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NURSING

Solved Question Papers for BSc Nursing

2025–2021

Semester VII

As Per Revised INC Syllabus

I Clement

JAYPEE

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MIDWIFERY/OBSTETRICS AND GYNECOLOGY

2023

LONG ESSAYS

1. a. Write in detail about physiological changes during pregnancy.
   b. Brief the care of antenatal mother.
2. a. List the indications for cesarean section.
   b. Explain the role of nurse in pre- and postoperative management of patient undergoing cesarean section.

SHORT ESSAYS

3. Fetal circulation.
4. Breast complications in puerperium.
5. Adaptation of newborn.
6. Hyperemesis gravidarum.
7. Placental separation.
8. Role of NICU nurse in prevention of infection in the neonatal unit.
9. Explain the essential components of RCH.

SHORT ANSWERS

10. What is GTT?
11. List four obstetric emergencies in labor.
12. Types of pelvis.
13. State two indications of forceps delivery.
14. Mention two indicators of fetal well-being.
15. Define position, presentation.
16. Phases of physiology of lactation.
17. What is Jacquemier's sign?
18. Write any two diameters of fetal skull.
19. Define normal labor.

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LONG ESSAYS

1. a. Write in detail about physiological changes during pregnancy, b. Brief the care of antenatal mother.

Ⓐ Pregnancy brings about a cascade of physiological changes to support the growing fetus and prepare the mother's body for childbirth and lactation. These changes affect nearly every system in the body **(Fig. 1)**.

Cardiovascular System

- **Increased blood volume**: Blood volume increases by 30–50% to meet the demands of the growing fetus and placenta. This peaks around 32–34 weeks of gestation.
- **Increased cardiac output:** Cardiac output rises by 30–50% due to the increased blood volume and heart rate.
- **Increased heart rate:** Resting heart rate increases by 10–20 beats per minute.
- **Decreased blood pressure:** Blood pressure tends to decrease slightly in the second trimester due to peripheral vasodilation, but returns to prepregnancy levels by term.
- **Venous stasis:** The enlarging uterus can compress the inferior vena cava, leading to venous stasis in the lower extremities, increasing the risk of edema and varicose veins.
- **Pseudoanemia:** Due to a larger increase in plasma volume compared to red blood cell production, a relative dilution of red blood cells occurs, leading to a physiological anemia of pregnancy.

Respiratory System

- **Increased tidal volume:** The volume of air inhaled and exhaled with each breath increases.
- **Increased minute ventilation:** The total volume of air breathed per minute increases.
- **Elevated diaphragm:** The enlarging uterus pushes the diaphragm upward, reducing lung capacity.
- **Increased oxygen consumption:** Oxygen consumption increases by 15–20% to meet the metabolic demands of pregnancy.
- **Nasal congestion and nosebleeds:** Increased estrogen levels cause swelling of the mucous membranes in the nose, leading to congestion and nosebleeds.
- **Shortness of breath:** Due to the elevated diaphragm, women may experience shortness of breath, especially during exertion.

