

International Standard **Colored Edition**

**2nd**  
Edition

Textbook of  
**Midwifery and  
Gynecological Nursing**  
for GNM Nursing Students

*(As per the Syllabus of Indian Nursing Council)*

**Special Features**

- A Thoroughly Revised and Updated Edition
- Updated and Evidence-based Information
- A Perfect Amalgamation of Theoretical and Clinical Practice
- **500+** Illustrations and Real-time Photographs
- **15+** Basic Midwifery Procedures Added
- **30+** Instruments, Related to Obstetrics and Gynecological Procedures Added



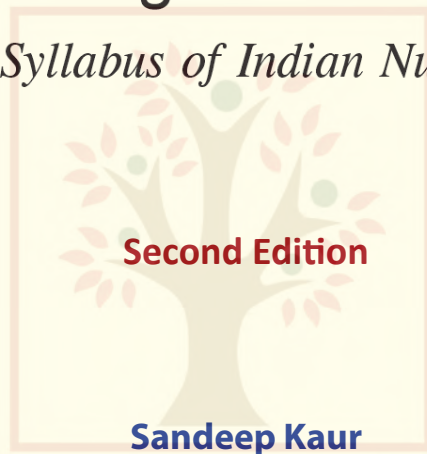
CBS Publishers & Distributors Pvt. Ltd.

**Sandeep Kaur**

# Textbook of **Midwifery and Gynecological Nursing**

for GNM Nursing Students

*(As per the Syllabus of Indian Nursing Council)*



**Second Edition**

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# Preface to the Second Edition

It gives me immense pleasure and satisfaction to present the 2nd edition of *Textbook of Midwifery and Gynecological Nursing* for GNM Nursing Students.

Midwifery is the oldest art that requires in-depth professional knowledge. Present era of evidence-based nursing practices has imposed increasing demand on nurses to generate sound evidence-based knowledge to improve nursing practice, shape health policy and protect the health of people.

This edition has come out with an international standard to meet the overwhelming demand of a quality book in many parts of the world. The new edition of this book offers a unique opportunity to students as well as teachers, to assimilate the ever-growing body of scientific knowledge and to develop the technical and analytical skills necessary to apply the same into practice.

This book has been organized into two sections. Section I (Midwifery) that includes 14 Chapters and Section II (Gynecological Nursing) that contains 7 Chapters which are strictly based on revised GNM curriculum by INC. At the end of the book, Midwifery Procedures and Instruments, commonly used in obstetrics and gynecological procedures are included.

Each chapter of this book starts with learning objectives, chapter outline and ends with frequently asked questions in exams and multiple choice questions. Special care has been taken to develop the content by avoiding the unnecessary details and keeping the text according to the requirement and structure of the recent trends of the paper.

The feedback that I received from the teachers and students was invaluable. Many of these suggestions have been addressed in this edition. I hope, this comprehensive textbook will continue to be of immense educational resource to the readers as ever.

**Sandeep Kaur**

# Preface to the First Edition

Midwifery is recognized as a responsible and accountable profession. A midwife works in association with women to give the necessary support, care and advice during pregnancy, labor and postpartum period and to conduct births. The midwives are also responsible to provide care to the newborn and infants. The care includes preventive measures, the promotion of normal birth, the detection of complications in mother and child, providing access to medical care or other appropriate assistance and then carrying out emergency measures.

Being constantly insisted by my beloved students, I have attempted to write a compact, comprehensive and practically oriented textbook on midwifery and gynecology. It is an effort to provide the students comprehensive and easy techniques of obstetrics with an aim to emphasize the text in a simple rather than in complex way.

“Textbook of Midwifery and Gynecological Nursing for GNM Students” offers a unique opportunity to students as well as teachers, to assimilate the ever-growing body of scientific knowledge and to develop the technical and analytical skills necessary to apply the same into practice. This book is organized into two sections. Section I (Midwifery) that includes 14 chapters and Section II (Gynecological Nursing) that contains 7 chapters which are strictly based on revised GNM curriculum by INC. Thorough and updated text matter has been presented in a concise and lucid language, which will make this textbook reader-friendly.

The book has flavor of its own, both in scope and content distinctly different from a number of existing textbooks. It is an attempt to encourage the students to learn midwifery in a comparatively easy way. Each chapter starts with learning objectives, chapter outline and ends with frequently asked questions in exams and multiple choice questions. Special care has been taken to develop the content by avoiding the unnecessary details and keeping the text according to the requirement and structure of the recent trends of the paper.

The critical evaluation and feedback of the readers regarding the content are welcome.

**Sandeep Kaur**

# Acknowledgments

**F**irst and foremost, I would like to thank the Almighty for all His blessings to me. Thank you God for the strength you have bestowed upon me and also for keeping your protective hands on me.

No endeavors are complete in isolation and likewise this book too is a product of efforts and blessings of many noble people around me. I am very fortunate to have the valuable guidance, help and support of all those who have been my advisors, Dr Darshan Soni, Dr Monika Dogra and Dr Neelam Hans, friends, well-wishers and family members. I convey my heartfelt thanks to all those who have been associated with this book and have contributed to it in one way or the other.

Last but not the least, my special thanks are due to **Mr Satish Kumar Jain** (Chairman) and **Mr Varun Jain** (Managing Director), M/s CBS Publishers and Distributors Pvt Ltd for their wholehearted support in publication of this book. I have no words to describe the role, efforts, inputs and initiatives undertaken by **Mr Bhupesh Aarora** [Sr. Vice President – Health Science Division (Publishing & Marketing)] for helping and motivating me.

I sincerely thank the entire CBS team for bringing out the book with utmost care and attractive presentation. I would like to thank Ms Nitasha Arora (Publishing Head & Content Strategist – PGMEE & Nursing), and Dr Anju Dhir (Product Manager cum Commissioning Editor – Medical) for their editorial support. I would also extend my thanks to Mr Shivendu Bhushan Pandey (Sr. Manager & Team Lead), Mr Manoj K Yadav (Production Manager), Mr Ashutosh Pathak (Sr. Proofreader cum Team Coordinator) and all the production team members for devoting laborious hours in designing and typesetting the book.



# How to Make Most out of this Book?

**W**ith the increasing scientific and technological interventions, the role and responsibilities of midwives are turning out to be very challenging. In this scenario, it is important for the midwives to develop the technical and analytical skills, which are necessary in the modern health care setups. The book has been organized keeping in mind the contemporary needs so that optimum can be extracted by any reader.

This book is organized into two sections. Section I (Midwifery) that includes 14 chapters and Section II (Gynecological Nursing) that contains 7 chapters. Each chapter starts with a list of learning objectives. This tells the readers specifically what he/she should know after reading the chapter. The students can use this as a study aid. Chapter outline is included at the beginning of each chapter to avoid unnecessary explanations. Each chapter is ending with MCQs, which are helpful in quick revision and recall after going through the text. Various tables, flowcharts, illustrations and images have been used. This will help you develop the sound concept on the topic(s).

## SECTION I: MIDWIFERY

**Chapter 1** deals with introduction related to obstetrics and midwifery nursing. This chapter also deals with—how it is evaluated over decades, the concepts which are changed over time about midwifery and the trends of maternity services in India. It also describes the basic competencies and scope of midwife. At the end, this chapter explains the vital statistics related to maternal health in India.

**Chapter 2** explains the structure and function of female reproductive system. It also describes the structures, types and diameters of female pelvis.

**Chapter 3** focuses on embryology and fetal development. It also describes the structure, function and abnormalities of placenta/membranes and umbilical cord. This chapter also deals with fetal skull, its structure, suture, fontanels and diameters. At the end of the chapter it is explained that how fetal circulation occurs before and after the birth of baby.

**Chapter 4** deals with preconception care and genetic counseling. How to diagnose pregnancy and what are the physiological changes that occur in pregnancy have been explained very well in this chapter. This chapter also deals with antenatal care and minor disorders of pregnancy and their management.

**Chapter 5** deals with normal labor its stages, causes and signs of onset of labor. Difference between true and false labor pains has been explained very well in this chapter. Partographs are explained very clearly and in simple language. This chapter also deals with pain management during labor. Setting up of labor room including newborn corner is also included in this chapter. Mechanism of labor and how to conduct normal vaginal delivery are written clearly, visually appealing and in logical format. This chapter also deals with episiotomy, its types and how to repair it. Care of newborn has also been incorporated in this chapter. At the end, this chapter deals with postpartum family planning.

**Chapter 6** deals with assessment of newborn and how a newborn physiologically adapts to extrauterine environment. Apgar score is also included in this chapter.

**Chapter 7** outlines the objective of puerperal care and the physiological changes that occur in puerperium. Postnatal counseling has also been included in this chapter. This chapter also deals with lactation and feeding. At the end of this chapter, management of normal puerperium and methods of family planning are explained very well.

**Chapter 8** deals with ectopic pregnancy, abortion, antepartum hemorrhage, vesicular mole and hyperemesis gravidarum. It also elaborates preeclampsia and eclampsia. Hydramnios and gestational diabetes mellitus are thoroughly explained in this Chapter. This chapter also deals with pelvic inflammatory diseases, IUGR, postmaturity, IUD. This chapter ends with high-risk pregnancy, which includes antenatal screening test, anemia, jaundice, UTI, heart diseases, diabetes, AIDS, osteomalacia, STDs, teenage pregnancy, elderly primigravida, multipara and multiple pregnancy.

**Chapter 9** deals with malposition and malpresentation. This chapter also explains about contracted pelvis, PROM, precipitate and prolonged labor, Induction of labor and obstructed labor. It also elaborates on abnormal uterine actions. Obstetric emergency has been explained in very simple and lucid language.

**Chapter 10** outlines the complications of puerperium, i.e., puerperal pyrexia, puerperal sepsis, thrombophlebitis, breast complications and psychological complications during puerperium.

**Chapter 11** deals with assessment and management of newborn with hyperbilirubinemia, hypoglycemia, hypothermia, neonatal convulsions, Rh incompatibility, small for dates, low birthweight, preterm, asphyxia, sepsis and birth injuries. This chapter also deals with neonatal hemorrhagic disorders and congenital anomalies. In the end, the chapter deals with newborn of HIV positive mother, diabetic mother and level of care in NICU.

**Chapter 12** deals with obstetric operations and includes the topics—induction of labor, manual removal of placenta, version, forceps delivery, vacuum extraction, cesarean section, sterilization, destructive surgeries, amniotomies D&C, D&E.

**Chapter 13** outlines the drugs used in pregnancy, labor and puerperium. Anesthesia and analgesia have also been explained in this chapter. Drugs used for newborn are also included. At the end, this chapter explains the teratogenic effects of drugs on mother and baby.

**Chapter 14** deals with legal and ethical issues related to midwifery. It also describes the maternal and newborn death review. Mother and child tracking system is incorporated at the end of this chapter.

## SECTION II: GYNECOLOGICAL NURSING

**Chapter 15** deals with terms used in gynecology history taking, examination and investigations carried out in case of gynecological disorders.

**Chapter 16** deals with puberty, how sex organs develop in females and males. Review of menstrual cycle and sexuality are explained very well in this chapter. The chapter ends with disorders of menstruation.

**Chapter 17** outlines fertility and infertility and their causes, investigations and management. Artificial reproductive techniques are also incorporated in this chapter.

**Chapter 18** deals with pelvic infections in which author describes in details about infections of vulva, vagina, cervix, bartholin glands, uterus, ovaries and fallopian tubes.

**Chapter 19** deals with gynecological disorders, i.e., retroversion, retroflexion, fistulas, uterine prolapse, uterine malformations, cysts and fibroids and uterine polyps. At the end of this chapter, tumors of the reproductive tract and palliative rehabilitation are included.

**Chapter 20** outlines breast disorders which include the topic: mastitis, breast engorgement, breast abscess and tumors of breast.

**Chapter 21** deals with menopause, its sign and symptoms, and the physiological changes that occur in menopause. This chapter also deals with hormonal replacement therapy and how to educate and counsel a menopausal woman. At the end of this chapter, surgical menopause is explained very well by the author.

## APPENDICES

1. Midwifery procedures
2. Obstetrics & gynecological Instruments

**OVERALL, THIS BOOK WILL GREATLY BENEFIT THE MIDWIFERY TEACHERS, STUDENTS AND NURSES PRACTICING MATERNAL-CHILD NURSING.**

# Special Features of the Book

## Learning Objectives

**Upon completing this chapter, the learner will be able to:**

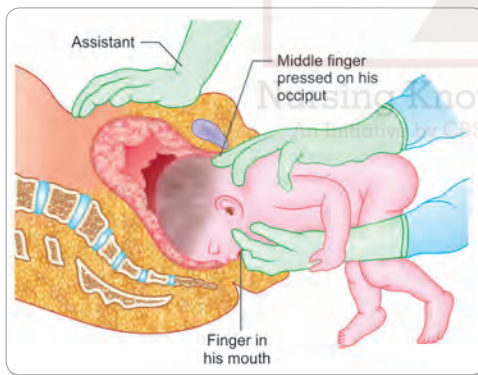
- Define midwifery and obstetrical nursing
- Describe the scope of midwifery
- Enlist the basic competencies of a midwife

Learning Objectives given in all the chapters focus on the areas that a student shall comprehend after completing the chapter

Every chapter starts with a chapter outline that gives the glimpse of the content covered in the chapter

## Chapter Outline

- ▲ Maternity Care: Key Terms and Concepts
- ▲ Scope of Midwifery
- ▲ History of Midwifery
- ▲ History of Midwifery in India
- ▲ Trends of Maternity Services in India
- ▲ Vital Statistics
- ▲ Basic Competencies of Nurse Midwives



**Figure** Mauriceau-Smellie-Veit maneuver

Several images and diagrams have been used at relevant places to simplify the concepts for the students

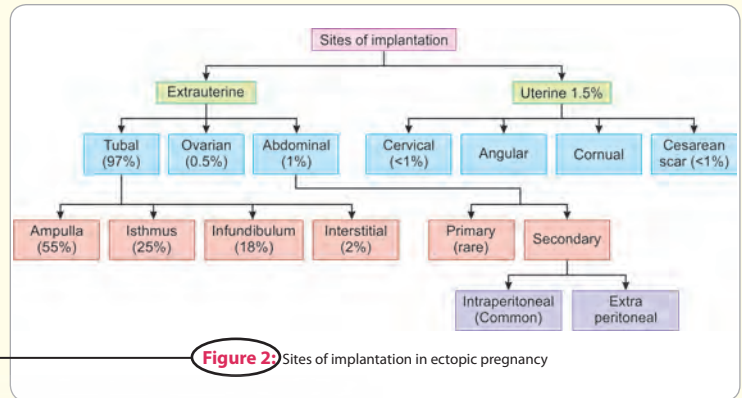
Numerous tables are used in text to provide necessary data and information to supplement the text

**TABLE 1:** Malpositions in vertex presentation

Malposition	Occiput points towards	Sagittal suture of fetus in mother's pelvis
Left occipitolateral position (LOL)	Left iliopectineal line (midway between iliopectineal eminence and ileosacral joint)	Transverse diameter
Right occipitolateral position (ROL)	Right iliopectineal line (midway between iliopectineal eminence and ileosacral joint)	Transverse diameter
Left occipitoposterior position (LOP)	Left sacroiliac joint	Left oblique diameter
Right occipitoposterior position (ROP)	Right sacroiliac joint	Right oblique diameter
Occipitoanterior position	Symphysis pubis	Anteroposterior diameter
Occipitoposterior position	Sacrum	Anteroposterior diameter



Numerous flow diagrams are used to enhance your learning experience



## ASSESS YOURSELF

### FREQUENTLY ASKED QUESTIONS IN EXAMS

1. Define breech presentation, its types and complication of breech. Explain the nursing responsibility during breech delivery.
2. Define postpartum hemorrhage. Explain the types of PPH, its causes and diagnostic evaluation.
3. Describe the management of true PPH.
4. Differentiate between contraction ring and retraction ring.
5. What do you mean by prolonged labor? What are the causes and complication of prolonged labor?
6. How can you manage a case of prolonged labor?
7. Write short notes on:
  1. Precipitate labor
  2. Contracted pelvis
  3. Cord prolapse
  4. Management of retained placenta
  5. Obstetrical shock

### MULTIPLE CHOICE QUESTIONS

1. Contracted pelvis may be caused by the deficiency of which vitamin during early childhood:
  - a. Vitamin B<sub>12</sub>
  - b. Vitamin C
  - c. Vitamin D
  - d. Vitamin A
2. When the ALAE of both sides are absent and the sacrum directly fused with the innominate bones, the pelvis is known as:
  - a. Robert pelvis
  - b. Naegele pelvis
  - c. Android pelvis
  - d. Anthropoid pelvis

At the end of every chapter, *Assess yourself* section which contains frequently asked questions in exams and multiple choice questions, helps you to attain mastery over the subject

## Appendices

1

### ANTENATAL EXAMINATION

**Definition:** It is systematic examination of the pregnant woman externally to know about the pregnant uterus and condition of fetus.

#### Purposes

- To detect the high risk conditions of mother and fetus.
- To promote and maintain physical health.
- To ensure continued medical surveillance and prophylaxis.

## Instruments used in Obstetrics and Gynecological Procedures

### ARTERY FORCEPS



#### Purposes

- To clamp bleeding vessels during hemorrhage.
- To grasp tissue at the time of operation.
- To hold stay sutures.

Appendices are added at the end which include Midwifery procedures & Instruments used in obstetrics & gynecological procedures to improve clinical nursing skills.

## Midwifery and Gynecological Nursing

Placement: Third Year

Total Hours: 140

Midwifery: 120 hours  
Gynecological Nursing: 20 hours

### MIDWIFERY

#### Course Description

This course is designed to help students acquire knowledge and gain skills to meet the needs of women during pregnancy, labor and puerperium and care for the newborn.

