Contents

1. Iron-deficiency Anemia in Pregnancy.....1
Suyajna Joshi D
- Definition *1* • Classification of Anemia *1* • Iron Metabolism *1*
- Iron-Deficiency Anemia *2* • Iron Supplementation *4* • Treatment *4*
- Calculation of Total Iron Dose *7* • Parenteral Intravenous Iron and Folic Acid (PIFA) *7*
- Newer Intravenous Iron Formulations *7* • Monitoring of Response to Treatment *9*
- Blood Transfusion *9* • Management During Labor *9* • Postpartum Anemia *9*
- Contraception *9*

2. Megaloblastic Anemia in Pregnancy 11
Niharika Dhiman, Anjali Deshpande
- Metabolism of Folic Acid and Vitamin B_{12} *11* • Etiopathogenesis *11*
- Clinical Manifestation *12* • Laboratory Diagnosis *12* • Treatment *13*
- Prevention of Megaloblastic Anemia *14*

3. Sickle Cell Disease in Pregnancy.....15
Sumitra Yadav
- Types of Sickle Cell Disease *15* • Pathophysiology *15*
- Management of Sickle Cell Crisis During Antenatal Period *18* • Blood Transfusion *18*
- Management During Labor *18* • Contraceptives *18* • Future Treatment *19*

4. Thalassemia in Pregnancy.....20
Hara P Pattanaik
- Preconception Care *20* • Antenatal Care *21* • Intrapartum Care *22*
- Postpartum Care *22* • Contraception *22*

5. Cardiac Diseases in Pregnancy.....23
Haresh U Doshi
- Symptoms and Signs *23* • Rheumatic Heart Disease *23*
- Peripartum Cardiomyopathy *25* • Congenital Heart Diseases *25*
- Pregnant Woman with Prosthetic Valves *25* • Cardiac Arrhythmias *26*
- Coronary Artery Disease *26*

6. Hypertensive Disorders in Pregnancy 28
Suyajna Joshi D, Raju V Giraddi
- Diagnosis and Classification *28* • Normal Maternal Changes for Fetal Growth *28*
- Changes in Hypertension *29* • Preeclampsia *31* • Eclampsia *38*
- Modifications of Standard Regimens *40* • Newer Initiative in Safe Motherhood *41*
- Three-Stage Management Protocol of Eclampsia of Suyajna Joshi *42*
- Convulsion Treatment Interval *42* • Antihypertensive Management *42*
- Obstetric Management *42* • Pulmonary Edema *43*
- Renal Complications of Preeclampsia *43* • Screening Tests for Preeclampsia (WHO, 2004) *47*
- Recent Research *47* • Prevention *48*

7. Gestational Diabetes.....52
Pralhad Kushtagi
- Classification of Hyperglycemia in Pregnancy *52* • Definition *52*
- Prevalence *52* • Risk Factors *53* • Pathophysiology *53*
- Effect of Gestational Diabetes *54* • Screening and Diagnosis *56*
- Management *57* • Postpartum Care *60* • Studies of Importance *60*

8. Thyroid Disorders in Pregnancy 63
Srinivas Krishna Jois
- History *63* • Physiology *63* • Immunomodulation in Pregnancy *63*
- Incidence *64* • Screening *64* • Thyroid Disorders *65*
- Neonatal Issues *67* • Medical Termination of Pregnancy *68*
- Thyroid Nodules/Cancer *68* • Postpartum Thyroiditis (PPT) *68*
- Obstetric Management *69*

9. Renal Disease in Pregnancy 71
Hiralal Konar
- Physiological Changes in the Urinary System During Pregnancy *71*
- Chronic Kidney Disease *71* • Acute Renal Dysfunction During Pregnancy *73*
- Some Special Conditions *74*

10. Epilepsy in Pregnancy 76
Suman Mittal
- Definitions *76* • Reproductive Issues *76* • Obstetric Perspective of Epilepsy *76*
- Preconceptional Counseling *77* • Therapeutic Termination of Pregnancy *77*
- Effect of Pregnancy on Epilepsy *77* • Effects of Epilepsy on Pregnancy *78*
- Potential Mechanism of Anticonvulsant Embryopathy *79*
- Antiepileptic Drugs *79* • Antenatal Care *79* • Management of Labor *81*
- Generalized Tonic-clonic Seizure During Labor *81*
- Breastfeeding and the Puerperium *82*
- Contraception for Women Taking Antiepileptic Drugs *82*

