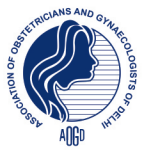
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Manual on Pre-Birth Perils

Antenatal Emergency Masterclass

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Contents

1. **Introduction to Antenatal Emergencies** 1
   Poonam Goyal
2. **Eclampsia: The Unforgiving Emergency** 6
   Parul Sinha
3. **Cracking HELLP** 11
   Kavita Mandrelle Bhatti
4. **Placental Abruption** 18
   Vidyadhar Bangal
5. **Acute Fatty Liver of Pregnancy** 24
   Prerna Keshan
6. **Amniotic Fluid Embolism** 27
   Taru Chhaya
7. **Acute Abdomen in Pregnancy** 33
   S Arulkumaran
8. **Transfusion Protocol** 40
   Basab Mukherjee
9. **Uterine Rupture** 46
   Jupirika E Pyrbot
10. **Umbilical Cord Prolapse** 55
    Biswajyoti Guha
11. **Trauma and the Unborn** 59
    Preeti Sharma
12. **Thyroid Storm** 63
    Nidhi Chaturvedi
13. **Preterm Prelabor Rupture of Membranes** 68
    Suyoga Panat
14. **Diabetic Ketoacidosis in Pregnancy** 75
    Poonam Goyal, Pallaavi Goel
15. **Lessons from Maternal Near Miss** 81
    Poonam Joon
16. **Maternal Near-miss Case Scenarios** 86
    Swati Singhal

17. Near-miss Navigator: Practical Tips 91
Mitra Saxena

18. Maternal CPR 94
Ranju Singh

19. Understanding ABG Report 100
Devang Bharti, Neha Kapoor

20. Contents of Eclampsia Tray 112
Shweta Sardana

CHAPTER 1

Introduction to Antenatal Emergencies

Poonam Goyal

INTRODUCTION

The antenatal period is a crucial continuum in which maternal physiological adaptation intersects with diverse socio-medical variables. While most pregnancies progress uneventfully, a significant proportion may evolve into acute and life-threatening clinical situations that require swift recognition and coordinated management. Antenatal emergencies are conditions arising during pregnancy that threaten the immediate safety of the mother or fetus, often without warning, and demand urgent and decisive action.

India has made substantial progress in maternal health over the last two decades, yet antenatal emergencies still contribute to a major share of preventable maternal morbidity and mortality. The Maternal Mortality Ratio (MMR) remains uneven across states, largely influenced by disparities in health infrastructure, delayed referrals, and wide variations in the quality of antenatal surveillance and emergency obstetric care. In the Indian context, emergencies are often exacerbated by:

- Delayed identification of high-risk pregnancies at the primary care level
- Limited blood banking facilities in peripheral centers
- Coexistence of malnutrition and anemia, increasing vulnerability to shock and sepsis
- High prevalence of infectious diseases such as dengue, malaria, and tuberculosis complicating pregnancy
- Sociocultural barriers and late presentation to tertiary care units

These realities make structured protocols, early warning systems like MEOWS, and strengthening of district-level emergency response capabilities particularly vital. The national focus through LaQshya, Janani Suraksha Yojana, Referral transport systems, and Dakshata has begun to improve readiness and accountability in emergency obstetric care. Yet, continued emphasis on standardized antenatal risk assessment, skilled workforce deployment, and simulation-based emergency training is crucial to reduce preventable clinical deterioration.

Thus, for the senior obstetric practitioner, antenatal emergencies represent not only a clinical challenge but also an opportunity for leadership in improving systems of care—ensuring every pregnancy in India receives timely, appropriate, and safe intervention when complications arise.

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FOGSI plays a pivotal role in advancing antenatal emergency preparedness in India by developing pragmatic clinical guidelines, conducting extensive skill-based trainings, and promoting standardized emergency response bundles across all levels of maternity care. Through national simulation workshops in collaboration with ICOG, Jhpiego and government partners, FOGSI empowers obstetric teams in early recognition and timely management of high-risk conditions. Its continuous medical education platforms ensure that practitioners, even in remote settings, remain updated with evidence-based protocols—ultimately reducing preventable maternal and perinatal complications nationwide. Facility readiness is maintained by regular drills.

PATHOPHYSIOLOGICAL BASIS

Physiological adaptations in pregnancy alter cardiovascular, hematologic, respiratory, endocrine, and renal function. While protective for fetal development, these adaptations may mask early symptoms of deterioration. For example:

- *Increased plasma volume and tachycardia* may obscure signs of hypovolemia until late stages.
- *Hypercoagulability* increases risk of thromboembolism, the leading cause of maternal mortality in developed countries.
- *Immunological modulation* predisposes to rapid progression of infections, including pyelonephritis and viral illnesses.