Total Hours: 120

Unit No.	Learning objectives	Contents	Hrs	Teaching learning activities	Assessment methods
I	Describe the scope and trends in midwifery	<b>Introduction:</b> <ul style="list-style-type: none"> <li>Definition of midwifery and obstetrical nursing</li> <li>Scope of midwifery</li> <li>Basic competencies of a midwife</li> <li>History of midwifery</li> <li>Trends of maternity services in India</li> <li>Vital statistics related to maternal health in India.</li> </ul>	4	<ul style="list-style-type: none"> <li>Lecture cum discussions</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> <li>Essay type</li> </ul>
II	Describe the anatomy and physiology of female reproductive system	<b>Reproductive system</b> <ul style="list-style-type: none"> <li>Review of structure and function of female reproductive system</li> <li>Female pelvis—structure, types and diameters</li> </ul>	5	<ul style="list-style-type: none"> <li>Lecture cum discussions</li> <li>Demonstrations</li> <li>Charts, specimen models and objects</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> <li>Essay type</li> <li>Viva</li> </ul>
III	Describe the stages of embryological and fetal development	<b>Embryology and fetal development</b> <ul style="list-style-type: none"> <li>Oogenesis, spermatogenesis, fertilization and implantation.</li> <li>Embryology and fetal development</li> <li>Placenta and membranes:                             <ul style="list-style-type: none"> <li>Structure</li> <li>Functions</li> <li>Abnormalities</li> <li>Liquor amni</li> <li>Umbilical cord</li> </ul> </li> </ul>	8	<ul style="list-style-type: none"> <li>Lecture cum discussions</li> <li>Charts</li> <li>Models and objects</li> <li>Specimens</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> <li>Essay type</li> <li>Oral presentation</li> </ul>

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Unit No.	Learning objectives	Contents	Hrs	Teaching learning activities	Assessment methods
		<ul style="list-style-type: none"> <li>Fetal skull:               <ul style="list-style-type: none"> <li>Structure</li> <li>Diameters</li> <li>Fontanels and sutures</li> </ul> </li> <li>Fetal circulation</li> </ul>			
IV	<ul style="list-style-type: none"> <li>Describe the physiological changes in pregnancy and the management of normal pregnancy</li> <li>Demonstrate skill in caring for pregnant women</li> </ul>	<b>Normal pregnancy and its management</b> <ul style="list-style-type: none"> <li>Pre-conception care</li> <li>Genetic counseling</li> <li>Physiological changes in pregnancy</li> <li>Diagnosis of pregnancy               <ul style="list-style-type: none"> <li>History</li> <li>Signs and symptoms</li> </ul> </li> <li>Antenatal care:               <ul style="list-style-type: none"> <li>History taking</li> <li>Calculation of expected date of delivery</li> <li>Examination and investigations</li> <li>Health education and counselling</li> <li>Drugs and immunizations</li> </ul> </li> <li>Minor disorders and their management</li> </ul>	12	<ul style="list-style-type: none"> <li>Lecture cum discussions</li> <li>Demonstration</li> <li>Clinical teaching Simulation</li> <li>Charts and videos</li> <li>SBA module of government of India, handbook for staff nurses (Government of India)</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> <li>Essay type</li> <li>Assessment of skill using checklist</li> </ul>
V	<ul style="list-style-type: none"> <li>Describe the various stages of labor and the role of the midwife in caring for a woman in labor</li> <li>Demonstrate skill in conducting the normal delivery</li> </ul>	<b>Normal labor and its management</b> <ul style="list-style-type: none"> <li>Definition and stages</li> <li>Causes and signs of onset of labor</li> <li>True and false labor</li> <li>First stage of labor:               <ul style="list-style-type: none"> <li>Physiology</li> <li>Monitoring using partograph and its interpretation</li> <li>Care of mother: physical and psychological</li> <li>Pain management</li> <li>Setting up of the labor room including newborn corner</li> </ul> </li> <li>Second stage:               <ul style="list-style-type: none"> <li>Physiology and mechanism</li> <li>Monitoring</li> <li>Conduction of normal delivery</li> <li>Episiotomy</li> <li>Essential newborn care</li> </ul> </li> <li>Third stage:               <ul style="list-style-type: none"> <li>Physiology and signs</li> <li>Active management of third stage</li> <li>Examination of the placenta</li> <li>Episiotomy suturing</li> </ul> </li> <li>Fourth stage:               <ul style="list-style-type: none"> <li>Physiology</li> <li>Care of the mother and baby</li> <li>Postpartum family planning</li> </ul> </li> </ul>	18	<ul style="list-style-type: none"> <li>Lecture cum discussions</li> <li>Demonstrations</li> <li>Case studies</li> <li>Simulation</li> <li>Videos exercises</li> <li>SBA module of government of India, handbook for staff nurses (Government of India)</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> <li>Essay type</li> <li>Assessment of skill using checklist</li> </ul>

Unit No.	Learning objectives	Contents	Hrs	Teaching learning activities	Assessment methods
VI	<ul style="list-style-type: none"> <li>Describe the management of normal newborn</li> <li>Development of skill in caring for the normal newborn</li> </ul>	<b>Management of newborn</b> <ul style="list-style-type: none"> <li>Assessment</li> <li>Physiological adaptation</li> <li>Apgar scoring</li> <li>Examination for defects</li> <li>Breastfeeding- BFHI</li> <li>Care of newborn—Skin, eyes, buttocks, etc.</li> <li>Bonding and rooming in</li> <li>Minor disorders of new born:               <ul style="list-style-type: none"> <li>Birth marks, rashes, skin</li> <li>Infections, sore buttocks,</li> <li>Infection of eyes.</li> </ul> </li> </ul>	14	<ul style="list-style-type: none"> <li>Lecture cum discussion</li> <li>Demonstrations</li> <li>Clinical teaching</li> <li>Chart</li> <li>Videos</li> <li>SBA module, ENBC, NSSK, PPIUCD module, handbook for staff nurses of Government of India</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> <li>Essay type</li> <li>Assessment of skill using checklist</li> </ul>
VII	Describe normal puerperium and the role of midwife in the caring for woman in puerperium	<b>Management of normal puerperium</b> <ul style="list-style-type: none"> <li>Definition and objectives of care</li> <li>Physiological changes</li> <li>Postnatal counseling</li> <li>Lactation and feeding</li> <li>Care during puerperium—breast and perineal care, postnatal exercise, postnatal examination, follow up, family welfare</li> <li>Minor ailments and management</li> <li>Family planning</li> </ul>	10	<ul style="list-style-type: none"> <li>Lecture cum discussion</li> <li>Demonstration</li> <li>Simulation role play SBA module, PPIUCD module, handbook for staff nurses of Government of India</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> <li>Essay type</li> <li>Assessment of skill using checklist</li> </ul>
VIII	<ul style="list-style-type: none"> <li>Describe the complications of pregnancy</li> <li>Demonstrate skills in providing care for women with complicated pregnancy</li> </ul>	<b>Management of complications during pregnancy</b> <ul style="list-style-type: none"> <li>Bleeding in pregnancy               <ul style="list-style-type: none"> <li>Early and late</li> <li>Ectopic pregnancy</li> <li>Abortion</li> <li>Antepartum hemorrhage</li> <li>Vesicular mole</li> </ul> </li> <li>Hyperemesis gravidarum</li> <li>Gestational diabetes mellitus</li> <li>Pregnancy induced hypertension               <ul style="list-style-type: none"> <li>Preeclampsia</li> <li>Eclampsia</li> </ul> </li> <li>Hydromnios—poly and oligo</li> <li>Pelvic inflammatory diseases</li> <li>Intrauterine growth retardation</li> <li>Post maturity</li> <li>Intrauterine death               <ul style="list-style-type: none"> <li>High-risk pregnancy</li> <li>Monitoring—NST, USG</li> <li>Anemia</li> <li>Jaundice</li> <li>Viral</li> <li>Urinary tract infections</li> <li>Heart diseases</li> <li>Diabetes</li> </ul> </li> </ul>	12	<ul style="list-style-type: none"> <li>Lecture cum discussions</li> <li>Case presentation</li> <li>Clinical teaching</li> <li>Videos</li> <li>simulation</li> <li>Case studies and exercises SBA module</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Essay type</li> <li>Objective type</li> <li>Assessment of skill using checklist</li> </ul>

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Unit No.	Learning objectives	Contents	Hrs	Teaching learning activities	Assessment methods
		<ul style="list-style-type: none"> <li>▪ AIDS and STD's</li> <li>▪ Osteomalacia</li> <li>▪ Teenage pregnancy</li> <li>▪ Elderly primigravida</li> <li>▪ Multipara</li> <li>▪ Multiple pregnancy</li> </ul>			
IX	<ul style="list-style-type: none"> <li>• Describe the management high-risk labor</li> <li>• Demonstrate skills in early detection and prompt management of high-risk labor</li> </ul>	<b>Management of high-risk labor</b> <ul style="list-style-type: none"> <li>• Malposition, malpresentations</li> <li>• Contracted pelvis</li> <li>• Abnormal uterine actions</li> <li>• Cervical Dystocia</li> <li>• Premature rupture of membranes, precipitate and prolonged labor, induction of labor obstructed labor,</li> <li>• Obstetrics Emergencies-Cord prolapse, cord presentation, amniotic fluid embolism, obstetric shock, rupture of uterus, shoulder dystocia, vasa previa.</li> <li>• Complications of third stage               <ul style="list-style-type: none"> <li>▪ Postpartum Hemorrhage</li> <li>▪ Atonic uterus</li> <li>▪ Injuries to the birth canal</li> <li>▪ Retained placenta and membranes</li> <li>▪ Inversion of uterus</li> </ul> </li> </ul>	10	<ul style="list-style-type: none"> <li>• Lecture cum discussion</li> <li>• Demonstration</li> <li>• Bed-side clinic</li> <li>• Videos and charts</li> <li>• Clinical teaching</li> <li>• IMPAC module of WHO</li> <li>• MCPC module of Government of India</li> </ul>	<ul style="list-style-type: none"> <li>• Short answers</li> <li>• Objective type</li> <li>• Essay type</li> <li>• Assessment of skill using checklist</li> </ul>
X	<ul style="list-style-type: none"> <li>• Describe the puerperal complications</li> <li>• Demonstrate skill in the management of complications of puerperium</li> </ul>	<b>Management of complications of puerperium</b> <ul style="list-style-type: none"> <li>• Puerperal pyrexia</li> <li>• Puerperal sepsis</li> <li>• Thrombophlebitis and embolism</li> <li>• Breast engorgement, mastitis, breast abscess</li> <li>• Puerperal psychosis</li> </ul>	4	<ul style="list-style-type: none"> <li>• Lecturer cum discussion</li> <li>• Demonstration</li> <li>• Clinical teaching</li> <li>• MCPC module of Government of India</li> </ul>	<ul style="list-style-type: none"> <li>• Short answers</li> <li>• Objective type</li> <li>• Essay type</li> </ul>
XI	<ul style="list-style-type: none"> <li>• Describe the management of high-risk and sick newborn</li> <li>• Demonstrate skills in caring for high-risk and sick newborns</li> </ul>	<b>High-risk and sick newborn</b> <ul style="list-style-type: none"> <li>• Assessment</li> <li>• Nursing care</li> <li>• Management of newborn with:               <ul style="list-style-type: none"> <li>▪ Hyperbilirubinemia</li> <li>▪ Neonatal hypoglycemia</li> <li>▪ Hypothermia</li> <li>▪ Neonatal convulsions</li> <li>▪ Rh incompatibility</li> <li>▪ Small for dates</li> <li>▪ Low birth weight</li> <li>▪ Preterm</li> <li>▪ Asphyxia, RDS</li> <li>▪ Sepsis</li> </ul> </li> </ul>	10	<ul style="list-style-type: none"> <li>• Lecturer cum discussion</li> <li>• Demonstration</li> <li>• Clinical teaching</li> <li>• IMNCI module</li> <li>• SBA module</li> <li>• NSSK module</li> </ul>	<ul style="list-style-type: none"> <li>• Short answers</li> <li>• Objective type</li> <li>• Essay type</li> <li>• Assessment of skill using checklist</li> </ul>

Contd...



Unit No.	Learning objectives	Contents	Hrs	Teaching learning activities	Assessment methods
		<ul style="list-style-type: none"> <li>▪ Birth injuries cephalohematoma caput succedaneum facial and Erb's palsy to torticollis hemorrhage</li> <li>▪ Congenital anomalies</li> <li>• Newborn of HIV positive mother, diabetic mother</li> <li>• Levels of care in NICU</li> </ul>			
XII	Describe the obstetric operations and midwife role in assisting with each one	<b>Obstetric operations</b> <ul style="list-style-type: none"> <li>• Definition, indication and care of women undergoing               <ul style="list-style-type: none"> <li>▪ Induction of labor</li> <li>▪ Manual removal of placenta</li> <li>▪ Version</li> <li>▪ Forceps delivery</li> <li>▪ Vacuum extraction</li> <li>▪ Cesarean section</li> <li>▪ Sterilization</li> <li>▪ Destructive surgeries</li> <li>▪ Amnio infusion</li> <li>▪ Manual vacuum aspiration, dilatation and evacuation, dilatation and curettage</li> </ul> </li> <li>• Post abortion care</li> </ul>	10	<ul style="list-style-type: none"> <li>• Lecture cum discussion</li> <li>• Clinical teaching Videos</li> <li>• Post abortion care module of Gol</li> </ul>	<ul style="list-style-type: none"> <li>• Short answers</li> <li>• Objective type</li> <li>• Essay type</li> <li>• Assessment of skill using checklist</li> </ul>
XIII	Describe the midwife's role in the administration of drugs for women during pregnancy labor and post-partum period	<b>Drugs used in obstetrics</b> <ul style="list-style-type: none"> <li>• Indication, dose, action, contraindication, side effects and responsibilities in the administration of:               <ul style="list-style-type: none"> <li>▪ Oxytocin</li> <li>▪ Uterotonics</li> <li>▪ Tocolytics</li> <li>▪ Antihypertensives</li> <li>▪ Anticonvulsants</li> <li>▪ Anesthesia and analgesia</li> </ul> </li> <li>• Drugs used for newborn</li> <li>• Teratogens—effects of drugs on mother and baby</li> </ul>	4	<ul style="list-style-type: none"> <li>• Lecture cum discussion</li> <li>• Drug presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Short answers</li> <li>• Objective type</li> <li>• Essay type</li> </ul>
XIV	Describe the ethical and legal issues related to midwifery	<b>Ethical and legal aspects related to midwifery</b> <ul style="list-style-type: none"> <li>• Maternal and newborn death review</li> <li>• Mother and child tracking system</li> </ul>	2	<ul style="list-style-type: none"> <li>• Lecture cum discussion</li> <li>• Presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Short answers</li> <li>• Objective type</li> </ul>

# GYNECOLOGICAL NURSING

## Course Objective

The students shall be able to identify different gynecological disorders and diseases and gain skills in providing nursing care to women suffering from them.

**Total Hours: 20**

Unit No.	Learning objectives	Contents	Hrs	Teaching learning activities	Assessment methods
I	<ul style="list-style-type: none"> <li>Define the terms used in gynecology</li> <li>Demonstrate the skills of gynecology history taking, conducting examination and investigation</li> </ul>	<b>Introduction</b> <ul style="list-style-type: none"> <li>Definition of terms</li> <li>History</li> <li>Examination</li> <li>Investigation</li> </ul>	2	<ul style="list-style-type: none"> <li>Lecture cum discussion</li> <li>Demonstration</li> <li>Videos</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> <li>Essay type</li> <li>Return demonstration</li> </ul>
II	Describe the physiology, psychology and pathology of puberty	<b>Puberty</b> <ul style="list-style-type: none"> <li>Definition</li> <li>Development of sex organs in females and sexuality</li> <li>Review of menstrual cycle</li> <li>Premenstrual syndrome</li> <li>Disorders of menstruation, dysmenorrhea, cryptomenorrhea, dysfunctional uterine bleeding</li> </ul>	3	<ul style="list-style-type: none"> <li>Lecture cum discussion</li> <li>Clinical teaching</li> <li>Videos</li> <li>Charts</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> <li>Essay type</li> </ul>
III	Describe the management of couples with fertility related problems	<b>Fertility and infertility</b> <ul style="list-style-type: none"> <li>Definition</li> <li>Causes—both in male and female</li> <li>Investigation</li> <li>Management</li> <li>Artificial reproductive techniques</li> </ul>	2	<ul style="list-style-type: none"> <li>Lecture cum discussion</li> <li>Clinical teaching</li> <li>Videos</li> <li>Role play</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> <li>Essay type</li> </ul>
IV	Demonstrate skills in the management of clients with various pelvic infections	<b>Pelvic infections</b> <ul style="list-style-type: none"> <li>Vulva—vulvitis, bartholinitis</li> <li>Vagina—vaginitis, trichomonas vaginitis, moniliasis</li> <li>Metritis, salpingitis, oophritis</li> <li>Cervical erosions</li> <li>Pelvic abscess</li> <li>Chronic infection</li> <li>Pelvic inflammatory disease</li> <li>Pelvic tuberculosis</li> </ul>	4	<ul style="list-style-type: none"> <li>Lecture cum discussion</li> <li>Clinical teaching</li> <li>Videos</li> <li>Prevention of STI module of NACO</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> <li>Essay type</li> </ul>

Contd...