11. Acquired Coagulation Disorders in Pregnancy 84
Pankaj Desai, N Palaniappan
- Disseminated Intravascular Coagulation *84* • Thrombocytopenia *86*
- Acquired Hemophilia *89* • Drugs Producing Thrombocytopenia *89*

12. Antiphospholipid Antibody Syndrome 91
S Habeebullah
- Prevalence *91* • Classification of Antiphospholipid Syndrome *91*
- Pathogenesis *91* • Pregnancy Loss *92* • Clinical Manifestations *92*
- Diagnosis *92* • Poor Prognostic Factors *92*
- Pregnancy and Labor Management of Antiphospholipid Syndrome *94*

13. Human Immunodeficiency Virus in Pregnancy 95
Ambarisha Bhandiwad, Achanta Vivekanand
- Etiology and Pathogenesis *95* • HIV and Pregnancy *96*

14. Liver Diseases in Pregnancy 100
Shikha Seth, Ritu Sharma
- Liver in Pregnancy *100* • Viral Hepatitis *100*
- Cirrhosis and Portal Hypertension *104* • Symptoms *104*
- Gall Stones/Cholelithiasis and Pregnancy *105* • Liver Transplant *105*
- Acute Fatty Liver of Pregnancy *106* • Hepatic Adenoma and Hemangioma *106*
- Alcohol and Pregnancy *106* • Hyperemesis Gravidarum *106*
- Hellp Syndrome *107* • Common Liver Disease Presentations *107*

15. Febrile Illness in Pregnancy 110
Deepa Lokwani Masand
- Malaria *110* • Dengue *115* • H1N1 (Swine Flu) *119*
- Varicella/Chickenpox *125* • Typhoid *128*

16. Skin Diseases in Pregnancy 134
Hemant Talnikar, Hemant Deshpande
- Physiological Skin Changes During Pregnancy *134*
- Pemphigoid Gestationis (Herpes Gestationis/Gestational Pemphigoid Dermatitis Multiformis Gestationis) *136*
- Intrahepatic Cholestasis of Pregnancy *138* • Polymorphous Eruption of Pregnancy *138*
- Atopic Eruption of Pregnancy *139*

17. TORCH in Pregnancy 141
BS Jodha
- Incidence *141* • Fetal Implications of TORCH *141* • Screening *142*
- Prenatal Diagnosis *142* • Management Protocols of TORCH *143*
- Toxoplasma Infection in Pregnancy *143* • Rubella (German Measles) in Pregnancy *145*
- Cytomegalovirus in Pregnancy *146* • Genital Herpes in Pregnancy *147*
- Recent Advances in TORCH Management *148*

18. Preterm Labor 150
Vidya Gaikwad, Hemant Deshpande
- Definition *150* • Incidence *150* • Causes of Preterm Labor *150*
- Predictors and Biochemical Markers for the Preterm Labor *151*
- Management of Preterm Labor *151*
- Management of Patients with Warning Signs of Preterm Labor *152*
- Management of Patients with Established Preterm Labor *152* • Intrapartum Monitoring *156*

19. Prelabor Rupture of the Membranes 158
RP Rawat
- Pathophysiology of Fetal Membranes *158* • Etiology *158*
- Diagnosis of PROM *159* • Management of PROM *160*
- Fetal Complications of PROM *161* • PROM Following Amniocentesis *162*
- Preterm PROM and Future Pregnancies *162*

20. Cervical Insufficiency 164
Hemant Deshpande, Manjula S Patil
- Incidence *164* • Definition *164* • Etiopathogenesis *164*
- Diagnosis *166* • Management *168*

21. Post-Term Pregnancy (Prolonged Pregnancy) 175
Hemant Deshpande, Sonali Deshpande
- Etiology and Associated Risk Factors *175* • Pathophysiology *175*
- Diagnosis *176* • Complications *177* • Recurrence Risk *177* • Management *177*

22. Placenta Previa 183
Ashok Kumar
- Incidence *183* • Classification *183* • Etiology *183* • Risk Factors *184*
- Clinical Features *184* • Management *184* • Complications of Placenta Previa *186*
- Prognosis *187*