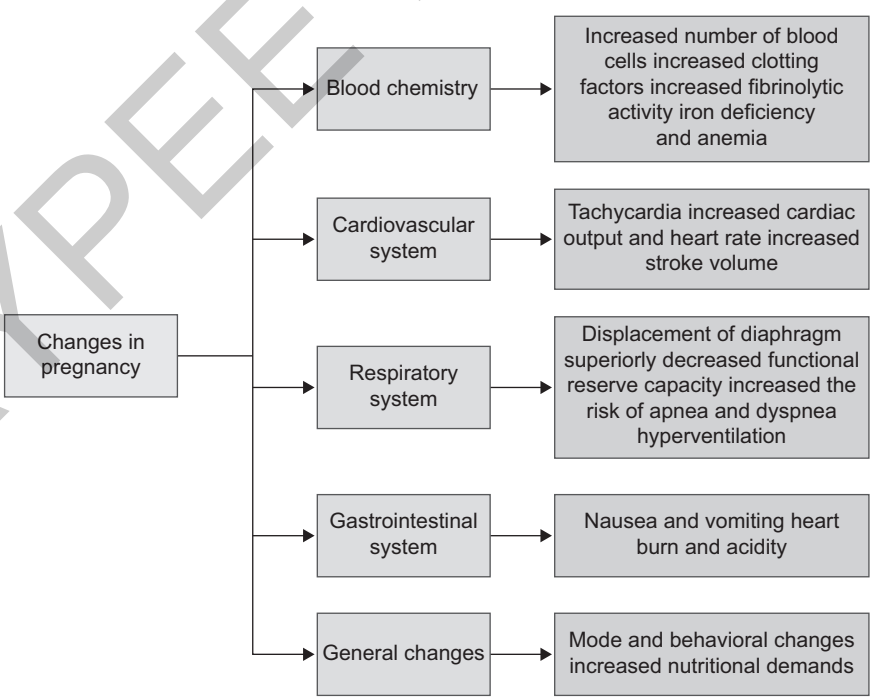

Fig. 1: Changes in pregnancy.

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Renal System

- **Increased glomerular filtration rate (GFR):** GFR increases by 50% due to increased renal blood flow.
- **Increased renal blood flow:** Renal blood flow increases to handle the increased blood volume and metabolic demands.
- **Increased frequency of urination:** The enlarging uterus compresses the bladder, leading to increased frequency of urination.
- **Glycosuria and proteinuria:** Small amounts of glucose and protein may be found in the urine due to increased GFR.
- **Ureteral dilation:** Progesterone causes relaxation of the smooth muscle in the ureters, leading to dilation and increased risk of urinary tract infections.

Gastrointestinal System

- **Nausea and vomiting:** Hormonal changes, particularly increased hCG levels, contribute to nausea and vomiting, especially in the first trimester.
- **Decreased gastric motility:** Progesterone causes relaxation of smooth muscle, leading to decreased gastric motility and delayed emptying.
- **Heartburn and indigestion:** The enlarging uterus pushes the stomach upward, leading to heartburn and indigestion.
- **Constipation:** Decreased gastric motility and increased water reabsorption in the colon contribute to constipation.
- **Increased appetite:** Increased metabolic demands lead to increased appetite.
- **Gum hypertrophy and bleeding:** Increased estrogen and progesterone can cause gum hypertrophy and bleeding.

Endocrine System:

- **Increased estrogen and progesterone:** These hormones maintain the pregnancy and prepare the body for childbirth and lactation.
- **Increased hCG:** Human chorionic gonadotropin is produced by the placenta and is responsible for maintaining the corpus luteum in early pregnancy.
- **Increased prolactin:** Prepares the mammary glands for lactation.
- **Increased relaxin:** Relaxes ligaments and joints to prepare for childbirth.
- **Changes in thyroid function:** Increased thyroid hormone levels occur during pregnancy.

Musculoskeletal System

- **Lordosis:** The enlarging uterus shifts the center of gravity forward, leading to increased lumbar lordosis (curvature of the spine).
- **Relaxation of ligaments and joints:** Relaxin softens ligaments and joints, leading to increased joint mobility and back pain.
- **Changes in gait:** The altered center of gravity and joint laxity can lead to changes in gait.

Integumentary System

- **Skin pigmentation changes**: Increased estrogen and progesterone stimulate melanin production, leading to darkening of the skin (melasma, linea nigra).
- **Stretch marks (Striae Gravidarum):** Stretching of the skin can lead to stretch marks.
- **Increased sweating:** Increased metabolic rate and hormonal changes lead to increased sweating.
- **Hair changes:** Some women experience changes in hair growth and texture.

Immune System

Immunomodulation: The immune system undergoes changes to accommodate the fetus, which is considered a foreign body. This can make pregnant women more susceptible to certain infections.

Brief the care of antenatal mother.

Antenatal care (ANC) aims to ensure a healthy pregnancy and delivery **(Fig. 2)**.

1. **Regular check-ups:**
   - Scheduled visits to monitor maternal and fetal well-being.
   - Frequency varies based on gestational age and risk factors.