Unit No.	Learning objectives	Contents	Hrs	Teaching learning activities	Assessment methods
		<ul style="list-style-type: none"> <li>Sexually transmitted diseases               <ul style="list-style-type: none"> <li>Syphilis</li> <li>Gonorrhea</li> <li>Warts</li> <li>HIV</li> </ul> </li> <li>Syndromic case management</li> </ul>			
V	Describe the care of women with gynecological disorders	<b>Gynaecological disorders</b> <ul style="list-style-type: none"> <li>Retroversion, retroflexion</li> <li>Fistulas</li> <li>Uterine displacement and prolapse (Procidentia)</li> <li>Uterine malformations</li> <li>Cysts and fibroids</li> <li>Uterine polyps</li> <li>Tumors of the reproductive tract—benign and malignant</li> <li>Palliative care and rehabilitation</li> </ul>	5	<ul style="list-style-type: none"> <li>Lecture cum discussion</li> <li>Case presentation</li> <li>Demonstration</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> <li>Essay type</li> </ul>
VI	Describe the care of the woman with breast disorders	<b>Breast disorders</b> <ul style="list-style-type: none"> <li>Review mastitis, breast engorgement, breast abscess</li> <li>Tumors of the breast benign and malignant</li> </ul>	2	<ul style="list-style-type: none"> <li>Lecture cum discussion</li> <li>Clinical teaching</li> <li>Videos</li> <li>Role play</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> <li>Essay type</li> </ul>
VII	Describe the care of women with menopause	<b>Menopause</b> <ul style="list-style-type: none"> <li>Definition and physiological changes</li> <li>Signs and symptoms</li> <li>Health education and counseling</li> <li>Hormone replacement therapy</li> <li>Surgical menopause</li> </ul>	2	<ul style="list-style-type: none"> <li>Lecture cum discussion</li> <li>Case histories</li> </ul>	<ul style="list-style-type: none"> <li>Short answers</li> <li>Objective type</li> <li>Essay type</li> </ul>

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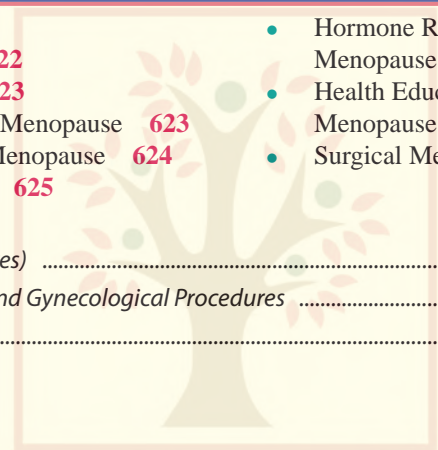
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# Chapter 5

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## Normal Labor and its Management

### Learning Objectives .....

**Upon completing this chapter, the learner will be able to:**

- Explain various stages of labor and the physiological events in different stages of labor
- Describe the mechanism of normal labor
- Demonstrate placental examination
- Discuss in detail for episiotomy, its risks and benefits
- Enumerate the nursing care steps during each stage of labor

- ▲ Definitions
- ▲ Stages of Labor
- ▲ Causes of Onset of Labor
- ▲ Signs of Labor
- ▲ First Stage of Labor
- ▲ Second Stage of Labor
- ▲ Third Stage of Labor
- ▲ Fourth Stage of Labor

## DEFINITIONS

- **Prelabor:** Means the premonitory signs of labor (*i.e. lightening, cervical ripening, taking up of the cervix and false labor pains*) that occur prior to the onset of true labor pains, is called Prelabor. It may last from few days to few weeks and is associated with increased oxytocin receptors in myometrium.
- **Labor:** The process that involves a series of events that take place in the genital organs in order to propel the products of conception (fetus, placenta and membranes) out of the uterus through the birth canal is called labor.
- **Normal labor (Eutocia):** Labor is said to be normal if:
  - Spontaneous in nature and occurs at term.
  - Fetus is in vertex presentation. Completed in normal time period. Natural termination (minimal use of instrumental aids).
  - No complications to mother and fetus.
- **Abnormal labor (Dystocia):** Any change in criteria of normal labor as described in above definition is called abnormal labor or dystocia.

Labor pains that start prior to 37 completed weeks is called **Preterm labor**. If labor pains occur between 38 and 42 weeks, it is **termed labor**. **Post-term labor** occurs after completing 42 weeks.

Nursing Knowledge Tree  
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## STAGES OF LABOR

- **First stage:** It starts with onset of true labor pains and ends with full dilatation of cervix (10 cm) approximately. **Duration is approximately 12 hours in primipara and 6 hours for multipara.**
- **Second stage:** It starts from full dilatation of cervix till expulsion of fetus from birth canal. It has two phases:
  - i. **Propulsive phase:** Starts from full dilatation of cervix up to the descent of the presenting part to the pelvic floor.
  - ii. **Expulsive phase:** It is characterized by maternal bearing down efforts and ends with expulsion of fetus from birth canal.

*Duration of second stage is approximately 2 hours in primipara and 30 minutes for multipara.*
- **Third stage:** It starts after the expulsion of fetus from birth canal and ends with expulsion of placenta and membranes.
 

*Duration is approximately 15 minutes in both primipara and multipara, however its duration is reduced to 5 minutes with active management. Nowadays active management is encouraged.*
- **Fourth stage:** It is the observational stage in which both mother and baby are observed for at least 1 hour to ensure the wellbeing of both.

## CAUSES OF ONSET OF LABOR

The exact cause is unknown. Some of the hypotheses are as listed below:

- **Uterine distension:** The stretching effect on the myometrium by growing fetus and liquor amnii can initiate the labor pains.
- **Pressure of the presenting part** on the nerve ending in the cervix may stimulate a nerve plexus known as cervical ganglion that can initiate the onset of labor.
- **Myometrial involvement:** Estrogen increases oxytocin receptors in myometrium and decidua.
- **Oxytocin stimulation theory:** The uterus becomes increasingly sensitive to oxytocin as pregnancy progresses and its maximum at term (37 weeks)
- **Estrogen stimulation theory:** Estrogen increases the release of oxytocin from maternal posterior pituitary. It stimulates irritability of uterine muscles and enhances uterine contractions.
- **Progesterone withdrawal theory:** In pregnancy, progesterone inhibits contractions, but at term progesterone synthesis falls and estrogen increases. There is a change in estrogen: progesterone ratio, which stimulates prostaglandin synthesis.
- **Prostaglandin stimulation theory:** Prostaglandin stimulates smooth muscles to contract, therefore initiate the labor.
- **Fetal cortisol theory:** Estrogen level increases due to the effects of fetal cortisol in late pregnancy.
- **Fetoplacental contribution:** Due to unknown factors, fetal pituitary is stimulated that increases the release of adrenocorticotrophic hormone (ACTH) and stimulates the fetal adrenal to secrete cortisol that further accelerates the production of estrogen and prostaglandins from the placenta.

## SIGNS OF LABOR

### Prelabor or Premonitory Signs of Labor

- It may begin 2–3 weeks prior to the onset of true labor in primipara and a few days before in multipara. These signs are lightening, cervical changes, taking up of cervix, increased frequency of micturition, appearance of false labor pains, gastrointestinal upset, premature rupture of membranes (PROM) and energy spurt.
  - **Lightening:** A few days/weeks prior to the onset of labor, presenting part sinks into the true pelvis. It is a welcome sign as it rules out cephalopelvic disproportion and other conditions preventing the head from entering the pelvic inlet (Fig. 1).

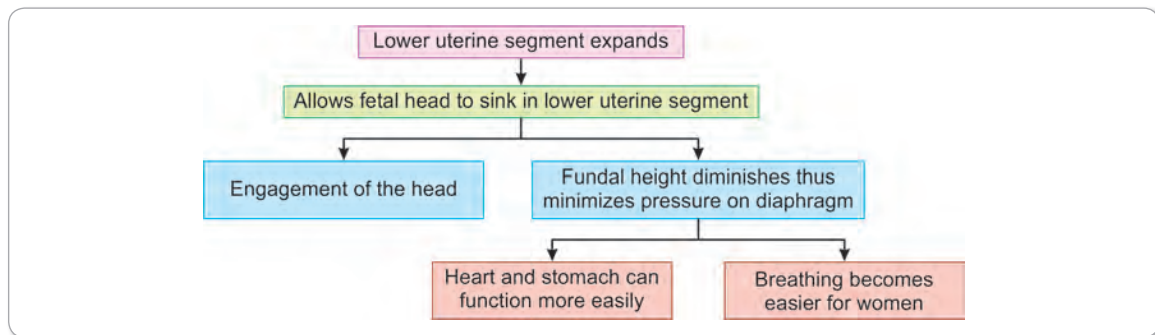
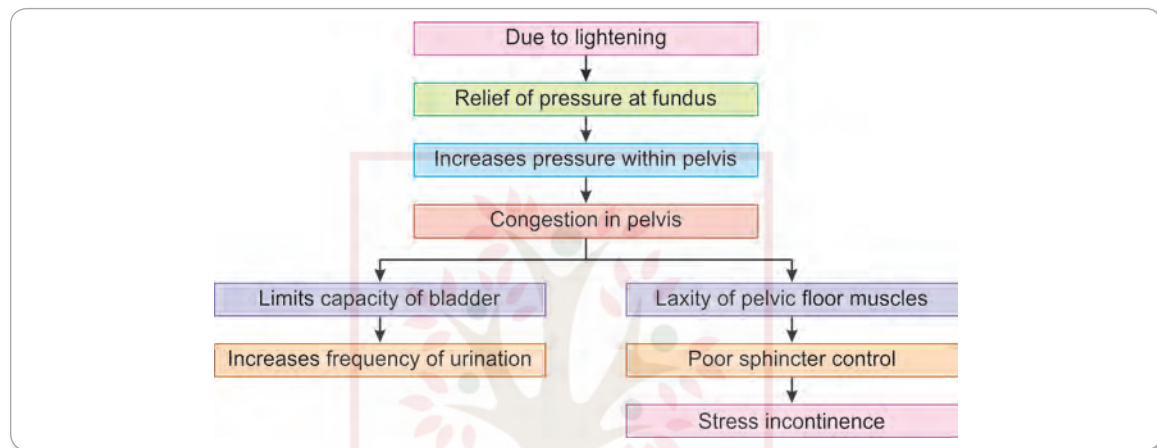


Fig. 1: Lightening



- **Cervical changes:** The cervix becomes ripe. A ripe cervix is soft, less than 1.3 cm in length, allows to admit one finger and is dilatable.
- **Cervical effacement:** It is a process by which muscular fibers of the cervix are pulled upward and merge with the fibers of the lower uterine segment. In primigravidae, effacement precedes dilatation of the cervix, whereas in multipara, both occur simultaneously.
- **Frequency of micturition:** It means frequent urination. It is due to pressure by engaged presenting part (Fig. 2).



**Fig. 2:** Process leading to increased frequency of micturition

- **Appearance of false labor pains:** False labor pains consist of painful uterine contractions that have no measurable progressive effect on the cervix. It may be due to the stretching of cervix and lower uterine segment with consequent irritation of the neighboring ganglia. It may occur by 1–2 weeks prior to onset of true labor pains in primipara and by a few days in multipara.
- **Gastrointestinal upset:** In the absence of any causative factors for occurrence of diarrhea, indigestion, nausea and vomiting, it might be indicative of impending labor. No explanation for this is known, but some women do experience one to all of these signs.
- **PROM:** Normally membranes rupture at the end of 1st stage of labor but in about 12% of woman it may rupture before the onset of labor. Approximately, 80% of woman with PROM have spontaneous onset of labor within 24 hours.
- **Energy spurt:** Many women experience an energy spurt approximately 24–48 hours before the onset of labor. There is no known explanation for this, other than it is a nature's way of giving energy needed for labor. A woman should be informed about this and advised to conserve it for labor.
- **Late pregnancy feeling:** Mood swings-both elation and depression in later weeks occur just prior to onset of labor.

## True Labor

The features of true labor pains are:

- Painful, rhythmic uterine contractions with hardening of uterus.
- Progressive dilatation and effacement of cervix.
- Descent of the presenting part.

- Appearance of “show” blood stained mucoid discharge.
- Formation of bag of waters.
- True labor pain is not relieved by enema and sedatives.

Table 1 enlists the differences between true and false labor pains.

**TABLE 1: Differences between true and false labor pains**

Features	True labor pains	False labor pains
Location of pain	Lower abdomen and back, radiating to thighs	Lower abdomen only
Characteristics of pain	Intermittent in nature with increased intensity, frequency and duration	Pain is continuous without any rhythmicity
Uterine changes	Hardening of uterus due to retraction of muscle fibers	No hardening of uterus
Cervical changes (dilatation and effacement)	Present	Absent
Bag of waters	Formed	Not formed
Show	Present	Absent
Relief with enema/sedation	No	Yes
Cause of pain	Due to uterine contraction	Due to loaded rectum

## FIRST STAGE OF LABOR

It starts from the onset of true labor pains and ends till full dilatation of the cervix (10 cm). Duration is approximately 12 hours for primi- and 6 hours for multipara.

The first stage is divided into three phases:

1. **Latent phase:** It is defined as the period between the onset of true labor pains and ends with cervical dilatation of 3–4 cm. Rate of cervical dilatation is about 0.35 cm/hr.
  - **Duration:** In primigravida average duration is 8 hours and in multipara it is 5 hours.
  - **Frequency and interval:** During this phase, initially contraction comes at interval of 15–30 minutes with duration of about 30 seconds. But gradually the interval becomes shortened with increasing intensity and duration, and contraction comes at interval of 5–7 minutes and lasts for about 40 seconds.
2. **Active phase:** The active phase of labor begins when the cervix is 3–4 cm dilated and ends when cervical dilatation is of 8 cm. During this phase, contraction occurs every 3–5 minutes and lasts up to 60 seconds.
  - **Duration:** In primigravida 6 hours and multigravida 4 hours.
  - **Dilatation rate:** 1.2–1.5 cm/hr
3. **Transition phase:** The last and shortest part of 1st phase of labor is transition; it is more intense phase of a laboring woman. Contractions occur every 2–3 minutes lasting 60–90 seconds.
  - **Duration:** In primigravida it lasts for 2 hours and in multigravida the duration is 1 hour.

## Signs and Symptoms

- Contraction and retraction of uterine muscles.
- Formation of upper and lower uterine segments.
- Development of retraction ring (Bandl's ring)
- Cervical dilatation and effacement

- Bloody show
- Formation of bag of waters
- Rupture of membranes.

**Note:** All these points are discussed in detail in physiology of 1st stage of labor.

## Physiology

Physiology of labor has three components and the brief summary is as follows:

### 1. Uterine changes

- Fundal dominance
- Polarity
- Contraction and retraction
- Formation of upper and lower uterine segment
- Development of retraction ring (Bandl's ring)

### 2. Cervical changes

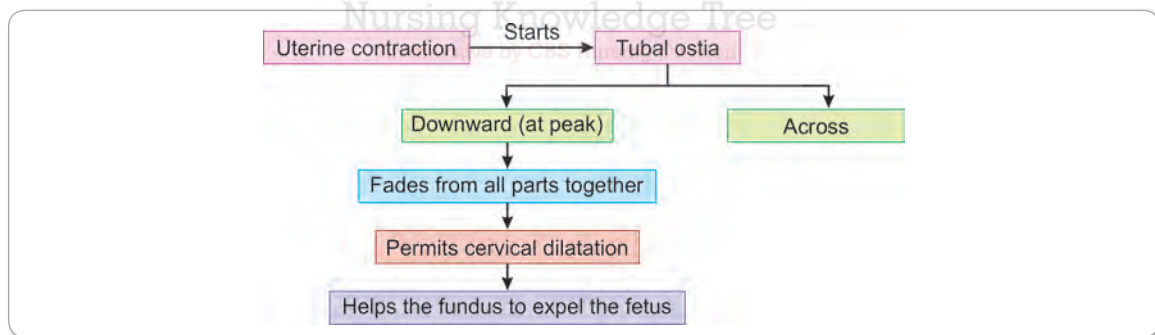
- Cervical ripening
- Cervical effacement
- Cervical dilatation
- Bloody show

### 3. Mechanical factors

- Formation of bag of waters
- General fluid pressure
- Rupture of membranes
- Fetal axis pressure
- Descent of the presenting part

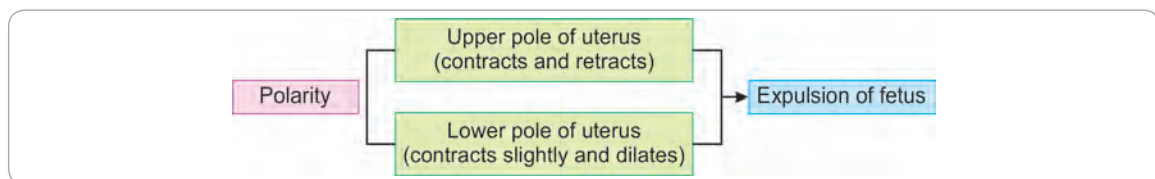
## Uterine Changes

- **Fundal dominance:** Each uterine contraction starts in the fundus near one of the cornua and spreads across downwards. The contraction lasts longest in the fundus where it is also most intense, but the peak is reached simultaneously over the whole uterus and the contraction fades from all parts together (Fig. 3).



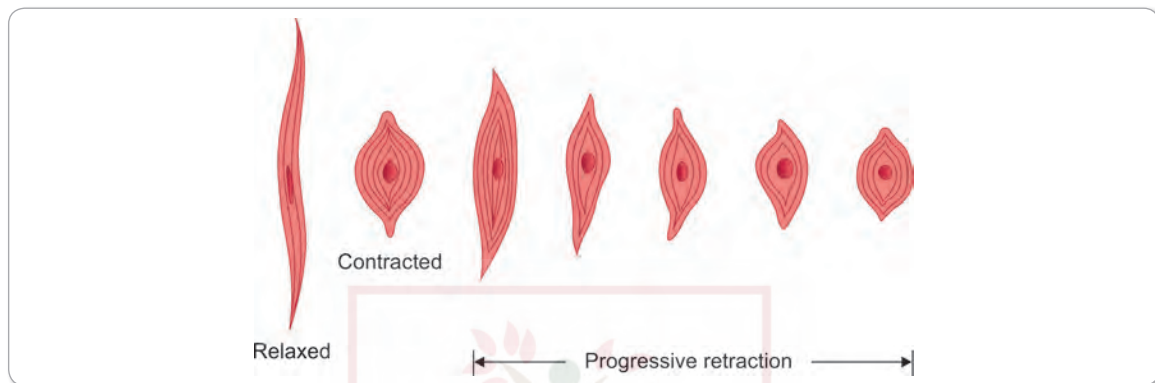
**Fig. 3:** Fundal dominance during labor

- **Polarity:** It is the neuromuscular harmony between upper and lower pole of uterus throughout the labor (Fig. 4).



