

Transient Tachypnea of the Newborn (TTN)

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TTN - Introduction

Definition: A parenchymal lung disorder characterized by pulmonary edema resulting from delayed resorption and clearance of fetal alveolar fluid ¹

- Common cause of respiratory distress in the immediate newborn period
- Sometimes called “wet lung” in practice
- In general, a fairly benign self-limited condition, but some data exists to suggest it increases a newborn’s risk for developing a wheezing syndrome early in life

TTN – Risk Factors

- Multiple studies have shown an increased risk in infants born prematurely or after C-section deliveries without labor because mechanisms to reabsorb alveolar fluid have not been initiated
- It occurs 2-3 times more often in infants of diabetic mothers (IDM), of which the mechanism may be related to decreased fluid clearance in the diabetic fetal lung

Protective Factor

- The administration of antenatal corticosteroid therapy appears to reduce the rate of TTN in late preterm and term infants

TTN – Clinical Features

- Onset typically at the time of birth and within 2 hours of delivery
- Most prominent feature is tachypnea, although can have cyanosis and signs of increased WOB such as nasal flaring, intercostal/subcostal retractions and expiratory grunting
- The anterior-posterior diameter of the chest may be increased
- Breath sounds are typically clear
- Signs may persist as long as 72 hours

TTN – Diagnosis

This is a **clinical diagnosis**, although characteristic findings on chest radiograph can support the diagnosis

- Increased lung volumes with flat diaphragms
- Mild cardiomegaly
- Prominent vascular markings in a “sunburst” pattern originating at the hilum
- Fluid can be seen in the interlobular fissures, and pleural effusions may be present
- Alveolar edema may appear as fluffy densities

NOTE: *Infants rarely require a supplemental O₂ concentration greater than 40% to achieve adequate oxygenation. If that is the case, need to consider other things on the differential!*



<https://radiopaedia.org/articles/transient-tachypnoea-of-the-newborn?lang=us>

TTN – Differential Diagnosis

Table 1. Differential Diagnosis of Newborn Respiratory Distress

Pulmonary	Other
Transient tachypnea of the newborn	Delayed transition
Respiratory distress syndrome	Congenital heart disease
Meconium aspiration	Hypoglycemia
Pneumothorax	Polycythemia or anemia
Persistent pulmonary hypertension of the newborn	Choanal atresia
Pulmonary hypoplasia	Hydrocephalus
Tracheoesophageal fistula	Intracranial hemorrhage
Diaphragmatic hernia	Respiratory rate suppression from maternal narcotic use
Infectious	Inborn errors of metabolism
Pneumonia	
Sepsis	
Meningitis	

NOTE: Listed in approximate order of prevalence.

Adapted with permission from Hermansen CL, Lorah KN. Respiratory distress in the newborn. Am Fam Physician. 2007;76(7):987.

TTN – Management

Since TTN is a benign, self-limited condition, management is supportive

- Supplemental oxygen is provided to maintain O₂ saturation >90%
- Again, these infants rarely require >40% inspired O₂ concentration
- If infant has increased WOB + tachypnea, can use nasal CPAP
- Other supportive measures: neutral thermal environment, nutrition (may need an OG tube if RR >60-80)
- If tachypnea persists longer than 4-6 hours or if screening CBC w/ diff is abnormal, obtain BCx and begin antibiotic coverage as a rule out EOS and go through the aforementioned differential

Sources

1. Hermansen, C., Mahajan, A. *Neonatal Respiratory Distress*. Lancaster General Hospital, Lancaster, Pennsylvania Am Fam Physician. 2015 Dec 1;92(11):994-1002.
2. Johnson, K., Garcia-Prats, J., Kim, M. *Transient tachypnea of the newborn*. In: UpToDate, Post TW (Ed), UpToDate, Waltham, MA. (Accessed on April 2, 2020.)
3. Guglani, L., Lakshminrusimha, S., Ryan, R. Transient Tachypnea of the Newborn. *Pediatrics in Review* Nov 2008, 29 (11) e59-e65; **DOI:** 10.1542/pir.29-11-e59