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2. **Physical assessments:**
   - Blood pressure, weight, and urine checks.
   - Abdominal examination to assess fetal growth and position.
   - Fetal heart rate monitoring.
3. **Laboratory tests:**
   - **Blood tests:** Blood type, Rh factor, hemoglobin, screening for infections (HIV, syphilis, hepatitis B).
   - **Urine tests:** Protein, glucose, and infection screening.
   - Glucose screening for gestational diabetes.
   - Genetic screening, if indicated.
4. **Education and counseling:**
   - Nutrition and healthy eating.
   - Importance of rest and sleep.
   - Exercise and physical activity.
   - Hygiene and safe practices.
   - Warning signs and symptoms to report.
   - Preparation for labor, delivery, and postpartum.
   - Breastfeeding education.
   - Family planning.
5. **Immunizations:**
   - Tetanus toxoid vaccination.
   - Influenza and COVID-19 vaccinations, as recommended.
6. **Supplementation:**
   - Iron and folic acid supplements.
   - Calcium and vitamin D, if needed.
7. **Risk assessment and management:**
   - Identifying and managing preexisting conditions or pregnancy complications.
   - Referral to specialists when necessary.
8. **Emotional support:**
   - Addressing anxieties and concerns.
   - Providing support and resources.
   - Assessing for signs of depression or anxiety.



Fig. 2: Antenatal care.

2. a. List the indications for cesarean section, b. Explain the role of nurse in pre- and postoperative management of patient undergoing cesarean section.

A Cesarean sections (C-sections) are performed when vaginal delivery poses a risk to the mother or baby. Here is a list of common indications **(Fig. 3)**:

Maternal Indications

- **Cephalopelvic disproportion (CPD):** Baby's head too large for the mother's pelvis.
- **Previous C-section**: Depending on the type of prior incision and other factors.
- **Placenta previa:** Placenta covering the cervix.
- **Placental abruption**: Premature separation of the placenta.

Mnemonic: OCP and VAS deferens

- O Obstruction by pelvic mass
- C Contracted pelvis
- P Placenta previa - central
- V Vaginal obstruction
- A Advanced cervical cancer
- S Stenosis of vagina
- D Dystocia

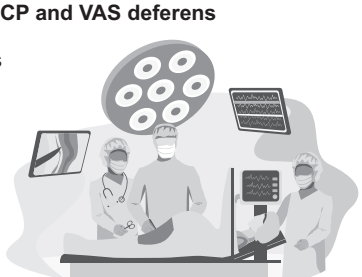

Fig. 3: Indications of cesarean section.

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- **Uterine rupture or risk of rupture:** Tear in the uterus.
- **Active genital herpes outbreak:** To prevent transmission to the baby.
- **Severe preeclampsia or eclampsia:** High blood pressure complications.
- **Maternal medical conditions:** Such as heart disease, uncontrolled diabetes.
- **Obstructed labor:** Labor that stops progressing.
- **Failed induction of labor:** When labor cannot be started artificially.
- **Maternal request:** In some cases, a woman may choose to have a C-section.

Fetal Indications

- **Fetal distress:** Signs that the baby is in trouble.
- **Breech presentation:** Baby positioned buttocks or feet first.
- **Transverse lie:** Baby positioned sideways.
- **Multiple gestation (twins, triplets, etc.):** Especially with complications.
- **Macrosomia:** Very large baby.
- **Congenital anomalies:** Certain birth defects.
- **Umbilical cord prolapse:** Cord slips into the vagina before the baby.
- **Fetal infection:** When passing through the birth canal would present a high risk of infection.

Explain the role of nurse in pre- and postoperative management of patient undergoing cesarean section.

Nurses play a vital role in both the preoperative and preoperative management of patients undergoing cesarean sections. Their contributions are essential for ensuring patient safety, comfort, and optimal recovery **(Fig. 4)**.

Preoperative Nursing Management

Patient Education and Preparation

- Explain the procedure, including the reasons for the C-section, the steps involved, and expected outcomes.
- Address patient anxieties and concerns, providing emotional support.
- Instruct on preoperative fasting guidelines.
- Explain the anesthesia process (spinal, epidural, or general).
- Inform about postoperative care, including pain management, wound care, and early ambulation.