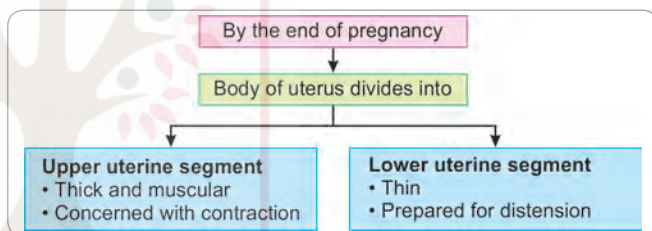
**Fig. 4:** Phenomenon of polarity

- **Contraction and retraction:** Contraction is temporary shortening of muscle fibers followed by relaxation. Relaxation is regaining of original length of muscle fibers. Retraction is a phenomenon of the uterus in labor in which muscle fibers are permanently shortened once and for all (Fig. 5).

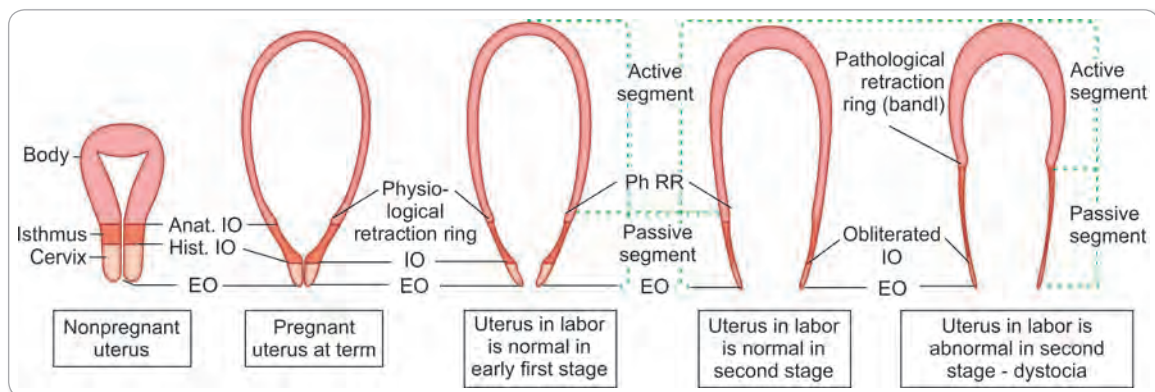


**Fig. 5:** Muscle fibers showing contraction and retraction

- **Formation of upper and lower uterine segments:** Before the onset of labor, there is no complete anatomical or functional division of the uterus. During labor, the demarcation of an active upper segment and a relative passive lower segment is more pronounced. The wall of the upper segment becomes progressively thickened with progressive thinning of the lower segment. This is pronounced in late first stage, especially after rupture of the membranes and attains its maximum in second stage (Fig. 6).
- **Development of retraction ring (Bandl's ring):** When upper uterine segment contracts and retracts, the lower segment thins out to accommodate the presenting part and the ridge is formed between upper and lower uterine segment called Bandl's ring (Fig. 7).



**Fig. 6:** Formation of upper and lower uterine segments

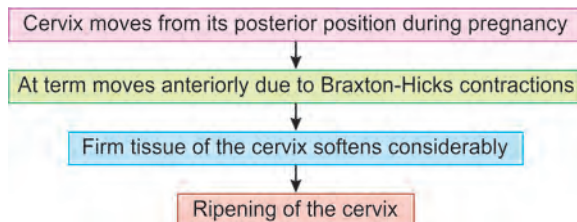


**Fig. 7:** Formation of retraction ring or Bandl's ring

**Abbreviations:** EO, external OS; Hist, histological internal OS; IO, internal OS; Ph RR, physiological retraction ring

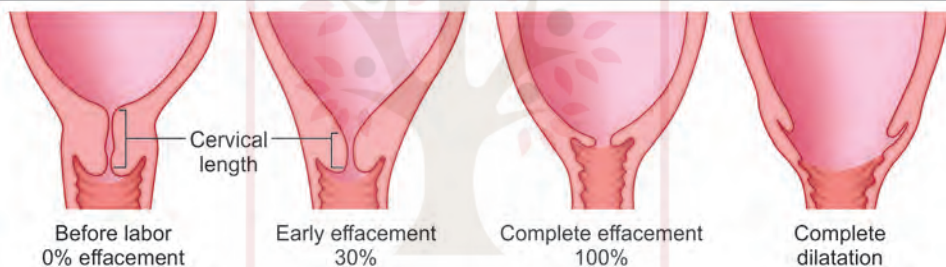
## Cervical Changes

- **Cervical ripening:** It refers to the softening of the cervix that typically begins prior to the onset of labor and is necessary for cervical dilatation and the passage of the fetus (Fig. 8).



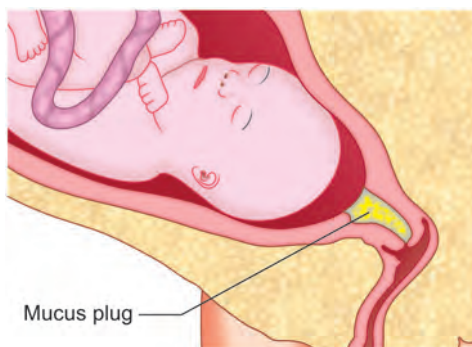
**Fig. 8:** Process of ripening of cervix

- **Cervical effacement:** It is defined as the thinning of the cervix and shortening of the cervical canal (normal length of 2–3 cm) (Fig. 9).



**Fig. 9:** Cervical effacement and dilatation  
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- **Cervical dilatation:** It is the process of enlargement of external os from closed external os to permit passage of fetal head. Full dilatation of cervix is 10 cm.
- **Bloody show:** It is defined as expulsion of mucus plug stained with blood (Fig. 10). It is caused by separation of the membranes due to over stretching of the lower uterine segment.



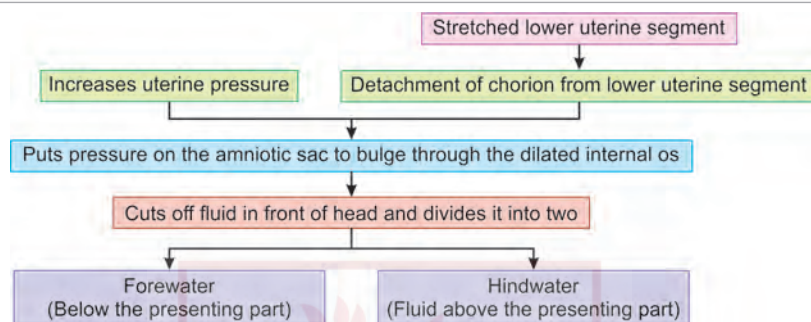
**Fig. 10:** Mucus plug (removal of this plug leads to bloody show)



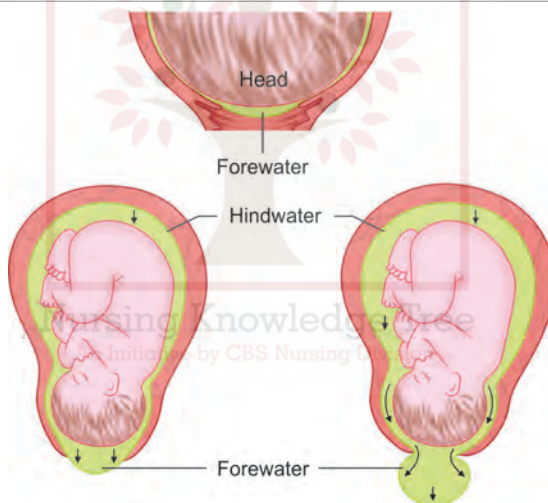
## Mechanical Factors

- **Formation of bag of waters**

Process of formation of bag of water have been discussed in Figures 11 and 12.

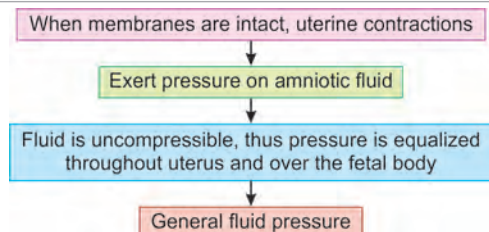


**Fig. 11:** Process of formation of bag of waters



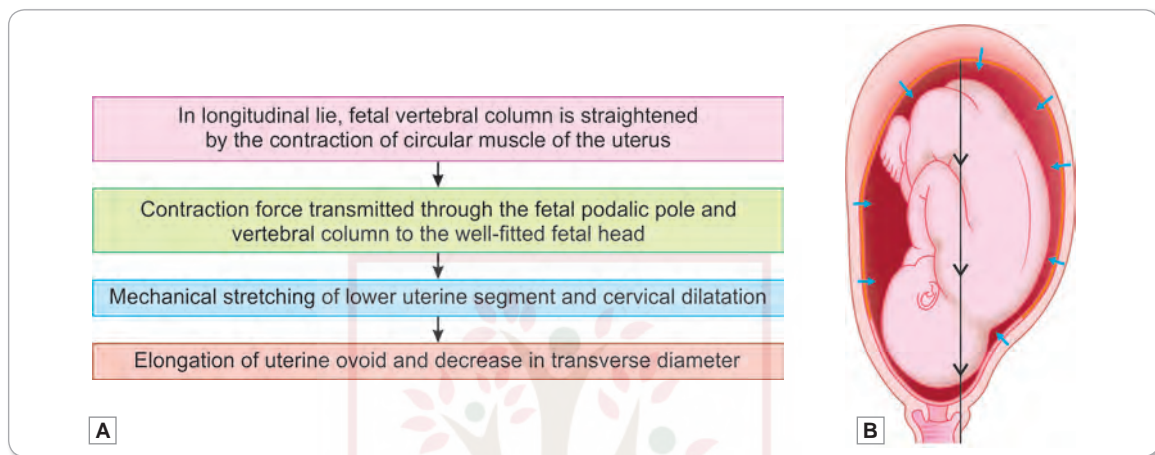
**Fig. 12:** Bag of waters

- **General fluid pressure:** While the membranes remain intact, the pressure of the uterine contractions is exerted on the fluid and as fluid is not compressible, the pressure is equalized throughout the uterus and the fetal body; it is known as general fluid pressure or fetal axis pressure (Fig. 13).



**Fig. 13:** Formation of general fluid pressure

- **Rupture of membranes:** It is a term used during pregnancy to describe rupture of the amniotic sac. Normally, it occurs spontaneously at full term either during or at the beginning of labor. Rupture of membranes is also known as “breaking the water” or as one’s “water is breaking”.
- **Fetal axis pressure** (Figs 14A and B):



**Figs 14A and B:** Formation of fetal axis pressure

- **Descent of the presenting part:** If there is no undue bony or soft tissue obstruction, descent is a continuous process. It is slow or insignificant in first stage but pronounced in second stage. Presenting part is expected to reach the pelvic floor by the time the cervix is fully dilated.

## Monitoring using Partograph and its Interpretation

When a woman comes to the hospital, it is important to note whether she is in labor or not. During assessment the following points are to be noted:

- Admit the mother in labor room and perform the complete procedures, such as changing to hospital gown, applying identification band and completing charts.
- **History taking:** This consists of basic evaluation of the past clinical conditions. Enquiry is to be made about the onset of labor pains or leakage of liquor if any. Thorough, general and obstetrical examinations including vaginal examination are to be carried out and recorded. Records or antenatal visits, investigation reports and any specific treatment given, if available, are to be reviewed.
- Orient patient to labor and delivery rooms.
- Explain admission protocol, labor process and management plans.
- Carry out perineal shave and administer enema if not contraindicated.
- Start intravenous line if indicated and administer fluids.
- Provide physical and psychological care and attend to comfort needs.
- Monitor and evaluate maternal well-being, fetal well-being and progress of labor by using partograph.

## Partograph

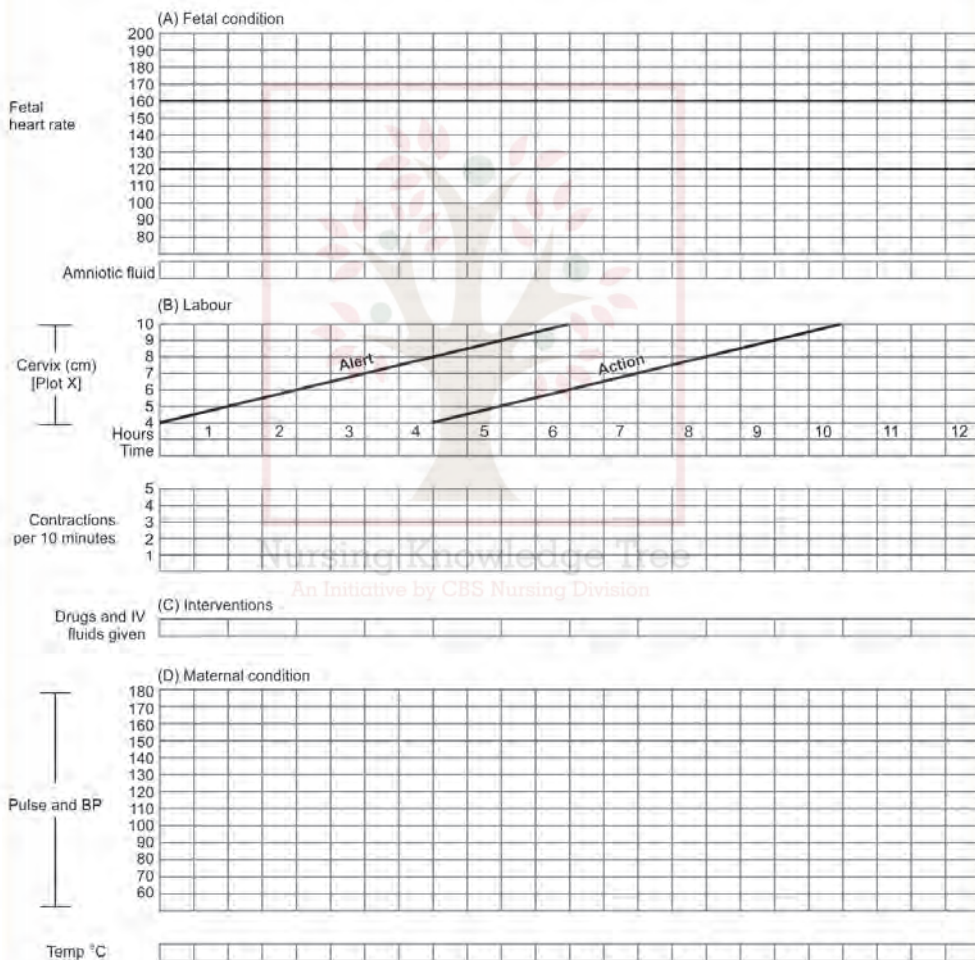
Partograph (Fig. 15) is a composite graphical record of key data (maternal and fetal) during labor, entered against time on a single sheet of paper.

# THE SIMPLIFIED PARTOGRAPH

## Identification Data

Name: \_\_\_\_\_ W/o: \_\_\_\_\_ Age: \_\_\_\_\_ Parity: \_\_\_\_\_ Reg. No.: \_\_\_\_\_

Date & Time of admission: \_\_\_\_\_ Date & Time of ROM: \_\_\_\_\_



Initiate plotting on alert line

Refer to FRU when ALERT LINE is crossed



Ministry of Health & Family Welfare  
Government of India



Fig. 15: Partograph

## Components of Partograph and its Interpretation

- **Patient identification:** Includes patient name, gravida, para, hospital name, consultant name, period of gestation.
- **Time:** Recorded at hourly interval. Zero time for spontaneous labor is the time of admission in the labor ward and for induced labor is the time of induction.
- **Fetal heart rate:** Recorded every half hourly in 1st stage and every 15 minutes in 2nd stage or following rupture of membranes. Normal fetal heart rate (FHR) is 110–150 beats per minute measured by fetoscope or Doppler ultrasonic cardiography.
- **State of membranes and color of liquor:** If membranes are intact, mark 'I', ruptured 'R'. If liquor is clear, mark 'C', if meconium stained, mark 'M'.
- **Cervical dilatation:**
  - In latent phase: Cervical dilatation up to 4 cm and rate of dilatation is 0.35 cm/hr.
  - In active phase: Start with dilatation of 4 cm and ends till 8 cm. Rate of dilatation is 1.2–1.5 cm/hr.
  - In transition phase: Start with dilatation of 8 cm and ends with 10 cm. Rate of critical dilatation is 1.5 cm/hr.

**In cervicograph:** The alert line starts at 4 cm (WHO) of cervical dilatation and ends at 10 cm dilatation. The action line is drawn 4 hours to the right and parallel to the alert line. In normal labor, cervical dilatation (cervicograph) should be either on the alert line or left to it. When it falls on Zone 2, it is abnormal and need to be critically assessed. When it falls in zone 3, case should be reassessed by a senior person. Decision is to be made for termination of labor [cesarean section/or for augmentation of labor artificial rupture of membranes (ARM)/Oxytocin]

**Descent of presenting part:** Rate of descent of presenting part is less than 1 cm/hr in primi- and <2 cm/hr in multipara.

- **Uterine contractions:** The squares in vertical columns are shaded according to duration and intensity. The contractions are weak (<20 sec), moderate (20–40 sec) and strong (>40 sec).
  - **During latent phase:** Contractions come at interval of 15–30 minutes and last for 30 seconds.
  - **In active phase:** Contractions come at interval of 3–5 minutes and lasts up to 60 seconds.
  - **In transition phase:** Contractions occur every 2–3 minutes lasting 60–90 seconds
- **Drugs and fluids:** Concentration of oxytocin in the upper box and dose (mIU/min) in the lower box. Any drugs (like diuretic, anticonvulsant, and antihypertensive, etc.) or fluids given during the time of labor are to be recorded carefully.
- **Blood pressure:** Recorded every 2 hourly and pulse at every 30 minutes.
- **Temperature:** Temperature to be recorded every 4 hourly.
- **Urine Analysis:** Check the urine volume and the presence of acetone bodies, proteins and glucose.

## Advantages of Partograph

- A single sheet of paper can provide details of necessary information at a glance.
- No need to record labor events repeatedly.
- It can predict deviation from normal labor.
- It reduces the incidence of prolonged labor and cesarean section rate.
- It saves time.
- Transfer of information becomes easy when labor status changes.
- Helpful to reduce maternal morbidity and mortality, perinatal morbidity and mortality rates.



