

MECONIUM

DEFINITION: Thick, black-green odorless material which forms in the fetal intestine starting at 3 months gestational age. It is comprised of desquamated skin cells, mucous, hair, vernix, amniotic fluid, blood, lipids and protein as well as intestinal secretions. It is sterile. Meconium can be excreted in utero usually due to chronic hypoxia and infection. When passed in utero leads to meconium stained amniotic fluid.

Seen in first several bowel movements of the newborn (“baby poop”).

Three types of meconium stained amniotic fluid:

- Thin: clear, no particles
- Thick: opaque without particles
- Particulate: (obviously) with particles

INCIDENCE:

Between 6-25% of all deliveries have MSAF (meconium stained amniotic fluid).

Of these, about 11% go on to develop MAS (meconium aspiration syndrome).

- More common in postdates and small for gestational age babies

Meconium Aspiration Syndrome:

- Meconium can be aspirated in utero and also during first breaths after delivery
 - Chemical pneumonitis and obstruction of airways
 - Associated inflammation and hypoxia
 - Free fatty acids strip away the alveolar surfactant
 - Hypoxemia

RISK FACTORS: Any risks for intrauterine hypoxia (IUGR, post dates, oligohydramnios, cord compression, uteroplacental insufficiency).

SIGNS AND SYMPTOMS:

- Evidence of postmaturity, peeling skin, long fingernails and decreased amount of vernix
- Meconium staining (green) of fingernails and umbilical cord
- Respiratory distress (tachypnea, cyanosis, retractions, nasal flaring, grunting)
- Crackles and wheezes on exam

DIAGNOSIS:

- Abnormal chest x-ray: streaky, linear densities, hyperinflation, flattened diaphragms, ARDS

TREATMENT:

- To NBICU
- Supportive
- Oxygen
- Assisted ventilation

Amnioinfusion is **no longer indicated** for meconium stained amniotic fluid because the baby has likely already taken in meconium prior to onset of labor. Amnioinfusion DOES NOT decrease the risk of meconium aspiration syndrome.

ACOG Committee Opinion, October 2006

AAP/AHA Neonatal Resuscitation Guidelines 2005 Updates:

- No longer recommends routine intrapartum suctioning (i.e. suctioning at the perineum before the shoulders delivered).
- Baby does not have to be suctioned using ET tube if baby is vigorous (strong respiratory efforts, good muscle tone, and heart rate > 100 bpm) when delivered.

REFERENCES:

Gabbe: Obstetrics – Normal and Problem Pregnancies, 4th Edition, 2002, p. 418-419, 680.

Evidence-based Obstetrics & Gynecology, Volume 3, Number 2, June 2001.

Wiswell, Thomas E. et al, “Delivery Room Management of the Apparently Vigorous Meconium-stained Neonate: Results of the Multicenter, International Collaborative Trial.” Pediatrics, Volume 105, Number 1, January 2000.

UpToDate

Neonatal Resuscitation Guidelines