23. Abruptio Placentae 189
Shilpa Chaudhari
- Definition *189* • Epidemiology *189* • Types of Abruptio Placentae *189*
- Etiology *189* • Commonly Associated Conditions with Placental Abruption *189*
- Pathology *191* • Clinical Features *191* • Diagnosis *191*
- Investigations *192* • Differential Diagnosis *192* • Management *192*
- Complications of Abruptio Placentae *193* • Prognosis *194* • Prevention *195*

24. Rh Alloimmunization 197
Nitin S Kshirsagar
- Terminology *197* • Rhesus Blood Group System *197*
- Pathogenesis of Maternal Alloimmunization *198* • Transplacental Hemorrhage *198*
- Maternal Response *198* • Sensitization Phenomenon *198* • Fetal Response *198*
- Degrees of Alloimmunization *198* • Management *199*
- Middle Cerebral Artery Peak Systolic Flow Velocity *203* • Fetal Blood Sampling *203*
- Management Protocol for Rh Alloimmunized Patient *204*

25. Intrauterine Growth Restriction 206
Vandana Kanumury
- Definition *206* • Classification *206* • Ponderal Index *206*
- Risk Factors and Etiology *207* • Other Etiologies *207* • Screening *208*
- Diagnosis *209* • Prediction of Intrauterine Growth Restriction *211*
- Management *211* • Fetus Remote from Term *212* • Mode of Delivery *212*
- Fetal and Neonatal Complications *213* • Prevention of Small for Gestational Age *213*

26. Intrauterine Fetal Demise 215
S Manikyarao
- Definition *215* • Global Burden *215* • Incidence *215*
- Etiology *216* • Clinical Features *216* • Investigations *216*
- Dead-Born/Stillborn Examination *219* • Management *219*
- Recommendations for Intrapartum Antimicrobial Therapy *221*
- Options for Suppression of Lactation *221*
- Psychological and Social Aspects of Intrauterine Fetal Demise *222*
- Complications *222* • Legal Aspects *222* • Strategies for Prevention of Stillbirth *222*
- Future Research *223*

27. Multifetal Gestation 225
Vidya Thobbi
- Assisted Reproduction Technology *225* • Maternal Age, Race, Parity, and Ethnicity *225*
- Classification *225* • Etiology of Multiple Births *227*
- Amnionicity and its Clinical Importance *228* • Maternal Adaptation *229*
- Complications *229* • Fetal Complications Unique in Multiple Gestations *230*
- Monoamniotic Twins *235* • Congenital Abnormality *235* • Conjoined Twins *235*
- Diagnosis of Multiple Gestations *236* • Antepartum Management *237*
- Genetic Counseling *239* • Antenatal Care *239*
- Preterm Premature Rupture of Membranes *240* • Intrapartum Management of Twins *241*
- Routes of Delivery *242* • Interlocking Twins *243*
- Management of Gestation with High Fetal Number *243*
- Key Pre- and Postnatal Events to be Offered in Pregnancy *244*
- Preventive Interventions for Multiple Pregnancies *245* • Multifetal Pregnancy Reduction *245*
- Selective Termination *245*

28. Induction of Labor 248
Jayanti Reddy
- Incidence *248* • Important Points to Evaluate before Induction *248*
- Indications for Induction of Labor *248* • Contraindications *248*
- Preinduction Cervical Ripening *249*
- Important Points: Prerequisites and Preinduction Assessment *254*
- Complications of Induction of Labor *255*
- WHO Recommendations for Induction of Labor *255*
- Royal College of Obstetricians and Gynaecologists Guidelines *255*

29. Pregnancy after Previous Cesarean Section 257
Hemant Deshpande, Priyanka A Dahiya
- Benefits of Vaginal Delivery (VBAC) Over Repeat Cesarean Section *257*
- Fetal Benefits of Vaginal Birth after Cesarean *258*
- Antenatal Preparation for Trial of Labor after Cesarean *258*
- Criteria for Selection for Vaginal Birth after Cesarean *258*
- Contraindications to Vaginal Birth after Cesarean *258*
- Maternal Risks of Vaginal Birth after Cesarean *259* • Fetal Risks *260*
- Predictors of Vaginal Birth after Cesarean Success *260* • Management *262*
- Assessment of Progress in Labor and Management of Failure to Progress *263*
- Important *264* • Special Points *265*