## Care of Mother: Physical and Psychological

- **General:**
  - Aseptic precautions should be taken throughout the labor process.
  - Continuous emotional support, encouragement and assurance are to be given to keep up the morale of the mother
  - Constant supervision is required.
- **Careful examination:** A complete and careful examination of the woman is important. Physical and pelvic examination is carried out and laboratory tests are also performed.
- **Prevention of infection:** To prevent infection, aseptic technique should be followed during vaginal examination and hygiene of the woman should be maintained throughout the labor.
- **Perineal preparation:** Shave the perineal area for easy viewing. Vulval toileting is also to be done.
- **Rest:** Generally, a woman in early normal labor may not be confined to bed. While in bed she may take any comfortable position, advise the mother not to lie down in dorsal supine position so as to prevent aortocaval compression.
- **Ambulation:** If the membranes are intact, the patient is allowed to walk. This prevents venacaval compression and encourages descent of the head.
- **Bowel:** During vaginal examination if rectum feels loaded, soap and water enema is given in early stage to prevent soiling of the perineum during the time of delivery. Loaded bowel also inhibits uterine contractions.
- **Bladder care:** Mother is encouraged to pass urine by herself as full bladder often inhibits uterine contractions and may lead to infection or injury to the urinary bladder itself. If the woman cannot go to toilet, provide bedpan or catheterization should be done with strict aseptic precautions.
- **Diet:** There is delayed emptying of the stomach in labor so advise the woman not to take solid food during active labor. Fluid in the form of plain water, ice chips or fruit juice may be given in early labor. In case of prolonged labor, 5% dextrose may be started.
- **Relief of pain:** Pethidine is an effective analgesic. Dose given during labor: 50–100 mg IM. Metoclopramide 10 mg IM is commonly given to combat vomiting due to pethidine.
- **Vital signs:**
  - **Maternal:** Pulse is recorded every 30 minutes and is marked with dot (.) in the partograph. Blood pressure is recorded at every 1 hour and marked with (↑) Temperature is recorded at every 2 hours.
  - **Fetal:** Fetal vital signs should be noted every half hour in the first stage and every 15 minutes in second stage or following rupture of membranes. Fetal heart rate should be recorded immediately after uterine contractions. The count should be made for 60 seconds. Normal FHR ranges from 110 to 150 beats/minutes.
- **Abdominal palpation:**
  - Note the frequency, intensity and duration of contractions. The number of contractions in 10 minutes and duration of each contraction in seconds are recorded in the partograph.
  - Note the position and presentation of the fetus.
  - Note the descent of the presenting part.
- **Vaginal examination:** Vaginal examination should be kept as minimum (at least 4 hourly) to avoid risk of infection and the following points are to be noted:
  - Dilatation of the cervix
  - Position of head and degree of flexion
  - Station of head
  - Color of liquor
  - Degree of molding of head.

- **Intake and output:** Careful recording of intake/output chart is to be done. Maintain intake/output chart every 4 hourly.
- **Emotional support:**
  - Mother is supported emotionally.
  - She should be guided and informed about the observations and actions.
  - Maintain good interpersonal relations with the mother so that she can verbalize her feelings during the time of labor.
  - Allow any family member/husband to stay with the mother, with which mother feels comfortable.

## Pain Management

It is by nature that delivery takes place with labor pains and the pains are so intense that sometimes a woman becomes anxious. Labor pain is experienced by most of the women with satisfaction at the end of a successful labor. Pain during labor results from a combination of uterine contractions and cervical dilatation. The most distressing time during the whole labor is just prior to full dilatation of the cervix. Antenatal classes, sympathetic care and encouraging environment during labor can reduce the need of analgesia. The factors which affect the intensity and amount of pain experienced by a woman in labor are:

- Duration and intensity of uterine contractions
- Degree of dilatation of cervix
- Distention of perineal tissues
- Parity (primipara needs pain management more frequently than multipara)
- Pain threshold of the woman
- Coping mechanisms
- Communication pattern
- Cultural characteristics
- Surrounding environment

### Methods of Pain Relief

#### Pharmacological Methods

- **Sedatives and analgesics:** Commonly used sedatives and analgesics in labor are shown in Table 2:

**TABLE 2: Commonly used sedatives and analgesics**

Drug	Usual dose	Route	Frequency	Neonatal half-life (approx)
Pethidine	50–100 mg	IM	4 hours	13–20 hours
Fentanyl	50–100 µg	IV	1 hour	5 hours
Morphine	10 mg	IM	4 hours	7 hours
Meperidine	5–25 mg	IV/IM	4 hours	–

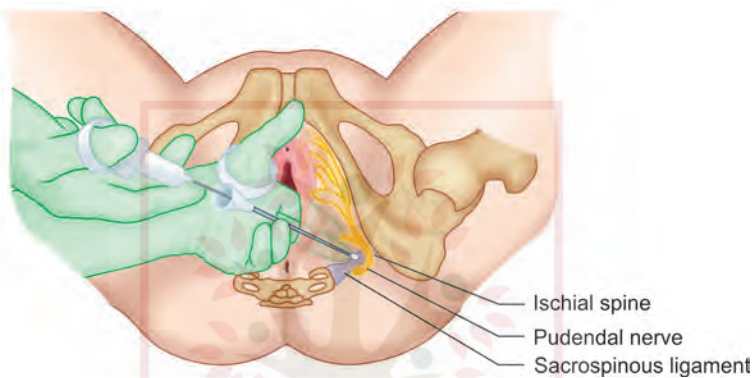
- **Inhalational agents:** Commonly used inhalational agents used during labor are entonox, halothane and methoxyflurane. Ethnox is made up of 50% nitrous oxide and 50% oxygen, and is administered by face mask or inhaler. Halothane is helpful for uterine relaxation but causes respiratory depression and postpartum hemorrhage.

#### Anesthesia

- **Regional anesthesia:** In regional anesthesia, injection is given to block the transmission of painful stimuli from the uterus, cervix, vagina and perineum to the thalamic pain center in the brain. Injection of the local anesthetic can be given once or continuously. The methods used are as follows:



- **Paracervical block:** In this, local anesthetic injection is given transvaginally, near the outer rim of the cervix. It is helpful to relieve pain caused by cervical dilatation.
  - **Side effects:** In mother, it causes systemic toxic reaction and hematoma reaction.
  - **In fetus:** Bradycardia, acidosis and even death. It is the responsibility of the nurse to check the vital signs of the mother and FHR periodically.
- **Pudendal nerve block:** In this, injection is given around the pudendal nerve. It is given prior to episiotomy suturing or forceps delivery (Fig. 16).
  - **Side effect:** Vulval hematoma.



**Fig. 16:** Pudendal nerve block

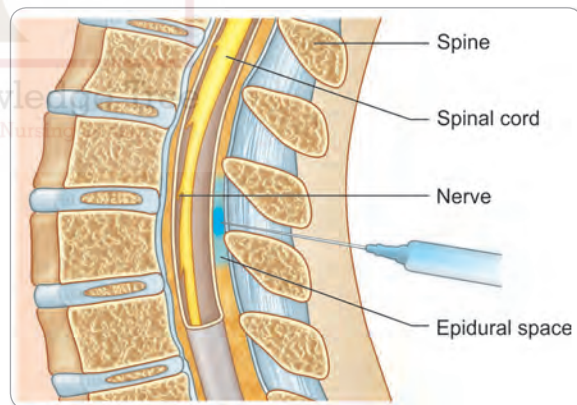
- **Epidural analgesia:** When complete relief of pain is needed throughout labor, epidural analgesia (Fig. 17) is the safest and simplest method for procuring it. A lumbar puncture is made between  $L_2$  and  $L_3$  with the epidural needle. Bupivacaine 0.5% is injected in epidural space. For complete analgesia a block from  $T_{10}$  to  $S_5$  is needed.

- **Nursing responsibility:** Check blood pressure, pulse and FHR every 15 minutes.
- **Side effects:** Hypotension, pain at the site of insertion, back pain, post spinal headache, injury to nerves, convulsions, pyrexia.

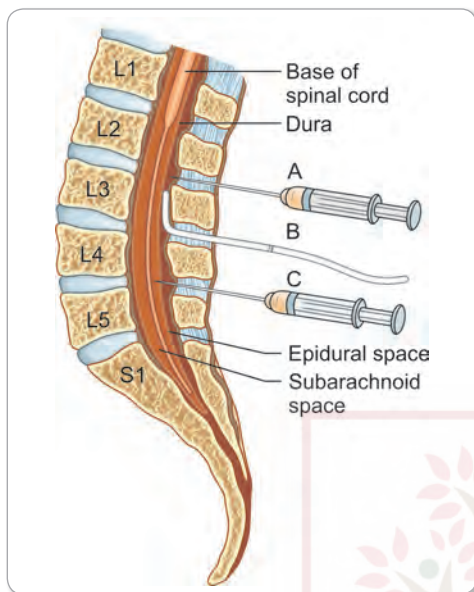
- **Spinal anesthesia:** Spinal anesthesia (Fig. 18) is obtained by injecting the drug into the subarachnoid space of third or fourth lumbar interspace with the patient lying on her side with a slight head up tilt. Bupivacaine 5–10 mg or lignocaine 25–50 mg is used.

**Nursing responsibility:** Blood pressure and respiratory rate should be recorded every 3 minutes for the first 10 minutes and every 5 minutes thereafter.  $O_2$  should be given for respiratory depression and hypotension.

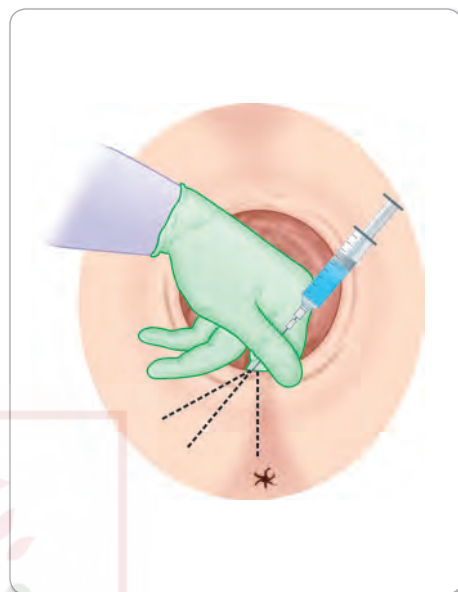
- **Perineal infiltration:** This procedure is done 2–5 minutes before performing episiotomy. In this, 10 mL of 1% lignocaine is infiltrated in a fanwise manner on the proposed episiotomy site. Each time prior to infiltration, aspiration to exclude blood is mandatory (Fig. 19).



**Fig. 17:** Epidural analgesia



**Fig. 18:** Spinal anesthesia



**Fig. 19:** Perineal infiltration

### Nonpharmacological Methods

- **Transcutaneous electric nerve stimulation (TENS):** In this, pain is relieved during labor by electrical nerve stimulation. Electrodes are placed over the level of  $T_{10}$ – $L_1$  and  $S_2$ – $S_4$ . Current strength can be adjusted according to pain. It works by inhibiting transmitter release through interneuron level (Fig. 20).
- **Disadvantages:** Allergy caused by the use of electrodes and risk of interference with fetal monitoring.
- **Acupuncture:** In this pressure is put on the various points on the body by insertion of needles which can produce sedation and analgesia through the release of beta-endorphins.
- **Acupressure:** In this, massage is given on the specific points and it also releases endorphins in the body. During labor, it provides relaxation, helps in concentration and rhythmic breathing (Fig. 21).
- **Meditation:** Meditation and yoga also relax the mother and cause distraction from the pain.



**Fig. 20:** Transcutaneous electric nerve stimulation



**Fig. 21:** Acupressure

## Psychoprophylaxis

It is a psychological method of antenatal preparation designed to prevent or at least to minimize pain and difficulty during labor. Relaxation and motivation can reduce the fear and apprehension to some extent. Every case of labor does not require analgesia and only sympathetic explanation is required.

## Setting up of the Labor Room including Newborn Corner

A labor room is an area in a hospital that is equipped for delivering babies.

- The obstetrical unit should be located in a manner so as to prevent unrelated traffic through the unit and to provide reasonable protection of mother from infection and from cross infection.
- An emergency communication system connected to the operations and control station should be provided by the facility.
- Resuscitation facilities for neonate should be provided within the obstetrics unit and convenient to the delivery room.
- A labor room should meet the following requirements:
  - A minimum of 80 sq.ft. of area should be provided per labor bed.
  - The labor room should be located so as to permit visual observation of each room from the nurses' working station.
  - Labor room should afford privacy and should be conveniently located with reference to the delivery room.
  - If labor room also serves as birthing room, it should be equipped to handle obstetrics and neonatal emergencies.
  - A labor room should contain facilities for medication, hand washing, charting and storage for supplies and equipment.
  - At least one shower with direct access within the delivery unit should be provided.
  - At least two labor beds with adjacent toilet should be provided for each delivery room.
  - No more than two beds may be located in one labor room.
- A toilet with hand washing facilities should be provided for the staff.
- A separate recovery room may be omitted with less than 1500 births per year. When provided, the recovery room should meet the following requirement:
  - A recovery room should contain not less than 2 beds and should have charting facilities located so as to permit visual observation of all beds.
  - Provisions for medicine dispensing, hand washing, clinical sink with bedpan washer and storage for supplies and equipment should be provided.
- Delivery room should be properly cleaned to reduce the spread of infection and for keeping it ready to use.
- Delivery table, mattress and mackintosh on the delivery table should be thoroughly cleaned after each use.
- Visitors and unnecessary people should not be allowed to enter in the labor room.
- There should be good source of light in the labor room. (Use special lights with each labor table).
- Prearrangement of all the articles, drugs and healthcare team members including: anesthetist, pediatrician, obstetrician and nursing officer.

## Articles for Normal Vaginal Delivery (NVD)

### For Mother

A sterile delivery tray containing:

- Articles for cutting and suturing an episiotomy.
  - A pair of straight, blunt-ended scissor—to cut down suture thread.

- Episiotomy scissor–1
- Artery clamp–3
- Tissue forceps–1
- Needle holder–1
- Syringe and needle for infiltration—10 cc.
- Scissors for cutting the cord–1
- Bowl containing antiseptic solution
- Basin to receive placenta
- Cotton balls for cleaning the perineum
- Gauze pieces (sizes 4 × 4 pieces)
- Sterile gown, apron, gloves and mask (delivery kit).
- Sterile perineal pads

### Newborn Corner

- Flannel clothes: one to receive and dry the baby of excess secretion and another to wrap the baby
- Suction machine
- Mucous sucker
- Radiant warmer
- Cord clamp/thread
- Measuring tape
- Rectal thermometer
- Oxygen source with tubing
- Identification band (blue for male baby, pink for female baby)
- Baby clothes
- Baby blanket
- Injection Vitamin K (10 mg)
- Needle and syringe
- Neonatal resuscitation equipment should be checked and kept ready for use in case of emergency.



Nursing Knowledge Tree

An Initiative by CBS Nursing Division

### Clean Tray Containing

- Antiseptic lotion–Savlon or Dettol
- Suture material
- Oxytocic drugs
- Sterile gloves
- Methergine
- Lignocaine
- Syringes and needles for injection

## SECOND STAGE OF LABOR

**Definition:** It starts with full dilatation of cervix and ends with expulsion of fetus from birth canal. **Duration** is 2 hours in primipara and 30 minutes in multipara.

It has two phases.

1. **Propulsive phase:** It starts from full dilatation up to the descent of presenting part to the pelvic floor.
2. **Expulsive phase:** It is characterized by maternal bearing down effort and ends with delivery of the fetus.

## Signs and Symptoms

- **Uterine contraction:** Contraction comes at interval of 2–3 minutes and lasts for about 1–1½ minutes.
- **Descent:** Descent of presenting part can be assessed either vaginally or by abdominal palpation. On vaginal examination, descent of head is assessed in relation to ischial spines. On abdominal examination, descent of presenting part can be estimated by number of “fifths” of the head above the brim. If it is one fifth above, only sinciput can be felt abdominally and fifth means head has almost entered in the pelvic cavity and cannot be felt abdominally.
- **Bearing down effort:** It is the additional voluntary expulsive efforts that appear during 2nd stage of labor. During the height of uterine contractions, a woman is instructed to exert downward pressure as done during defecation for the expulsion of fetus from the birth canal.
- **Rupture of membranes:** Usually the membranes rupture during this stage spontaneously and gush of amniotic fluid escapes out. This allows the hard, round fetal head to be directly applied to the vaginal tissue and helps in distention. Presenting part also stimulates nerve receptors in the pelvic floor and the woman experiences need to push.
- **Soft tissue displacement:** As the hard fetal head descends, the soft tissues of the pelvis get displaced. Bladder is pushed upward into abdomen and rectum becomes flattened into sacral curve. Levator ani muscles dilate and are displaced laterally; perineal body is flattened, stretched and thinned.
- **Dilatation, gaping of anus and perineal bulging:** Due to deep engagement of presenting part and premature bearing down effort, this may occur during later part of first stage.
- **Visibility of fetal head at introitus:** Due to uterine contraction and bearing down effort by mother, the fetal head becomes visible at the vulva, advancing with each contraction and receding during resting phase until crowning takes place and the head is born.
- **Congestion of the vulva:** Enthusiastic premature pushing may cause congestion of vulva.
- **Maternal vital signs:**
  - **Blood pressure:** Rises 15–20 mm Hg during contractions. A rise of 10 mm Hg between contractions, when a woman has been pushing normally.
  - **Pulse rate:** Increases during each pushing effort. Tachycardia may develop at the time of delivery.
  - **Temperature:** Increase of 0.5°–1°C is normal.
- **Fetal effects:** Slowing FHR during contraction but comes to normal after contraction is over.
- **Metabolism:** Metabolic rate also increases during 2nd stage. The maternal pushing efforts add further skeletal muscle activity that contributes to increase in metabolism.
- **Gastrointestinal changes:** Gastric motility and absorption decreases. Nausea and vomiting usually subside in 2nd stage but in some women it may persist.

