

## ONLINE EXCLUSIVE

# Does routine amniotomy have a role in normal labor?

## Evidence-based answer

It may, depending on the stage of labor and whether the woman has given birth previously. Routine amniotomy doesn't significantly reduce the duration of first-stage labor in either primiparous or multiparous women (strength of recommendation [SOR]: **A**, systematic review of several randomized, controlled trials [RCTs]); it slightly shortens second-

stage labor in primiparous women only (SOR: **A**, systematic review of several RCTs). A trend toward increased rates of cesarean section has been noted in low-risk women who undergo routine amniotomy (SOR: **A**, systematic review of several RCTs). The procedure doesn't appear to affect neonatal outcomes (SOR: **B**, uncommon endpoint in several large RCTs).

## Clinical commentary

### Discuss amniotomy with first-time moms.

There does not appear to be a compelling reason to perform amniotomy routinely in laboring patients. While not particularly harmful (the trend toward increased surgical delivery was not statistically significant), amniotomy is not particularly helpful either. It has no obvious benefit

in multiparous patients. In primips, it shortens the entire process of labor by just a few minutes. Some family physicians may want to explore the option with their primips. Otherwise, just forget it.

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## Evidence summary

More than 4 million babies are delivered each year in the United States, and amniotomy is one of the most common obstetric procedures. It's typically employed to accelerate labor and was originally thought to decrease cesarean section rates. However, the extent to which amniotomy alone shortens labor varies widely from study to study, and no clear consensus exists concerning the potential harms or unintended effects of this practice.<sup>1-7</sup>

A 2007 Cochrane review of 14 trials (4893 women) investigated the risks and benefits of routine amniotomy vs inten-

tion to leave membranes intact. All trials included only very-low-risk women in spontaneous labor at term with a singleton fetus in vertex presentation.<sup>8</sup> Because of the strict inclusion criteria, up to 80% of women giving birth in participating centers were excluded. Plus, many of the women in control groups underwent amniotomy at some stage of labor, because most trials allowed clinicians to perform amniotomy if clinically indicated.<sup>1-7</sup>

### Little effect on first-stage labor

Five of the trials (1127 women) reported length of first-stage labor. No statistically

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## FAST TRACK

**Routine amniotomy doesn't significantly shorten first-stage labor in primiparous or multiparous women.**

## FAST TRACK

## Amniotomy slightly shortens second-stage labor in primiparous women.

significant difference was found between amniotomy and control groups (weighted mean difference [WMD]=−20.43 minutes; 95% confidence interval [CI], −95.93 to 55.06). Furthermore, subgroup analysis found no statistically significant reduction in length of first-stage labor for nulliparous (WMD=−57.93 min; 95% CI, −152.66 to 36.80) or multiparous women (WMD=23.10 min; 95% CI, −50.89 to 97.09).

Seven trials (1237 women) in the Cochrane review reported length of second-stage labor. No statistically significant difference was noted between amniotomy and control groups (WMD=−2.38 minutes; 95% CI, −5.27 to 0.50). However, subgroup analysis of primiparous women showed a statistically significant reduction in length of second-stage labor in the amniotomy group (WMD=−6.59 minutes; 95% CI, −12.34 to −0.84).<sup>8</sup>

### More cesareans

Nine trials (4370 women) included in the Cochrane review reported cesarean section rates. Women in the amniotomy group had an increased risk of cesarean delivery compared with the control group, but the difference did not reach statistical significance (relative risk=1.26; 95% CI, 0.98-1.62).<sup>8</sup> Because cesarean section was surprisingly rare in this low-risk patient population compared with the national average, the studies were not powered to show statistical significance in this secondary outcome.

### What about neonatal outcomes?

No significant differences between the amniotomy and intact groups were noted in less uniformly reported maternal outcomes, including need for oxytocin to augment labor, rate of infection, serious morbidity, or death.<sup>8</sup> Likewise, differences in neonatal outcomes—such as sepsis, respiratory failure, admission to the special care unit, and death—weren't statistically significant. Notably, however, these secondary outcomes occurred too rarely to measure the effect precisely.

Because of the relatively small sample sizes and rarity of complications,

the studies have limited ability to address the effect of routine amniotomy on maternal and neonatal morbidity in the general population. Larger studies, with a wider variety of patients, would improve clarity.

### Recommendations

The American College of Obstetricians and Gynecologists (ACOG) hasn't issued a statement on the use of routine amniotomy in normal labor. With regard to labor dystocia, ACOG states that “amniotomy may enhance progress in the active phase and negate the need for oxytocin augmentation, but it may increase the risk of chorioamnionitis.”<sup>9</sup>

And the ACOG bulletin on induction of labor reports that “the potential risks associated with amniotomy include prolapse of the umbilical cord, chorioamnionitis, significant umbilical cord compression, and rupture of vasa previa.”<sup>10</sup> ■

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