30. Ectopic Pregnancy 267
Amrita Chaurasia
- Definition *267* • Incidence *267* • Classification *267* • Risk Factors *267*
- Clinical Features *268* • Diagnosis *268*
- Treatment (ACOG Practice Bulletin No. 193, March 2018) *270*
- Rhesus D (RHD)-Negative Women with an Ectopic Pregnancy (RCOG Green-Top Guideline No. 21, 2016) *273*

31. Hyperemesis Gravidarum 276
Shubharanjan Smantarai
- Epidemiology *276* • Etiology *276* • Risk Factors *277*
- Clinical Presentation and Diagnosis *277* • Differential Diagnosis *278*
- Maternal Effects of Nausea and Vomiting of Pregnancy *278*
- Fetal Effects of Nausea and Vomiting of Pregnancy *279*
- Management *280* • Need of Hospitalization *284*
- Termination of Pregnancy *284*

32. Gestational Trophoblastic Disease 287
Priya Ballal
- Molar Pregnancy *287* • Nonmolar Lesions *289*
- Incidence of Gestational Trophoblastic Disease *290* • Risk Factors *290*
- Management of Gestational Trophoblastic Disease *291* • Complications *292*
- Prophylactic Chemotherapy *293* • Postmolar Surveillance *293*
- Staging and Evaluation of Gestational Trophoblastic Disease *294* • Evaluation *294*
- Classification and Staging of Malignant Gestational Trophoblastic Disease *294*
- Treatment of Low-risk Gestational Trophoblastic Disease *296*
- Chemotherapy for Low-risk Gestational Trophoblastic Neoplasia *296*
- High-risk Gestational Trophoblastic Disease *296*
- Management of Metastatic Sites *299*

33. Cesarean Section 302
Virendra Kumar CM
- History *302* • Clinical Anatomy *302* • Indications for Cesarean Sections *303*
- Preoperative Preparation for Cesarean Section *304* • Surgical Technique *304*
- Anesthesia for Cesarean Section *306* • Complications *307*
- Strategies to Decrease Lower Segment Cesarean Section Rate *307* • VBAC Versus ERCS *307*

34. Rupture of the Uterus 310
Ashok Kumar Behera
- Incidence *310* • Classification *310* • Risk Factors and Etiology *310*
- Mechanism of Uterine Rupture *311* • Morbid Anatomy *311*
- Clinical Features and Diagnosis *312* • Treatment *312* • Outcome *313*

35. Contracted Pelvis and Cephalopelvic Disproportion 314
Ambarisha Bhandiwad
- Contracted Pelvis *314* • Degrees of Disproportion *315* • Classification of the Pelvis *315*
- Diagnosis of Cephalopelvic Disproportion is Through History and Examination *317*
- Management of Labor *320*

36. Nonimmune Hydrops Fetalis 323
Shipra Kunwar
- Causes of Nonimmune Hydrops Fetalis *323* • Mechanism *323* • Pathophysiology *323*
- Ultrasound Diagnostic Criteria *324* • Management *324* • Investigations *324*
- Complications *326* • Prognosis *326* • Delivery *326* • Differential Diagnosis *326*
- Risk of Recurrence *326*

37. Amniotic Fluid Embolism 328
Deepa Lokwani Masand
- Etiopathogenesis *328* • Clinical Features *329* • Differential Diagnosis *331*
- Management *331* • Cardiopulmonary Resuscitation in Pregnancy *335* • Prognosis *335*

38. Immunization in Pregnancy 336
Chandrakant Madkar, Madhukar Shinde
- Vaccine *336* • Immunization Recommendations *337*
- Vaccination During Pregnancy *337* • CDC Guidelines *338*
- Government of India Programs *338* • Role of WHO in Immunization Program *338*

39. Obstetric Analgesia and Anesthesia in High-risk Pregnancies 340
Mridul M Panditrao, Minnu M Panditrao
- Classification of Patients to be Included as "High-risk Pregnancy" *340*

40. Cord Around Neck 350
Priyanka A Dahiya
- Classification *350* • Etiopathogenesis *350* • Management *351*

41. Trisomy 21 354
JB Sharma
- Rationale for Screening *354*

42. Amniotic Fluid Abnormalities 359
Sujatha Patnaik
- Amniotic Fluid Dynamics *359* • Polyhydramnios *361* • Oligoamnios *363*