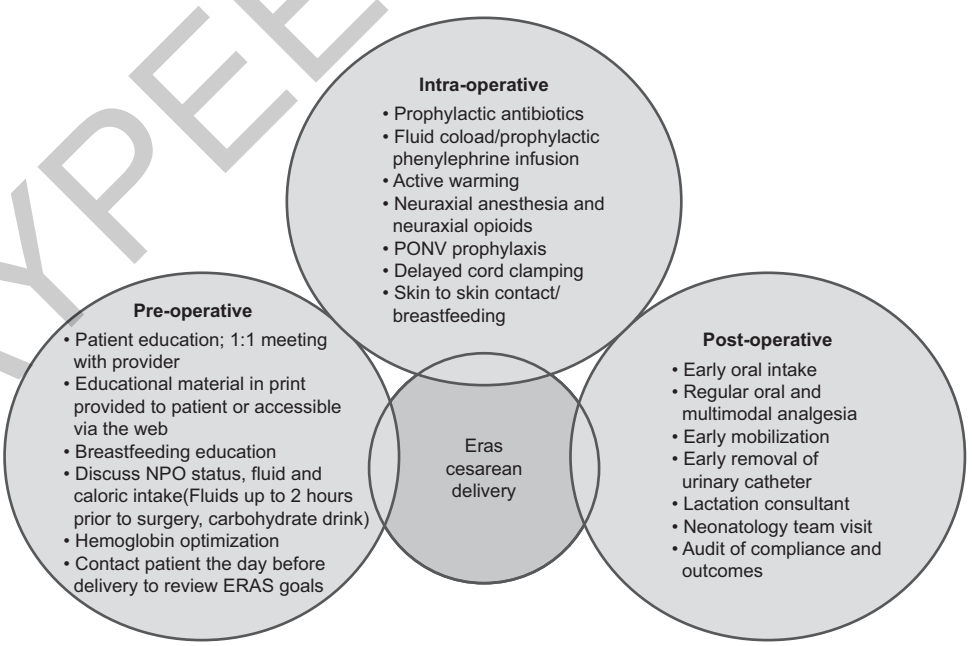

Fig. 4: Role of nurse in pre- and postoperative management of patient undergoing cesarean section.

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Preoperative Assessment

- Obtain vital signs (blood pressure, pulse, temperature, respiration).
- Review medical history, including allergies and medications.
- Assess fetal heart rate and maternal contractions.
- Ensure all preoperative laboratory tests and consents are completed.
- Confirm NPO status.

Physical Preparation

- Insert an intravenous (IV) line for fluid and medication administration.
- Perform abdominal skin preparation (shaving and cleaning).
- Insert a Foley catheter to empty the bladder.
- Administer preoperative medications as prescribed (e.g., antibiotics, antacids).

Emotional Support

- Provide calm reassurance.
- Support the patient's partner.

Postoperative Nursing Management

Immediate Postoperative Care

- Monitor vital signs and level of consciousness.
- Assess for signs of bleeding, infection, or complications.
- Monitor uterine fundal height and consistency.
- Assess lochia (postpartum vaginal discharge).
- Monitor intake and output.
- Administer pain medication as prescribed.

Pain Management

- Assess pain levels regularly.
- Administer pain medication as prescribed (IV, oral, or epidural).
- Offer non-pharmacological pain relief methods (e.g., positioning, relaxation techniques).

Wound Care

- Monitor the incision site for signs of infection (redness, swelling, drainage).
- Change dressings as needed.
- Educate the patient on proper wound care.

Respiratory Care

- Encourage deep breathing and coughing exercises to prevent pulmonary complications.
- Monitor oxygen saturation.

Circulatory Care

- Encourage early ambulation to prevent blood clots.
- Apply compression stockings as prescribed.
- Monitor for signs of deep vein thrombosis (DVT).

Gastrointestinal Care

- Monitor bowel sounds and function.
- Encourage fluid intake and a high-fiber diet to prevent constipation.
- Administer stool softeners as prescribed.

Urinary Care

- Monitor urine output and characteristics.
- Remove the Foley catheter as prescribed.
- Encourage frequent urination.

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Newborn Care

- Assist with breastfeeding or formula feeding.
- Provide education on newborn care.
- Facilitate bonding between mother and baby.