## Physiology of Second Stage of Labor

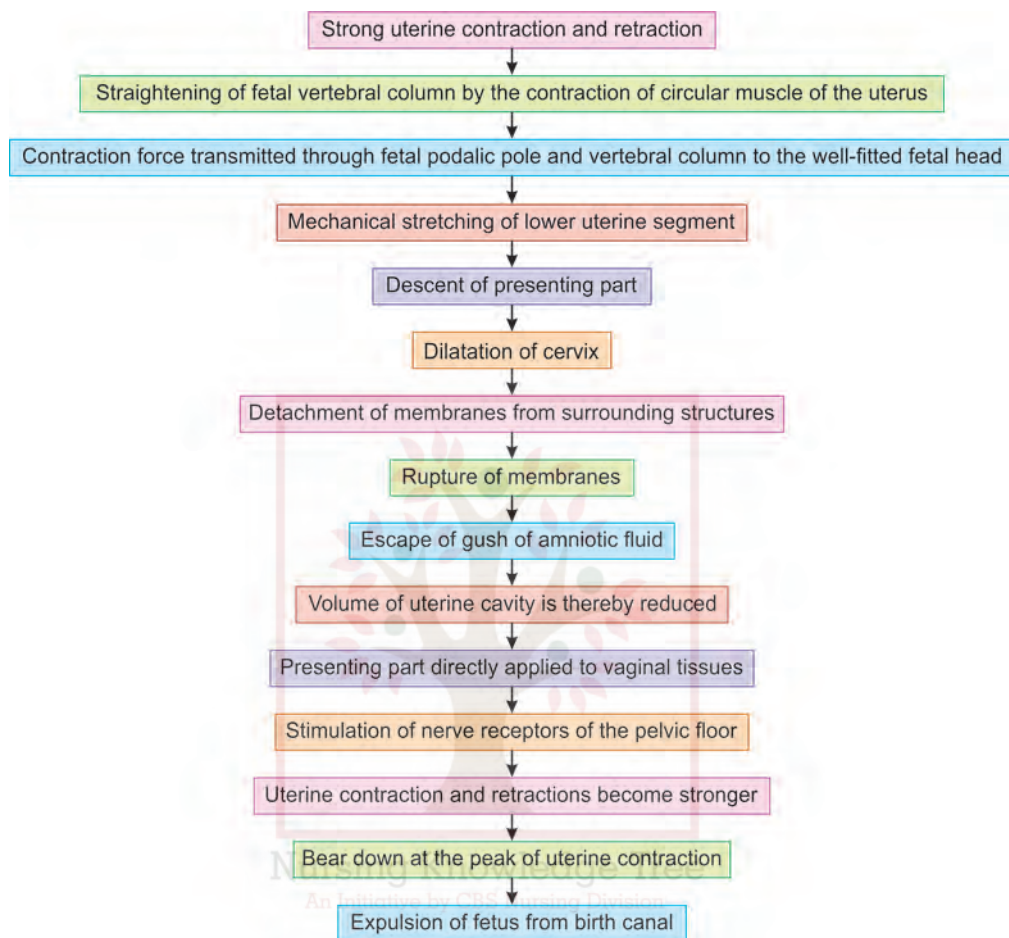
The physiology of second stage of labor is summarized in Figure 22.

## Mechanism of Labor

### Definition

It is the series of movements that occur on the head and trunk of the fetus in the process of adaptation, when it passes through the birth canal.





**Fig. 22:** Physiology of second stage of labor

### Common Terms used in Mechanism

- **Lie:** It is the relationship of the long axis of the fetus with long axis of the mother's uterus, for example, longitudinal, transverse and oblique.
- **Attitude:** It is the relationship of fetal limbs and head to its trunk. Normal attitude is well flexed.
- **Position:** The relationship of the denominator to the six parts of the pelvic brim is known as position or areas of the brim, for example, left anterior, right anterior, right lateral, right posterior, left posterior and left lateral. In vertex presentation, occiput is the denominator. If occiput points to the left side on the anterior side of the brim, it is known as left occipitoanterior (LOA) position.
- **Presentation:** It is the part of the fetus which lies in the lower pole of the uterus, or at the pelvic brim. For example, vertex, brow, face, shoulder cord presentation.
- **Presenting part:** It is the part of the fetus, which lies over the os during labor. For example, in LOA position of the vertex, the presenting part is posterior part of the right parietal bone.

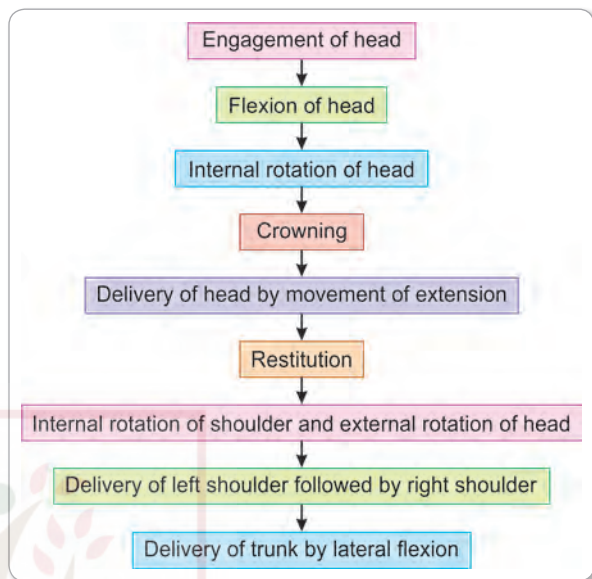


- **Denominator:** It is the part of the presentation that determines or indicates the position. For example, in vertex presentation, the occiput; in breech presentation the sacrum, in face presentation, the mentum, in shoulder presentation, the acromion process of the scapula.

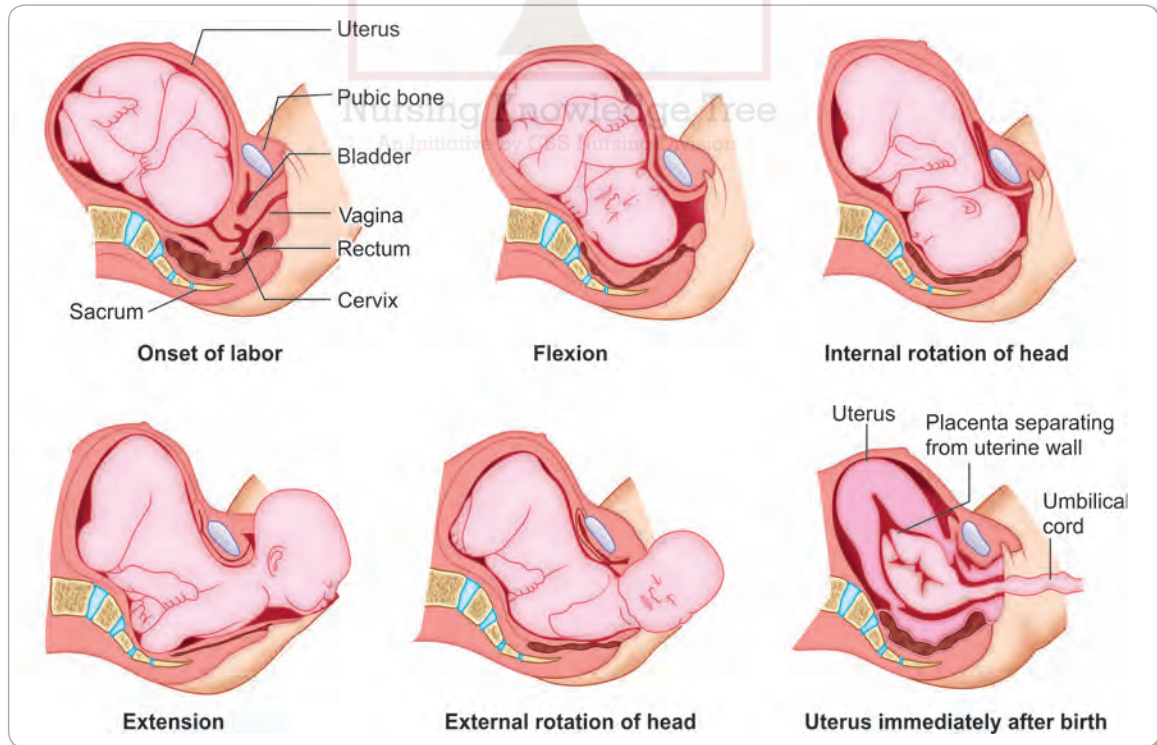
In normal labor, the most common presentation is vertex and position is either left or right occipitoanterior. The fetus is normally situated in the position as follows:

- The lie is longitudinal
- The presentation is vertex
- The position is right or left occipitoanterior
- Attitude is well flexed
- Denominator is occiput
- Presenting part is posterior part of the anterior parietal bone

Series of cardinal movements which occur in sequence as described in Figures 23 and 24.



**Fig. 23:** Cardinal movement occurring in left occipitoanterior position



**Fig. 24:** Mechanism of labor

## Mechanism

### Engagement

Engagement takes place when the fetal head enters the pelvic brim. In primigravida, it occurs few weeks prior to the expected date of delivery but in multipara, it may take place until labor actually begins. Most commonly (70%) suboccipitobregmatic diameter (9.5 cm) of the fetal head engages in the transverse diameter of the maternal pelvis.

### Descent

Descent takes place with increased flexion and it is a continuous process until fetus is expelled out from the birth canal. Descent is the result of a number of forces including uterine contractions and maternal bearing down efforts.

### Flexion

Flexion is essential to further descent. It occurs throughout labor, resulting in smaller presenting diameter 50 as to negotiate the pelvis more easily. Flexion is achieved either due to resistance offered by undilated cervix and the muscles of the pelvic floor.

### Internal Rotation of the Head

The occiput touches the iliopubic eminence and sinciput points towards opposite sacroiliac joint. The occiput moves  $\frac{1}{8}$ th of the circle anteriorly and comes under the symphysis pubis.

### Crowning

After internal rotation of the head, further descent occurs until the subocciput lies under the pubic arch. At this point, maximum diameter of the fetal head stretches the vulval outlet and the head cannot recede back even after the contraction is over, and is called “crowning of the head.”

### Extension of the Head

In this step, the sinciput, face and chin sweep out the perineum and the head is born by the movement of extension.

### Restitution

It is the visible passive movement of the head due to untwisting of the neck that occurs during internal rotation of head. In this step, occiput moves  $\frac{1}{8}$ th of the circle towards the side from which it is started.

### Internal Rotation of the Shoulder

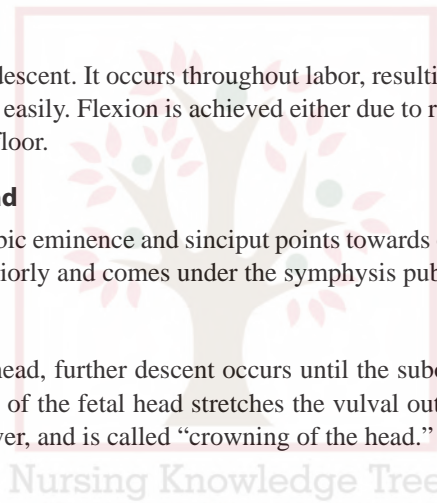
The anterior shoulder moves  $\frac{1}{8}$ th of the circle anteriorly and comes under the symphysis pubis. At this point, fetal shoulders are in the anteroposterior diameter of the pelvic outlet.

### External Rotation of the Head

At the same time when the shoulder moves internally, the head also turns  $\frac{1}{8}$ th of the circle externally in the same direction as restitution.

### Birth of Shoulders and Trunk by Lateral Flexion

With further descent, anterior shoulder escapes below the symphysis pubis first. By the movement of lateral flexion of the spine, the posterior shoulder sweeps out the perineum. The trunk is born by the lateral flexion.



## Conduction of Normal Delivery

### Principles

- To assist in natural expulsion of fetus slowly and steadily
- To provide immediate care to the newborn
- To prevent perineal injuries
- To prevent intrapartum complications

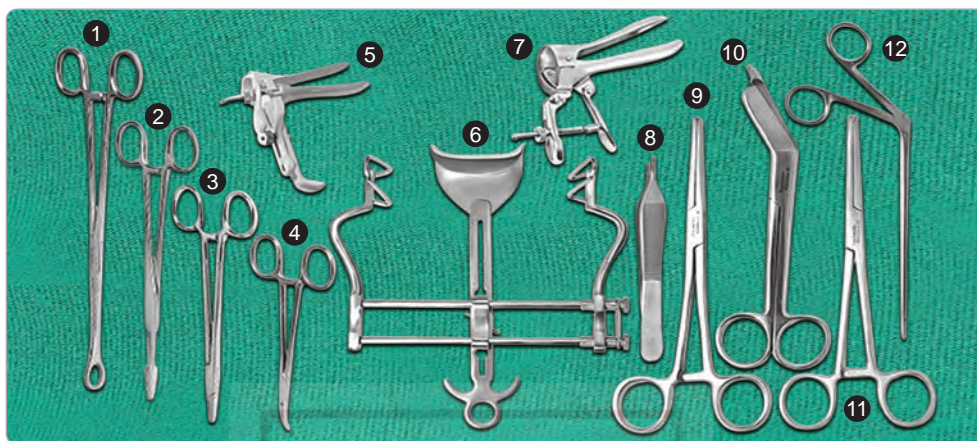
### Preparation for Delivery

- Assess the progress of labor in terms of uterine contraction and station of fetal head.
- Note FHR after every 5 minutes.
- Assess the maternal vital signs.
- Vaginal examination is carried out to note the position, presentation, station of fetal head and to detect any abnormality.
- When the delivery is to be imminent, transfer the mother to the delivery table.
- Assist the mother in assuming comfortable position (example semi-sitting, squatting, side-lying, birth-balling, etc.) Dorsal position with 15° left lateral tilt is most suitable for delivery as it prevents aortocaval compression.
- The accoucheur scrubs up and wears sterile gown, gloves and mask.
- Clean the external genitalia and inner surface of the thighs with Savlon or Dettol solution.
- Spread sterile sheet under the buttocks and one over the abdomen. Provide sterilized legging or sterile perineal sheets.
- If bladder is full, catheterization should be done.
- Keep the trolley near the delivery table, in which articles are to be neatly placed for delivery.

### Instruments

Figure 25 shows various instruments of a normal vaginal delivery. In all, there are other articles too as given here:

- Small artery forceps
- Straight scissors
- Episiotomy scissors
- Kocher's forceps
- Sponge holding forceps
- Needle holder
- Suture material
- Sterile catheter
- Sterile gauze pieces, pads and cotton swabs
- Savlon solution
- Sterile linen
- Cord clamp
- Vital sign tray
- Drug tray (syringes, injections—oxytocin, methergine, anticonvulsant, antihypertension, xylocaine, etc.)
- Resuscitation equipment
- Instrument aids (example: forceps, ventouse)
- Radiant heat warmer
- Weighing machine
- Infantometer
- Identification band (blue and pink).



**Fig. 25:** Instruments of normal vaginal delivery. (1) Sponge holding forceps; (2 to 4) Small curved artery; (5) Speculum; (6) Retractors; (7) Cusco forceps; (8) Tooth forceps; (9) Vulsellum; (10) Episiotomy scissor; (11) Straight scissor; (12) Sponge holding curved forceps

### Team Requirement

1 obstetrician, 1 scrub nurse, 1 circulating nurse, and 1 neonatologist.

### Conduction of Delivery

The normal vaginal delivery is divided into three phases:

1. Delivery of the head
2. Delivery of shoulders
3. Delivery of trunk

### Delivery of the Head

#### Principles

- To maintain flexion of head
- To prevent early extension
- To regulate slow escape of head out of the vulval outlet

#### Steps of Delivering the Head

- To facilitate descent of the head, encourage the woman to bear down during uterine contractions.
- Due to contraction and descent of presenting part, sometimes a woman passes stool, it should be cleaned and the anal region is washed with antiseptic lotion.
- When the scalp is visible clearly from the vulval outlet, the occiput is pushed downward to maintain the flexion of the head, so that desired diameter of the head (suboccipito frontal diameter) emerges out.
- Crowning of the head occurs, when the maximum diameter of the fetal head stretches the vulval outlet and the head cannot move backward even after the contractions pass off.
- When the perineum is fully stretched, episiotomy is given prior infiltration with 10 mL of 1% lignocaine.
- Slow delivery of the head in between contractions is to be regulated. The forehead, nose, mouth and chin sweep out the perineum and the head is born by the movement of extension.



### *Points to be Kept in Mind after Delivery of the Head*

- After the delivery of head, the mucus and blood in mouth and pharynx are to be suctioned by mucus sucker.
- Clean the eyelids with sterile cotton swabs from inner canthus to outer canthus to prevent infection.
- Management of Nuchal Cord: If the cord is loose, slip it over the baby's head. If the cord is tight, immediately clamp (about 3 cm apart) and cut the cord at the neck before the baby is born. Tell the mother to avoid bearing down effort, while one is clamping, cutting and unwinding the cord.
- To prevent perineal lacerations/injuries:
  - Maintain flexion of head
  - Deliver the head in between contractions
  - Perform timely episiotomy
  - Provide good perineal support

### **Delivery of Shoulders**

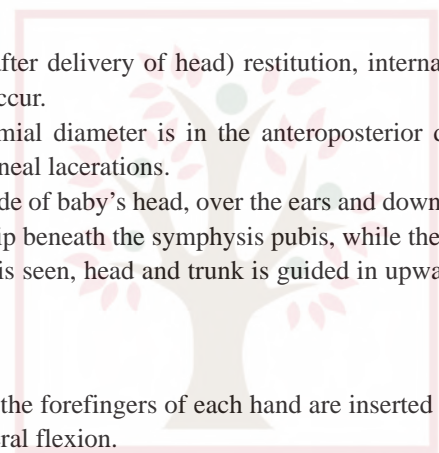
- In the next contraction (after delivery of head) restitution, internal rotation of shoulders and external rotation of head usually occur.
- At this time, the bisacromial diameter is in the anteroposterior diameter of the pelvic outlet which minimizes the risk of perineal lacerations.
- A hand is placed on each side of baby's head, over the ears and downward traction is applied. This allows the anterior shoulder to slip beneath the symphysis pubis, while the posterior remains in the vagina.
- When the axillary crease is seen, head and trunk is guided in upward direction to allow the delivery of the posterior shoulder.

### **Delivery of the Trunk**

After shoulders are delivered, the forefingers of each hand are inserted under the axillae and trunk is gently delivered by movement of lateral flexion.