43. Obesity and Pregnancy 370
Srinivas Krishna Jois
- History *370* • Definition and Classification *370*
- Epidemiology of Obesity in Women and in Pregnancy *370*
- Factors *372* • Diagnosis *372* • Care During Pregnancy *372* • Contraception *375*
- Bariatric Surgery *375* • Observations at Vani Vilas Hospital, Bangalore (Unpublished) *375*

44. Fetal Distress in Pregnancy 378
Shashwat Jani
- Definition *378* • Etiology *378* • Types *378* • Risk Factors *378*
- Signs of Fetal Distress *378* • Clinical Diagnosis *379* • Treatment *381*

45. Corticosteroids for Fetal Lung Maturity 383
Janki Pandya, Munjal Pandya
- Corticosteroids for Fetal Lung Maturity *383* • Mechanism *383*
- Other Fetal Effects *383* • Maternal Effects *383* • Timing of Administration *383*
- Premature Rupture of Membranes *384* • Gestational Diabetes Mellitus *384*
- Late Preterm Birth *384* • Multifetal Gestation *384* • Elective Cesarean Section *384*

- Hypertensive Disorders of Pregnancy *385* • Fetal Growth Restriction *385*
- Patient Living with HIV/AIDS *385* • Pregnancy with Hepatitis B Infection *385*
- Dose *385* • Duration of Benefit *385* • Timing of Effects *385*
- Repeat Courses *386* • Betamethasone Versus Dexamethasone *386*
- Other Routes for Antenatal Corticosteroid Administration *386* • Potential Complications *387*

46. Progesterone in Pregnancy 389
Nilesh Balkawde
- Functions of Progesterone in Obstetrics *389*
- Progesterone and Pregnancy: Physiology *389*
- Progesterone in Recurrent Pregnancy Loss *390*
- Progesterones Used in Luteal Phase Defect and Preterm Birth *392*
- Mechanism of Action of Progesterone *392*
- Guidelines for use of Progesterone in Threatened Abortion *393*

47. Varicose Veins in Pregnancy 395
Rajendra P Shitole
- Incidence *395* • Etiopathology *395* • Clinical Evaluation *395* • Diagnosis *396*
- Treatment *396* • Development of Varicose Vein Postpregnancy *397*
- Varicose Vein Clinical Spectrum *397*

48. Pregnancy after Organ Transplants..... 399
Yukti Wadhawan
- Uterine Transplant *399* • Liver Transplant *400* • Lung Transplant *400*
- Renal Transplant *401* • Effect of Pregnancy on Graft Function *401*
- Immunosuppressive Drugs in Pregnancy *401* • Management Guidelines *402*
- Criteria for Transplant Recipients Planning a Pregnancy *402*
- Management of Hypertension *402* • Management of Infection *403*
- Labor and Delivery *403*

49. Human Milk Banking—Need of the Time 404
Shailaja Mane
- Evidence in Literature *404* • Human Milk Banking *404*

50. Oncofertility..... 410
Veena Ranjan
- Pregnancy in Genital Malignancies *410* • Diagnosis of Cancer *411*
- Adjuvant Treatment *411* • Preserving Fertility in Women with Malignancy *412*

51. Partogram 416
Kishor Rajurkar
- Evolution of a Partograph *416* • Components of a Partograph *416*
- Clinical Utility of Partograms *418* • Paperless Partograph *418* • Epartograph *419*
- Mobile Partograph *419* • Zhange Guidelines *419*

52. Nonstress Test..... 420
Prakash Mehta
- History *420* • Instrument *420* • Physiology *421* • Result *424*
- Nonstress Test in Special Situations *425* • Nonstress Test Versus Other Surveillance Tests *426*
- Litigation and Nonstress Test *427* • Postgraduate Examination: Cardiotocography *427*

53. Sildenafil Citrate in Obstetrics..... 431
Suyajna Joshi D, Sanajana Kumar
- History 431 • Mechanism of Action 431 • Indications 431
- Well-Established Uses 431 • Indications Under Trial 431 • Common Adverse Effects 431
- Contraindications 431 • Sildenafil in Obstetrics 431 • Sildenafil Citrate in Gynecology 437

Index 441