Thus, antenatal emergencies frequently evolve from initially subtle abnormalities that require high clinical vigilance.

CLASSIFICATION OF ANTENATAL EMERGENCIES

1. *Hypertensive emergencies:*
   - Severe pre-eclampsia
   - Eclampsia
   - HELLP syndrome

   These conditions can progress to intracranial hemorrhage, hepatic rupture, or placental abruption.
2. *Hemorrhagic emergencies*:
   - Placenta previa
   - Placental abruption
   - Uterine rupture (though largely intrapartum)

   Antepartum hemorrhage remains a major cause of preventable maternal death.
3. *Thromboembolic and cardiovascular emergencies:*
   - Pulmonary embolism
   - Peripartum cardiomyopathy
   - Arrhythmias associated with structural heart disease

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4. *Medical and endocrine metabolic emergencies*:
   - Diabetic ketoacidosis (DKA)
   - Thyroid storm
   - Acute fatty liver of pregnancy (AFLP)
   - Severe anemia with decompensation

   Conditions aggravated by pregnancy often precipitate rapid decline.
5. *Infectious emergencies*:
   - Sepsis (urosepsis, chorioamnionitis)
   - Tropical infections in India such as malaria and dengue can cause shock and DIC.
6. *Obstetric emergencies threatening fetal well-being*:
   - Severe fetal growth restriction (FGR)
   - Preterm premature rupture of membranes (PPROM)
   - Isoimmunization, decreased fetal movements

   Many evolve silently, requiring surveillance tools like Doppler studies and CTG.
7. *Surgical emergencies in pregnancy*:
   - Acute abdomen—appendicitis, pancreatitis, volvulus

   Laparoscopic management is increasingly preferred when feasible.

CLINICAL APPROACH TO ANTENATAL EMERGENCIES

Rapid Primary Assessment

A structured approach adapted for pregnancy:

- Watch vitals.
- Airway protection and oxygenation; maternal hypoxia directly compromises fetal oxygenation.
- Circulatory support with permissive fluid resuscitation avoiding pulmonary edema, particularly in pre-eclampsia.
- Neurological evaluation—particularly relevant in hypertensive crises and eclampsia.
- Exposure to trauma or history of haemorrhage.
- Maintaining normothermia.

Simultaneously:

- Establish IV access (preferably 2 wide-bore cannulas)
- Keep monitoring vitals including urine output
- Perform bedside ultrasound for fetal viability

Fetal Assessment

- CTG for fetal heart rate monitoring
- Biophysical profile or Doppler studies when needed

Maternal stabilization remains priority: *"Resuscitate the mother to save the fetus."*

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INVESTIGATIONS

- Point-of-care tests (blood glucose, ABG, bedside coagulation)
- Laboratory evaluation tailored to suspected etiology (e.g., LFTs and LDH in HELLP; D-dimer and imaging for suspected PE)

DEFINITIVE MANAGEMENT

Based on underlying emergency condition:

- Antihypertensives, magnesium sulphate in eclampsia
- Blood products in hemorrhage guided by MTP protocols
- Broad-spectrum antibiotics within 1 hour of suspected sepsis
- Timely decision on delivery when maternal-fetal benefit outweighs risks

PREVENTION AND PREPAREDNESS

Risk Screening

Early booking and structured antenatal screening for:

- Chronic hypertension
- Diabetes
- Multiple pregnancy
- Abnormal placentation
- Severe anemia

Standardized risk scoring tools and referral to higher-level centers improve outcomes.

Protocols and Bundles

National and international guidelines recommend:

- Hypertension and PPH management bundles
- Massive transfusion protocols
- Sepsis bundles

Hospitals must routinely conduct drills and simulation-based training.

Communication and Systems

The "Three Delays Model"—delay in decision, transport, and treatment—remains a barrier. Telemedicine, emergency transport systems, and integration of primary-secondary-tertiary care networks are key strategies in LMICs, including India.

FINAL INSIGHTS

Antenatal emergencies represent high-stakes situations where maternal physiology may deteriorate rapidly and fetal condition can worsen abruptly. Senior obstetric practitioners must combine vigilant risk detection, evidence-based emergency pathways, and timely multidimensional intervention.

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Strengthening protocol-driven obstetric care, simulation-supported team readiness, and robust referral systems are pivotal to reducing preventable maternal and perinatal deaths—aligning with global goals for safe motherhood.

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