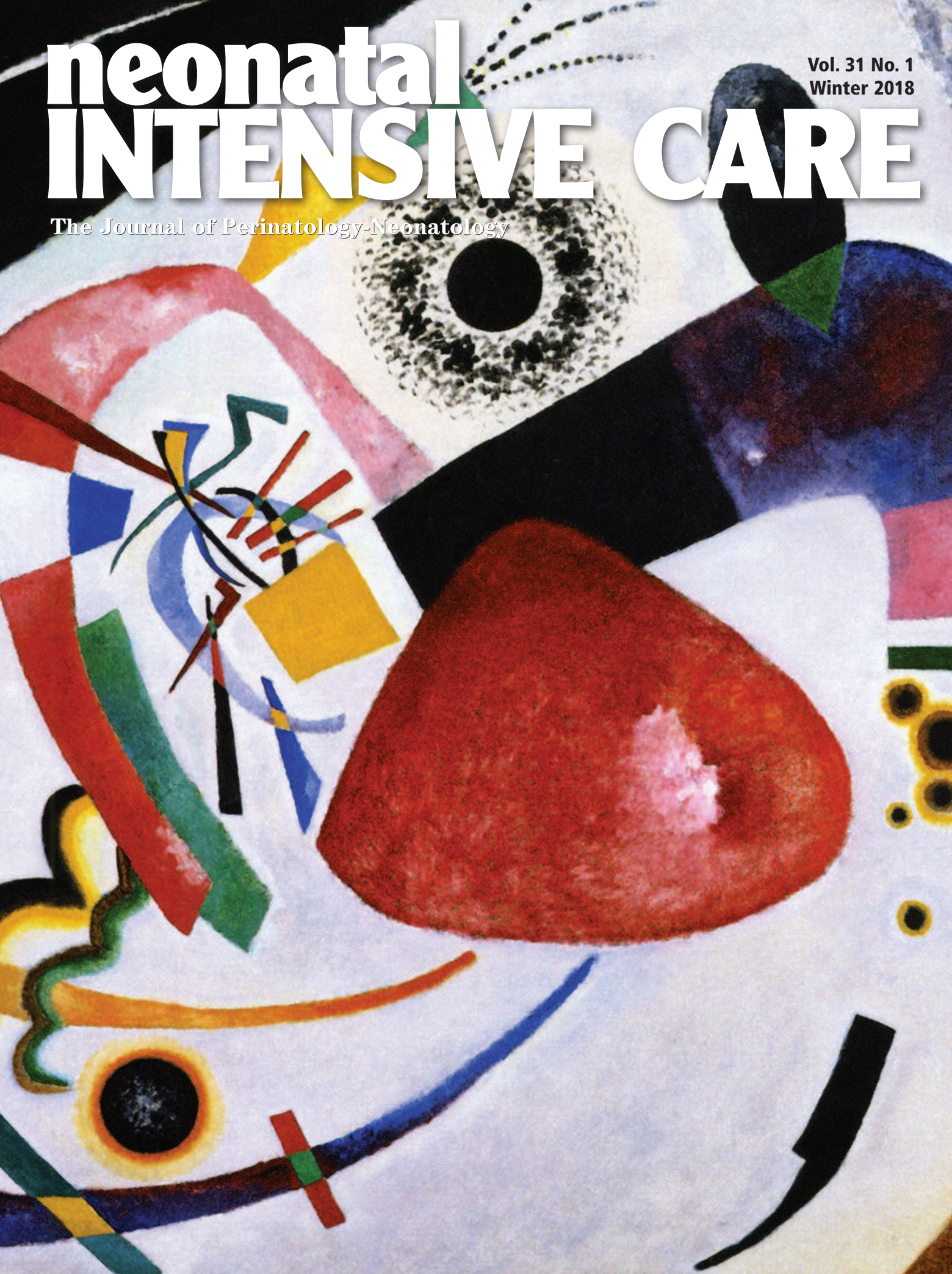


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Meconium in the Amniotic Fluid: An Algorithm Has Changed: A Brief Clinical Update

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An old story

Meconium in amniotic fluid is present in 9-14% of all pregnancies.^{1,2} While meconium aspiration syndrome (MAS) occurs in only 2.1% of these cases, it results in a 40% mortality.³ An aggressive oral and naso-pharyngeal toileting should theoretically minimize and/or eliminate such an occurrence. Regrettably, however, this had not been the case. Despite vigorous suctioning before delivery of the shoulders, meconium was still present below the vocal cords in 5-7% of cases; 10-33% of these neonates subsequently developed MAS.

Amnioinfusion has been advocated as a technique to reduce the incidence of meconium aspiration and to improve neonatal outcome. Known complications of amnioinfusion include uterine hypertonus, uterine rupture, placental abruption, and chorioamnionitis.

A large randomized trial was conducted recently, which included 1,998 women in labor at term either subjected to amnioinfusion or no intervention at all.⁴⁻⁶ The authors found that amnioinfusion did not reduce perinatal death (0.5% in both groups) or meconium aspiration (4.4% versus 3.1% in controls).



Figure 1. An amnioscope to detect the color of the amniotic fluid through intact membrane. The device had been inserted very close to the cervix to detect meconium presence. It is no longer in use. From the author's collection of antique obstetrical instruments.

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Figure 2. The drawing was done by HR Bogart, an artist and a medical illustrator.

In-utero intervention: (author's experience)

Intrauterine meconium suctioning from the fetal mouth and pharynx was successfully performed in 11 fetuses through the operational channel of a fibroscope (Olympus, Japan).

Suctioning was performed using a modified DeLee suction device at -100 mm Hg. Each procedure lasted 15 minutes or less. Technically, the procedure of inserting the endoscopic device is similar to that of introducing an intrauterine pressure catheter (fig. 1).⁷

A new story

The management algorithm of MAS had changed at around the year 2000. Ghidini et al. among others⁸ postulated that MAS

is not caused by meconium aspiration in labor, but rather, by chronic hypoxia and infection. Proper understanding of the causative processes underlying fetal or neonatal compromise in these cases was essential to direct future research into preventive or therapeutic treatment modalities.⁸

Before the 2005 guidelines, management of a newborn with meconium-stained amniotic fluid included suctioning of the oropharynx and nasopharynx on the perineum after the delivery of the head but before the delivery of the shoulders. The 2005 guidelines did not support this practice anymore. However, these 2005 guidelines did support intubation of the trachea and suctioning of meconium or other aspirated material from beneath the glottis in nonvigorous newborns. In 2017, these guidelines were updated. Routine intubation and tracheal suctioning are no longer required. Infants with meconium-stained amniotic fluid should no longer receive intrapartum suctioning, whether they are vigorous or not. Resuscitation should follow the same principles for infants with meconium-stained fluid as for those with clear fluid.⁵

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