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Update on Criteria for Suspected Diagnosis of Intraamniotic Infection

This Clinical Practice Update was developed by the American College of Obstetricians and Gynecologists in collaboration with Neil S. Silverman, MD; Richard H. Beigi, MD, MSc; Andrea D. Shields, MD, MS; Allison S. Bryant, MD, MPH; Mark A. Turrentine, MD; and Christopher M. Zahn, MD.

The Society for Maternal-Fetal Medicine endorses this Clinical Practice Update.

This Clinical Practice Update provides guidance on the diagnostic criteria used in a clinical setting in which intraamniotic infection is suspected. This document updates Committee Opinion No. 712, *Intrapartum Management of Intraamniotic Infection* (Obstet Gynecol 2017;130:e95–101).

BACKGROUND

Intraamniotic infection can be associated with a significant risk of maternal and neonatal morbidity and mortality. For most pregnant patients, the diagnosis is made primarily using clinical criteria. As summarized in Committee Opinion No. 712 (1), the consideration of intraamniotic infection is separated into three categories: 1) isolated maternal fever, 2) suspected intraamniotic infection, and 3) confirmed intraamniotic infection (2). Included in this decision-making process are standardized temperature criteria used to diagnose intrapartum fever, with *isolated maternal fever* defined as either a single oral temperature of 39°C or higher or an oral temperature of 38–38.9°C that persists when the temperature is taken again after 30 minutes. *Suspected intraamniotic infection* is based on clinical criteria, which include maternal intrapartum fever and one or more of the following criteria: maternal leukocytosis, purulent cervical drainage, or fetal tachycardia. A diagnosis of *confirmed intraamniotic infection* is based on either a positive amniotic fluid test result obtained before or at the time of delivery (Gram stain, glucose level, or culture results consistent with infection) or, most commonly, placental pathology results demonstrating histologic evidence of placental infection or inflammation. As a result, in the majority of cases, a diagnosis of confirmed intraamniotic infection is only established days after delivery. Therefore, most pregnant patients will fall into the suspected intraamniotic infection category based on clinical criteria.

Clinical guidance generally has incorporated maternal fever as a required criterion for suspected intraamniotic infection. Recommendations in Committee Opinion No. 712 (1) for suspected intraamniotic infection currently include:

- "…the diagnosis of suspected intraamniotic infection is made when the maternal temperature is greater than or equal to 39.0°C or when the maternal temperature is 38.0–38.9°C and one additional clinical risk factor is present."
- "…*isolated maternal fever* is defined as any maternal temperature between 38.0°C and 38.9°C with no additional risk factors present, and with or without persistent temperature elevation."

However, a clinical conundrum may arise when evaluating patients manifesting clinical signs and symptoms of intraamniotic infection, such as uterine fundal tenderness, foul-smelling or purulent vaginal discharge, and leukocytosis, but without maternal fever. For these patients, particularly those presenting with previable prelabor rupture of membranes in the first or second trimester, the absence of fever may delay or limit the initiation of appropriate therapeutic interventions. These interventions would include administering broad-spectrum antibiotics across all trimesters, as well as expeditiously managing the primary source of the infection, either by evacuating the uterus in a previable pregnancy or actively moving toward delivery when a pregnancy is viable. Higher maternal risks have been shown to result from decisions to not actively intervene in these settings, along with greater fetal and neonatal risks in the context of viable pregnancies (3). These risks lead to the potential for worsening infection and greater likelihoods of severe morbidity or mortality (4).

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It is essential to recognize that no definitively established confirmatory *clinical* criteria for diagnosing suspected intraamniotic infection exist. As a result, arriving at a diagnosis of intraamniotic infection requires balancing the sensitivities and specificities of several clinical characteristics and considering their impact on an individual patient's specific clinical presentation. Therefore, it may not be possible to exclude the diagnosis of suspected intraamniotic infection based on the absence of maternal fever; similarly, isolated maternal fever is not always associated with or definitively predictive of intraamniotic infection.

It is important to note that a recent study of maternal death due to sepsis supports the concept that maternal fever may not uniformly be present in cases of intraamniotic infection (5). In that study, 18% of the patients who died were found on postmortem review to have had an intrauterine infection. However, 73% of these study patients were afebrile on presentation, 25% never developed a fever during hospitalization, and 9% were hypothermic. Although not all patients with sepsis had intraamniotic infection, this study does reinforce the concept that fever may not always be present in intraamniotic infection and cannot be relied on as a uniformly present diagnostic criterion for severe maternal infection.

Furthermore, the study suggests that delays in diagnosis and intervention, including uterine evacuation or delivery, related to the absence of fever in patients later shown to have had intraamniotic infection can significantly worsen the patient's clinical course. Short-term and long-term health risks to a pregnant individual in such a setting must be evaluated in a timely fashion after concerns for intraamniotic infection become evident, using a shared decision-making process. Obstetrician–gynecologists (ob-gyns) and other obstetric health care professionals should account for the potential adverse effects of empiric antibiotic therapy and its potential for overuse and apply the best clinical judgment in determining treatment plans.

In the specific scenarios addressed in this Clinical Practice Update, we emphasize that antibiotic therapy is only one of the critical components of the overall plan for treating a patient's primary intrauterine infection. In previable pregnancies, ob-gyns and other obstetric health care professionals should be able to use best practices and a targeted antibiotic regimen in concert with evacuation of the uterus to offer complete and optimal therapy. In viable pregnancies, antibiotics are similarly essential to treat infection while also expediting delivery. As in any setting in which treatment of a serious infection in pregnancy is indicated, attention to the role of antibiotic stewardship will allow ob-gyns and other obstetric health care professionals to focus, limit, and guide the use of antimicrobial agents to optimize care and outcomes while minimizing side effects. These discussions need to be undertaken in the context of the pregnancy's predicted overall prognosis, including the ability to review gestational age–dependent outcomes and the degree to which different proposed clinical management plans may be beneficial or detrimental to maternal and fetal outcomes (6).

CLINICAL RECOMMENDATIONS

In summary, although the diagnosis of suspected intraamniotic infection frequently includes maternal fever as a clinical criterion, scenarios exist in which fever in patients with intraamniotic infection is not uniformly present. Importantly, the patient's clinical situation should be individualized based on their presentation and evaluation, thereby enabling indicated discussions and therapeutic interventions with the goal of minimizing the patient's risks for severe morbidity and mortality.

Based on these considerations, the American College of Obstetricians and Gynecologists is updating the recommendation in the Committee Opinion as follows:

For this Clinical Practice Update, the diagnosis of suspected intraamniotic infection is made when the maternal temperature is greater than or equal to 39.0°C or when the maternal temperature is 38.0–38.9°C and one additional clinical risk factor is present. The diagnosis of suspected intraamniotic infection may also be made in the absence of maternal fever when other associated clinical signs and symptoms are present.

Please contact clinical@acog.org with any questions.

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American College of Obstetricians and Gynecologists
409 12th Street SW, Washington, DC 20024-2188

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