### **Immediate Care of the Newborn**

- Receive the baby in prewarmed sterile cloth.
- Immediately after delivery of baby, mucus is drained out either by mucus sucker or by placing the infant in a tray with the head slightly downward.
- Check the Apgar score at 1 minute and at 5 minutes.
- Clamp and cut the cord by placing 2 clamps on the cord, the near one is placed 5 cm away from the umbilicus and is cut in between.
- Ligate the cord: 2 ligatures are applied on the cord, at 1 cm and 2.5 cm away from the naval.
- After cutting the cord aseptically, the baby should be dried, wrapped with dry warm clothes.
- Quick check is made to detect gross abnormality or any signs of infection.
- Apply identification band to both mother and baby.
- Show the sex of the baby to the mother.
- Check the weight, length and vital signs of the newborn.
- Put the baby on the mother's breast for feeding.
- Record the events of birth neatly and accurately, especially birth date, time, sex, examination findings, weight of newborn, etc. in the file.
- After one hour of observation, if both mother and baby are healthy, shift them in the ward.
- Sick or at risk neonate and mother need special care in special setting.



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## Essential Newborn Care

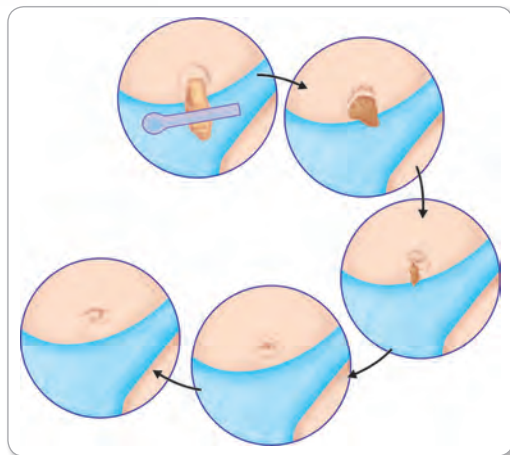
Nursing care of healthy newborn baby should be provided after birth as immediate care of the neonates and daily routine care.

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### Daily Routine Care

It includes the following points:

- **Warmth:**
  - Keep the baby dry and covered in adequate clothing. Ensure head and extremities are well covered.
  - Kangaroo mother care is also helpful to maintain baby's temperature.
  - Bathing is avoided for first 24 hours to prevent hypothermia.
  - Atmospheric temperature to be kept adequate ( $28^{\circ}$ – $32^{\circ}\text{C}$ ).
  - Temperature should be recorded frequently during initial postnatal period.
  - Warm chain should be maintained during transfer of baby.
- **Breastfeeding:**
  - Encourage the mother to initiate breastfeeding within half an hour or as soon as possible when she feels comfortable.
  - Advise the mother to breastfeed the baby on demand or every 2 hourly.
  - Educate the mother regarding importance of colostrum and exclusive breastfeeding.
- **Skin care:**
  - Baby must be cleaned of blood, mucus and meconium by gentle wiping before presenting to mother.
  - Dip bath should be avoided until the cord shed off.
  - Each baby should have own separate clothing and articles for care to prevent cross-infection.
- **Baby bath:**
  - It should be given using lukewarm water in a warm room gently and quickly.
  - Dry the baby thoroughly and wrap in warm towel. Bathing should be avoided in open spaces.
  - Perform oil massage before bath as it improves circulation and muscle tone.
  - During bathing, observe the baby for behavior and presence for any abnormalities or infections.
- **Care of umbilical cord (Fig. 26):**
  - Inspect the cord daily for any discharge, infection or bleeding.
  - No dressing should be applied and cord should be kept open and dry.
  - Educate mother that cord normally falls off after 5–10 days but may take longer in case of infection.



**Fig. 26:** Umbilical cord care



- **Care of eyes:**
  - Clean the eye from inner canthus to outer using single stroke.
  - Avoid applying 'Kajal' in the eyes.
  - Observe the eyes for redness, sticky discharge or excessive tearing.
- **Clothing of the baby:**
  - Baby should be dressed with loose, soft and cotton clothes.
  - Cloth should be open in the front and back for easy wearing.
  - Avoid wearing synthetic, plastic or nylon napkins.
  - Woolen clothes should not be stored with moth balls, because of chances of severe jaundice in the baby with G-6 PD deficiency.
  - Light detergent should be used for washing and baby's cloth should be washed properly and sun-dried to prevent skin-irritation.
- **General care:**
  - Promote bonding or rooming-in.
  - Gently handle the baby after proper hand washing.
  - Don't allow the infected person to touch the baby.
  - Nappies should be changed periodically.
  - Surrounding should be kept clean.
  - Allow the baby to sleep in supine position to prevent sudden infant death syndrome (SIDS).
  - Educate the mother about art of mothering.
- **Observation:**
  - Daily routine observation is essential to detect danger signs for early interventions.
  - Temperature, pulse, heart rate, feeding pattern, stool, urine and sleeping pattern should be assessed.
  - Mouth, eye, cord and skin should be checked for any infections.
- **Weight recording (Fig. 27):**
  - In the first week, there is physiological loss of baby weight.
  - After 7 days, average daily weight gain in healthy term babies is about 30 g/day in 1st month, 20 g/day in 2nd month and 10 g/day afterwards during 1st year of life.
  - Adequate breastfeeding is essential to weight gain.
- **Immunization**
  - Educate the mother regarding National Immunization Schedule.
  - Educate her regarding the importance of complete immunization and possible reaction following vaccinations.
- **Follow-up care:**
  - Educate the mother for the follow-up of the infant, at least once every month for first 3 months and subsequently at 3-months interval till one year of age.
  - Follow-up is necessary for assessment of growth and development, early detection and management of health problems and prevention of childhood illnesses.
  - Health advice should be given to the mother regarding warmth, skin care, rooming-in, immunization and follow-up.
  - Danger signs related to childhood illnesses should be explained to mother and family members.



**Fig. 27:** Weighing the newborn

- Preventive measures against various child health problems should be taken.
- Harmful cultural practices should be discouraged. For example, Janam ghutti instead of colostrum.

## Episiotomy

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**Definition:** It is surgically planned incision given on the perineum during second stage of labor to enlarge the vaginal introitus. It facilitates safe and easy delivery of the fetus.

### Objectives

- To enlarge the size of vaginal orifice
- To prevent perineal tear (if given on time)
- To reduce stress and strain on fetal head
- To cut-short second stage of labor
- To maintain the integrity of pelvic floor

### Indications

- Large fetus >4 kg
- Preterm or small for gestational age baby in order to minimize the risk of intracranial hemorrhage
- Presence of rigid perineum
- Face to pubis delivery, breech delivery or shoulder dystocia
- Fetal distress, to make the delivery fast
- When large lacerations seem inevitable
- In case of operative delivery, like forceps/ventouse
- Previous history of pelvic floor repair, perineal reconstructive surgery.

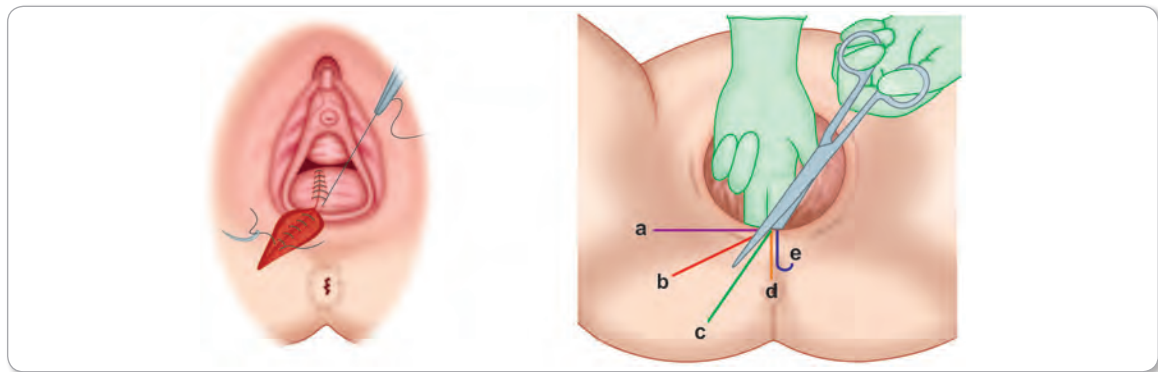
### Timing of Episiotomy

Bulging thinned perineum during contraction along with bearing down efforts by the mother just prior to crowning is the ideal time for giving episiotomy.

### Types

Four types of episiotomy are shown in Figure 28.

- **Mediolateral:** Incision is given downward and outwards from the midpoint of fourchette. The cut may be given either towards right or left side and about 2.5 cm.



**Fig. 28:** Types of episiotomy. **a.** Lateral episiotomy; **b.** 8 o'clock episiotomy; **c.** Mediolateral episiotomy; **d.** Median episiotomy; **e.** J-shaped episiotomy

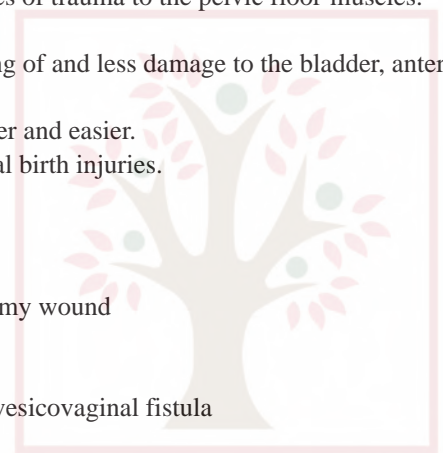
- **Median/midline:** The incision is given from the center of fourchette and extends posteriorly. The cut is 2.5 cm in length.
- **Lateral:** Incision starts from about 1 cm away from the center of fourchette and extends laterally.
- **J-shaped:** The incision starts from center of fourchette and directed posteriorly about 1.5 cm and then pointed towards downward and outwards along 5 or 7 o'clock.

### Advantages

- **Maternal benefits:**
  - Clear incision is easy to repair.
  - Healing is better than lacerated wound.
  - Cut-short 2nd stage of labor.
  - Minimizes the chances of trauma to the pelvic floor-muscles.
  - Tear may be avoided.
  - There is less stretching of and less damage to the bladder, anterior vaginal wall and urethra.
- **Fetal benefits:**
  - It makes the birth safer and easier.
  - It prevents intracranial birth injuries.

### Complications

- **Immediate:**
  - Extension of episiotomy wound
  - Vulval hematoma
  - Infection
  - Rectovaginal fistula/vesicovaginal fistula
  - Wound impairment
- **Remote:**
  - Dyspareunia
  - Chances of perineal lacerations in subsequent labor
  - Scar endometriosis



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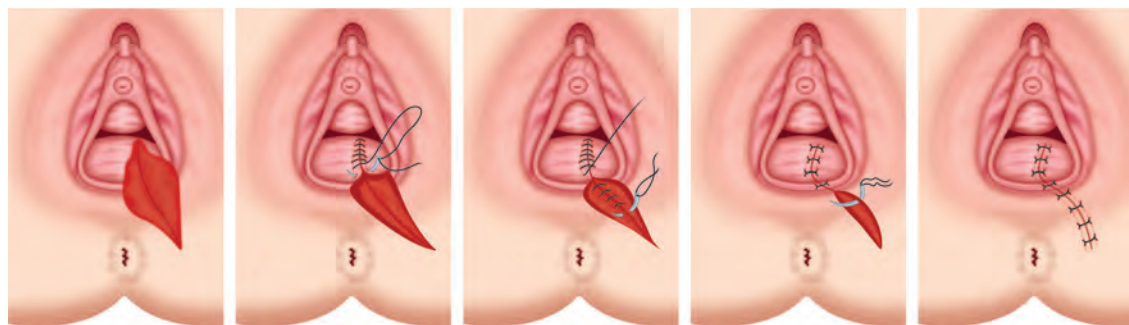
### Repair of Episiotomy

#### Preliminaries

- Provide lithotomy position to the patient
- A good source of light is needed
- Instruct the mother to wide spread the thighs so that the area should be clearly visualized
- Clean the perineal area with antiseptic solution
- Patient is draped properly under aseptic precautions
- Evacuate the uterine cavity for retained clots or placenta
- Vaginal pack may be inserted and placed high up, if the wound site is obscured by oozing of blood from above, but it must be documented and removed, else may lead to sepsis

#### Suture Material/Episiotomy Suturing

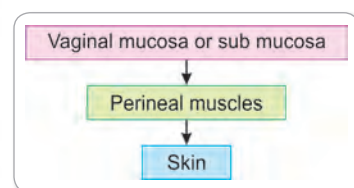
Dexon or number “0” chromic catgut is usually used to repair episiotomy. It is absorbable suture. It is spontaneously shed off after 7–8 days of repair. Silk or nylon (nonabsorbable) sutures may be used and removed on 6th day (Fig. 29).



**Fig. 29:** Repair of episiotomy wound

The steps of episiotomy suturing are shown in Figure 30:

- **Vaginal mucosa** is sutured first. Firstly, inspect the apex of tear and first suture is applied just above the apex. Continuous suture is used to repair vaginal mucosa from above downwards till the fourchette is reached.
- **Perineal muscles:** Interrupted sutures are used to repair perineal muscle same from above downwards till the fourchette is reached.
- **Skin:** Mattress suture or figure of eight is used to repair skin.



**Fig. 30:** Episiotomy suturing steps

### Episiotomy Care

- Maintenance of perineal hygiene: Instruct the patient to clean the episiotomy wound after every urination and defecation.
- Provide perineal care twice daily to the patient and clean the episiotomy wound also with antiseptic solution.
- Assess the wound healing status every time by using REEDA scale (R-Redness, E-edema, E-ecchymosis, D-discharge, A-approximation).
- If there is impaired wound healing, provide sitz bath using magnesium sulfate moist and dry heat therapy or use analgesic drugs/antibiotic therapy (local or systematic antibiotics).
- Instruct the mother, that she should not sit with crossing legs.
- Instruct the mother to ambulate to avoid stretch on the perineal wound.
- If nonabsorbable sutures are used, stitches are removed on 6th day.
- Advise the mother for abstinence of sexual activity for 6 weeks after delivery.



### Mnemonics

#### REEDA scale

- R:** Redness
- E:** Edema
- E:** Ecchymosis
- D:** Discharge
- A:** Approximation

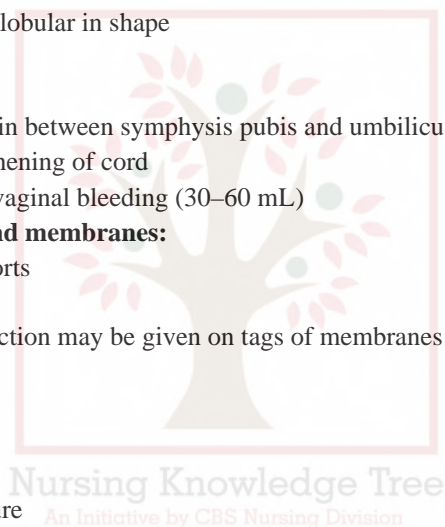
## THIRD STAGE OF LABOR

**Definition:** It starts after the birth of baby and ends with expulsion of placenta and membranes.

**Duration:** It is about 15 minutes in both primi and multipara, however duration is reduced to 5 minutes with active management.

## Signs of 3rd Stage of Labor

- **Pain:** Due to uterine contraction, intermittent discomfort may be felt in the lower abdomen.
- **Separation of placenta:**
  - **Before separation:**
    - Uterus is discoid in shape
    - Feels firm
    - Nonballotable
    - Fundus is below the umbilicus
    - Slight oozing of blood per vagina
    - Length of umbilical cord as visible outside remains static
  - **After separation:**
    - Uterus become globular in shape
    - Feel firm
    - Ballotable
    - Fundus is found in between symphysis pubis and umbilicus
    - Permanent lengthening of cord
    - Sudden gush of vaginal bleeding (30–60 mL)
- **Expulsion of placenta and membranes:**
  - By bearing down efforts
  - Uterine contractions
  - If required, gentle traction may be given on tags of membranes using hemostat or Kocher's clamp.
- **Maternal signs:**
  - Sudden chills
  - Shivering
  - Raise pulse rate
  - Increase blood pressure



## Physiology

The 3rd stage of labor consists of two phases:

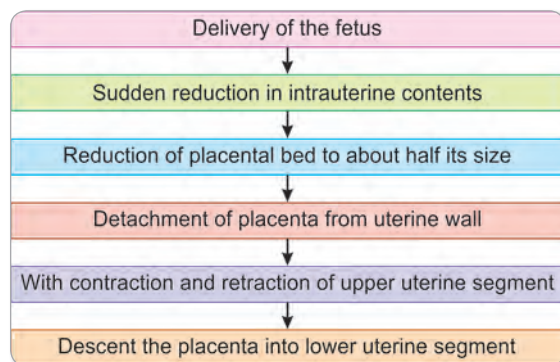
1. Placental separation
2. Placental expulsion

### Placental Separation

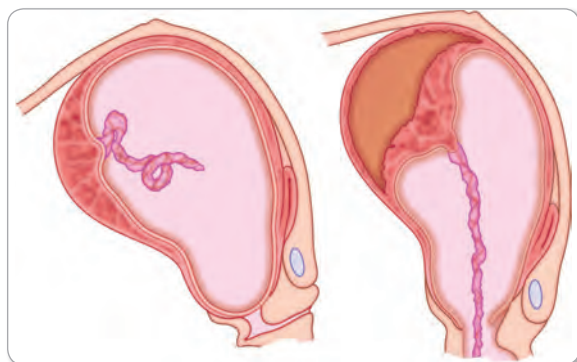
There are two ways of placental separation (Figs 31 and 32):

1. **Schulze method (central separation):** Due to detachment of placenta resulting in opening of few uterine sinuses and accumulation of blood behind the placenta which put weight on the placenta, cause the central portion of the placenta to descend first.
2. **Matthews-Duncan (marginal separation):** Separation of placenta starts from the margin and is mostly unsupported. With subsequent uterine contraction, more and more areas get detached from the uterine wall.





