is a critical component of the active management of labor.\(^3\) The data available in the 1990s from randomized controlled trials (RCTs) and a meta-analysis supported the contention that routine amniotomy shortens labor but does not decrease cesarean section rates.\(^4,6\)

More recently, a 2007 Cochrane meta-analysis evaluated 14 RCTs involving 4,893 patients. Study participants were multiparous and nulliparous women with vertex, singleton pregnancies, spontaneous labor, and intact membranes. The study compared early amniotomy with the intent to keep membranes intact. The meta-analysis showed no statistically significant change in the length of the first stage of labor (weighted mean difference [WMD] –20.43 minutes; 95% confidence interval [CI], –95.93 to 55.06) or the second stage of labor (WMD –2.38 minutes; 95% CI, –5.27 to 0.50). Subgroup analysis found similar results for both primiparous and multiparous women.\(^7\)

An Apgar score less than 7 at 5 minutes was found equally in both groups (relative risk [RR] 0.55; 95% CI, 0.29–1.05). Despite a significant reduction in dysfunctional labor (RR 0.75; 95% CI, 0.64–0.88), there was a trend toward significance of amniotomy increasing the risk of cesarean section (RR 1.26; 95% CI, 0.98–1.62). No difference was noted in the use of pain medication between intervention and control groups (RR 1.01; 95% CI, 0.94–1.09). The authors noted that this analysis might have been weakened by the lack of consistency in timing of amniotomy among study protocols and by the high rate of amniotomy in the control groups (30%–60% in 8 of the 14 studies).\(^7\)

A RCT of 690 women published after the Cochrane meta-analysis found a decrease in the length of labor (primiparous: 85 minutes; 95% CI, 35–116; and multiparous: 58 minutes; 95% CI, 42–75) but no change in the rate of cesarean section (primiparous: RR 0.52; 95% CI, 0.12–2.2; and multiparous: RR 1.00; 95% CI, 0.25–4.03).\(^8\)

No Practice Bulletins have been published by the American College of Gynecologists and Obstetricians regarding the use of routine amniotomy in spontaneous labor.

References