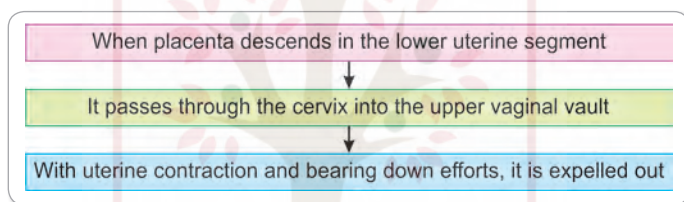
**Fig. 31:** Steps of placental separation



**Fig. 32:** Placental separation

### Placental Expulsion

Mechanism of placental expulsion is shown in Figure 33.



**Fig. 33:** Mechanism of placental expulsion

### Management of 3rd Stage of Labor

Management of third stage can make considerable difference due to the blood loss by the mother. Mismanaged 3rd stage is the largest single cause of postpartum hemorrhage and also causes uterine inversion and shock. Prompt nursing actions can reduce the risk of hemorrhage, infection, retained placenta and shock.

#### Expectant Management

In this, placental separation and descend into vagina are allowed to occur spontaneously. Mother's efforts are used to help in expulsion. This method is practiced only if mother has not received any analgesics or oxytocic drugs.

#### Steps

- A hand is placed over the fundus to feel the signs of placental separation and the state of uterine activity.
- Generally, within 15–20 minutes, placental separation takes place.
- Avoid massaging the uterus during this time.
- When signs of placental separation and descend into lower segment are confirmed, ask the client to bear down along with uterine contractions.
- As soon as the placenta passes through the introitus, it is grasped by both hands and twisted round and round so that membranes are stripped off intact.
- If there is danger of the tear of membranes, gentle traction may be given on tags of membranes using hemostat or Kocher's clamp.



## Assisted Expulsion

- In this the placental separation is not completely spontaneous but assisted.
  - **Fundal pressure:** The four fingers are placed behind the fundus and the thumb is placed in front of the uterus to use as a piston. The uterus is made to contract by gentle rubbing. When the uterus becomes hard, it is pushed downward and backward. The pressure is withdrawn as soon as the placenta expelled out through the introitus. This method is preferred when the tensile strength of the cord is less (in case of premature or macerated baby or chronic placental insufficiency).
  - **Controlled cord traction (modified Brandt Andrews method):** This method is applied only if uterus is hard and contracted and placenta is separated. In this method, left hand is placed above the symphysis pubis with the palmar surface facing towards the umbilicus to exert pressure in upward direction. The body of the uterus is displaced upwards and toward the umbilicus, while with the right hand, steady tension is given in a downward and backward direction, by holding the clamp placed on the cord until the placenta comes out of the introitus.
    - After the placenta is expelled out, examination of the placenta, membranes and cord should be done carefully.
    - Vulva, vagina and perineum should be carefully inspected for any injuries. Suture the episiotomy wound.
    - Clean the vulva and adjoining structures with antiseptic solution and sterile pad is placed over the vulva.

## Active Management

Recent guidelines recommend the active management of the third stage, so as to reduce the blood loss in 3rd stage and the management is given in Figure 34.

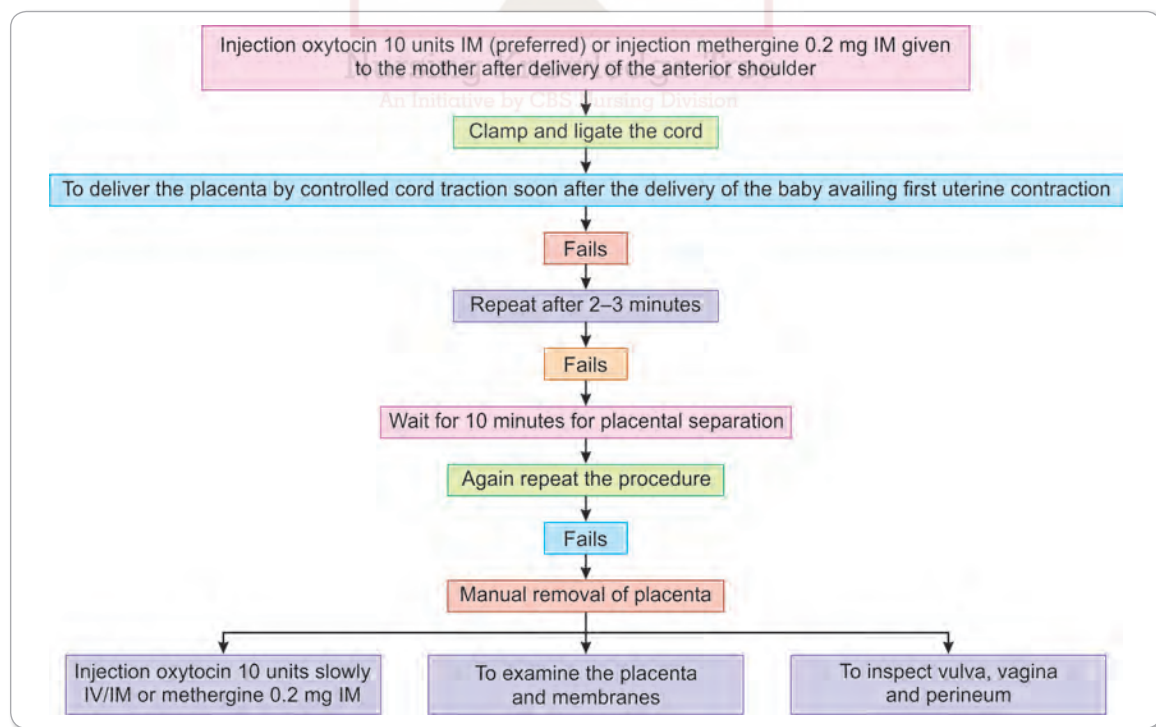


Fig. 34: Active management of third stage of labor

## Examination of Placenta

**Definition:** A thorough inspection and examination of the placenta and membranes, soon after expulsion, for its completeness and normalcy is advised to be done (Fig. 35).

Normally, the human placenta is:

- **Discoid**, because of its shape.
- **Hemochorial**, because of the direct contact of the chorion with the maternal blood.
- **Deciduate**, because of the connection between the mother and fetus through umbilical cord.

### Purposes

- To assess whether the placenta is in normal size (15–20 cm in diameter), shape (discoid) and weight (1/6 of fetal weight; 500–700 g).
- To detect any abnormalities such as additional lobes, missing cotyledons (normally 15–20), infraction, etc.
- To make sure that entire membrane and placenta have been expelled out.
- To assess the length of cord (30–100 cm, 50 cm average), site of insertion of cord (at center of placenta).
- To prevent postpartum hemorrhage and infection.

### Equipment (Table 3)

**TABLE 3: Articles and their purposes**

Article	Purpose
Placenta with cord	For examination
Sink with tap water	For cleaning placenta of fresh blood and blood clots
Gloves—1 pair	To protect the hands of the examiner
Mask—1	To protect face of the examiner from spilled blood
Plastic Apron—1	To protect clothing of the examiner
Basin with clean water—1	To keep placenta with cord for examination
Mackintosh with plastic sheet	To measure the weight of placenta on weighing machine
Thread and tape measure	To measure the length of cord

### Procedure

- Wear apron, gloves and mask.
- Keep placenta in basin and wash under tap water.
- Place placenta on mackintosh with paper lining and shift it on the weighing machine to measure the weight.
- Measure the length of umbilical cord with thread.
- Hold the placenta from the cord, allowing the membranes to hang.
- Identify the hole through which the baby was delivered. If the membranes are not torn, a single round hole can be identified clearly.



**Fig. 35:** Placental examination

- Insert hand through the hole and spread out the fingers to view the membranes and blood vessels. The position of cord insertion and the course of blood vessels can be noted in this position.
- Remove the hand from inside the membranes and lay the placenta on a flat surface with the fetal surface up.
- Identify the site of cord insertion. Normally cord is inserted at the center of placenta.
- Examine the membrane, i.e. amnion and chorion for its completeness and presence of abnormal vessels and lobe. Amnion is smooth and shining but chorion is dull, rough and shaggy.
- Invert the placenta, expose the maternal surface and remove any clots present.
- Examine the maternal surface by spreading it in the palms of your two hands and placing the cotyledons in close approximation (any broken fragments must be replaced before accurate assessment is made). Ensure that no parts of placenta or membranes are left inside the uterus.
- Assess for presence of abnormalities such as infarctions, calcification or succenturiate lobes.
- Assess the umbilical cord for blood vessels (2 arteries and 1 umbilical vein)
- Place the placenta in bin for proper disposal, discard in yellow bag as it is anatomical waste.
- Clean the area used for examination of placenta and membranes, weighing scale and the bowl.
- Remove gloves, apron and mask.
- Wash hands.
- Record the findings of the placenta on mother's chart.

## FOURTH STAGE OF LABOR

**Definition:** It is the stage of observation for at least 1 hour after the expulsion of placenta and the membranes. During this period, both mother and baby are observed carefully to ensure that both are well.

### Physiology

- Uterus becomes firm and retracted (Stony hard to touch).
- When contracted, the entwining muscle fibers of the myometrium serve as ligatures to the open blood vessels at the placental site and bleeding is controlled naturally, which is also known as living ligatures.
- Thrombi form in the distal blood vessels in the decidua from where it does not get released into systemic circulation.

### Lochia

It is the vaginal discharge for 15 days to 21 days maximum. It has peculiar offensive, fishy smell and is alkaline in nature.

- It has three types: (Based on the color of the vaginal discharge)
  1. **Lochia rubra (red color):** 3–4 days, constituents are blood, decidual and trophoblastic debris.
  2. **Lochia serosa (brown):** 5 days, consists of blood, serum, leukocytes and tissue debris
  3. **Lochia alba (white):** 10–15 days, contents are leukocytes, decidua, epithelial cells, mucus, serum and bacteria
- **Amount:** The average amount for first 5–6 days is estimated to be 250 mL.
  - Excessive lochia discharge occurs following cesarean, twin delivery and hydramnios.
  - Scanty lochia occurs following premature labor.
  - Persistent red bleeding beyond normal limit indicates subinvolution or retained products of conception.

## Care of Mother and Baby

### Mother

- Provide clean gown, perineal pad and comfortable position to mother.
- Check the vital signs:
  - **Temperature:** There is slight rise in temperature following delivery by 0.5°F but comes down to normal within 12 hours.
  - **Pulse:** For a few hours after normal vaginal delivery, the pulse rate is likely to be raised, which settles down to normal during 2nd day. Rise in pulse rate may be due to after-pains or excitement.
  - **Blood pressure:** It rises during delivery process which settles down gradually within 12 hours.
- **Uterus:** Immediately following delivery, the uterus becomes firm and retracted. If the uterus is soft and baggy, it means retained bits are there. Firm uterus, indicate effective uterine homeostasis. If retained bits of placenta and membranes are there, massage the uterus to remove the retained product and make them hard.
- **Vagina:** Inspect the vagina to rule out postpartum hemorrhage. If the uterus is hard, the bleeding may be due to genital tract lesions. Effective hemostasis should be maintained.
- **Hygiene:** Inspect and change pads regularly to assess the amount of blood loss during early postpartum period and maintain hygiene.
- **Fluids:** Immediately following delivery, there is increased thirst due to loss of fluids during labor, in lochia, diuresis and perspiration. Offer fluid, normally a cup of tea to the mother if not contraindicated.
- **Warmth:** Immediately following delivery, some women start shivering. Provide warm clothes and blanket and also maintain the room temperature.

### Baby

- **Warmth:** Keep the baby dry and wrap with adequate clothing. Ensure head and extremities are well covered. Maintain room temperature also.
- **Breastfeeding:** The baby should be put to mother's breast within half an hour or as soon as possible the mother feels comfortable. Feed the baby every 1–2 hourly or on demand of baby.
- **Umbilical cord:** Inspect cord for any bleeding.
- **Vital signs:** Check temperature, heart rate and respiration of the baby.

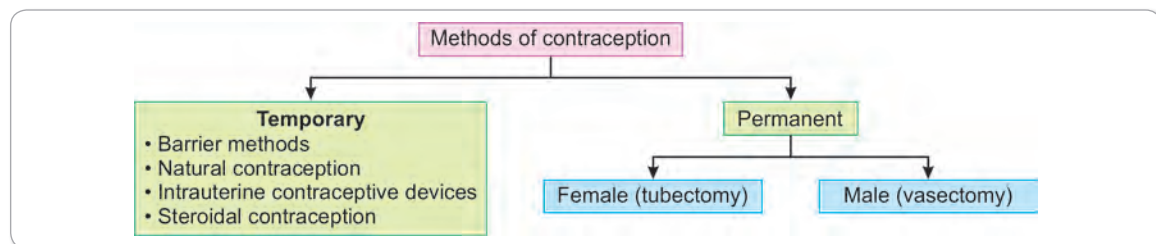
When fully satisfied that general condition of both mother and baby is good, shift them in the postnatal ward.

## Postpartum Family Planning

In the early postpartum period, advise the mother to adopt family planning methods for the following reasons:

- To maintain birth spacing.
- To avoid unwanted birth.
- To bring about wanted birth.
- To control the time at which birth occurs in relation to the ages of the parent.

There are several methods of contraception displayed in Figure 36:



**Fig. 36:** Methods of contraception

**Note:** Methods of contraception discussed in detail under Chapter 7.

### The methods of contraception will depend upon:

- **Breastfeeding:** Prolonged and sustained breastfeeding offers a natural protection from pregnancy. This is more effective in women who are amenorrheic than those who are menstruating. A woman who is fully breastfeeding, a contraceptive method should be used in the 3rd postpartum month and with partial or no breastfeeding, she should use it in the 3rd postpartum week. Exclusive breastfeeding provides 98% contraception. Otherwise, failure rate is 1–10%. So, additional contraceptive methods should be used such as condom, intrauterine contraceptive device (IUCD), injectables and steroids, etc.
  - Natural methods cannot be used until menstrual cycles are regular.
  - Barrier methods, like condom, diaphragm may be used.
  - **Steroidal contraception:** For nonlactating women, combined preparations are suitable from 3<sup>rd</sup> postpartum week. But in lactating women, it is avoided due to suppressive effect. Progestin is the only pill that may be a better choice for them.
  - Injectables, like DMPA/NET-EN and implants may be used.
  - Insertion of intrauterine contraceptive devices immediately following delivery is currently done. Perforation rates are less but expulsion rate is 10–20%.
- **Health status of the mother:** If mother suffers from postpartum hemorrhage, pelvic infections, etc. Intrauterine contraceptive devices should not be used. Barrier method is safe. If there is previous history of fibroids or polycystic ovarian disease, then oral contraceptives are best.
- **Number of the children:** Sterilization is suitable for those who have completed their families. Couple must be counseled adequately before adopting any permanent procedure, i.e. tubectomy or vasectomy. Individual procedure must be discussed in terms of benefits, risks, side effects, failure rate and reversibility.





## ASSESS YOURSELF

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### FREQUENTLY ASKED QUESTIONS IN EXAMS

**1. Define the following:**

- |                     |                  |
|---------------------|------------------|
| a. Dystocia         | b. Show          |
| c. Restitution      | d. Episiotomy    |
| e. Labor            | f. Placenta      |
| g. Lightening       | h. Preterm labor |
| i. Bag of membranes | j. Primigravida  |
| k. Eutocia          |                  |

**2. Differentiate between:**

- |                               |                              |
|-------------------------------|------------------------------|
| a. True and false labor pains | b. Normal and abnormal labor |
|-------------------------------|------------------------------|

**3. Describe nursing management:**

- |                              |                              |
|------------------------------|------------------------------|
| a. During 1st stage of labor | b. During 2nd stage of labor |
| c. During 3rd stage of labor |                              |

**4. Write short notes on:**

- |                                  |                              |
|----------------------------------|------------------------------|
| a. Episiotomy                    | b. Mechanism of normal labor |
| c. Immediate care of the newborn | d. Preparation of labor room |

### MULTIPLE CHOICE QUESTIONS

**1. Delivery of baby takes place in:**

- |              |              |
|--------------|--------------|
| a. 1st stage | b. 2nd stage |
| c. 3rd stage | d. 4th stage |

**2. Duration of 4th stage of labor is:**

- |            |             |
|------------|-------------|
| a. 1 hour  | b. 2 hours  |
| c. 8 hours | d. 24 hours |

**3. Components of partograph include all except:**

- |                        |                    |
|------------------------|--------------------|
| a. Cervical dilatation | b. Descent of head |
| c. FHR                 | d. Effacement      |

**4. Propulsive and expulsive phases occur in:**

- |                       |                       |
|-----------------------|-----------------------|
| a. 1st stage of labor | b. 2nd stage of labor |
| c. 4th stage of labor | d. None of the above  |

**5. Encourage the woman to bear down along with uterine contractions during:**

- |                       |                       |
|-----------------------|-----------------------|
| a. 1st stage of labor | b. 2nd stage of labor |
| c. 4th stage of labor | d. All of the above   |

**6. Normal duration of 2nd stage of labor in primipara is:**

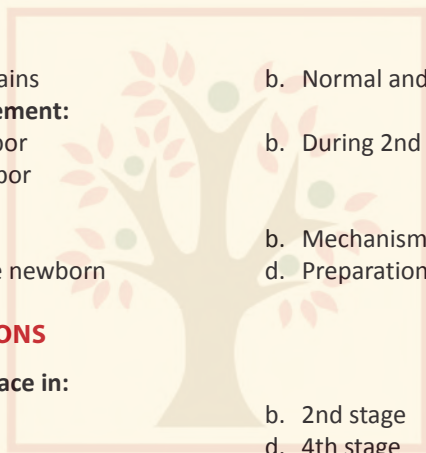
- |            |               |
|------------|---------------|
| a. 2 hours | b. 4 hours    |
| c. 1 hour  | d. 30 minutes |

**7. Fully dilated cervix is:**

- |          |          |
|----------|----------|
| a. 10 cm | b. 12 cm |
| c. 6 cm  | d. 8 cm  |

**8. Rate of cervical dilatation during active phase of labor in primigravidae is:**

- |               |              |
|---------------|--------------|
| a. 0.35 cm/hr | b. 0.5 cm/hr |
| c. 1 cm/hr    | d. 1.5 cm/hr |



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