Emotional Support and Education

- Provide emotional support and address any concerns.
- Educate the patient on postpartum recovery, including warning signs and symptoms to report.
- Provide information on postpartum care, including contraception and follow-up appointments.

Discharge Planning

- Thoroughly review discharge instructions with the patient.
- Make sure the patient understands what to do, and who to contact, when they leave the hospital.

SHORT ESSAYS

3. Fetal circulation.

A Fetal circulation is a specialized circulatory system that allows a fetus to receive oxygen and nutrients from the placenta, bypassing the non-functioning lungs **(Fig. 5)**.

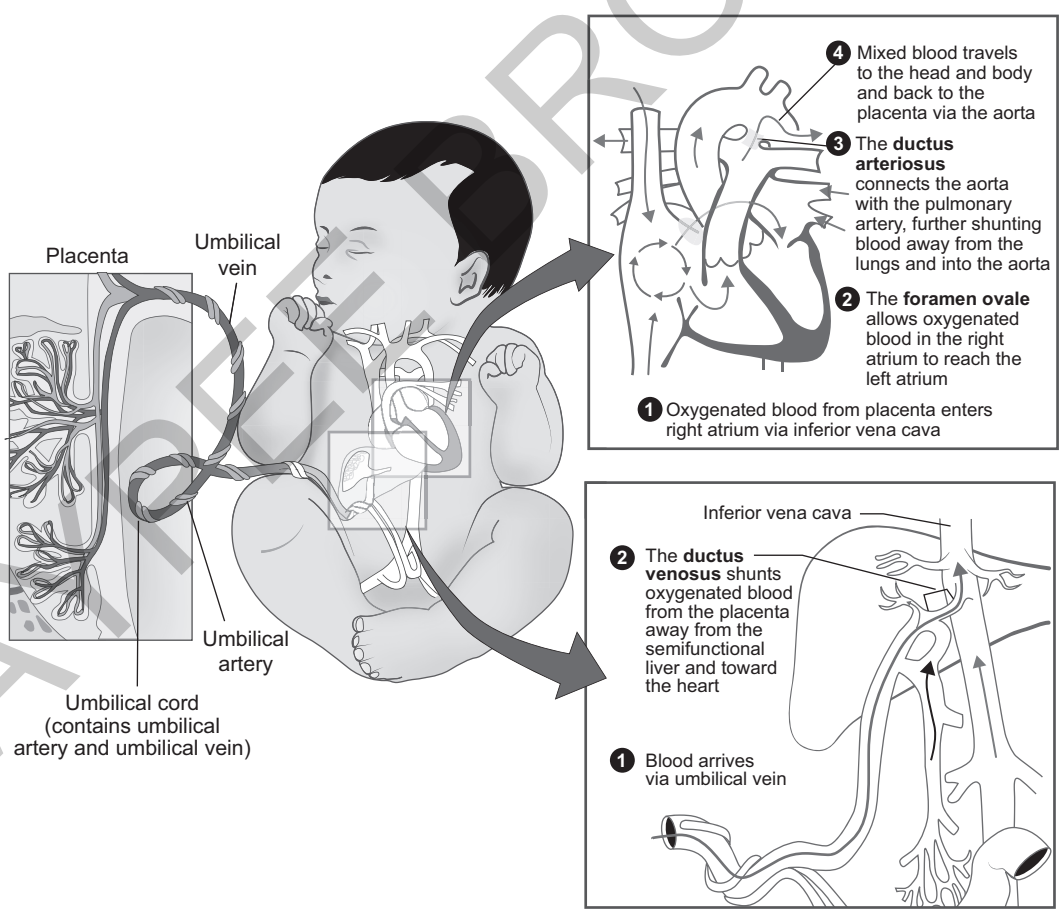

Fig. 5: Fetal circulation.

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Key Features

- **Placental oxygenation:**
  - The fetus receives oxygenated blood from the placenta, not the lungs.
  - Oxygen-rich blood travels from the placenta to the fetus via the umbilical vein.
- **Shunts:** Fetal circulation uses three shunts to bypass the lungs and liver:
- **Ductus venosus:** Bypasses the liver.
- **Foramen ovale**: Bypasses the lungs by allowing blood to flow from the right atrium to the left atrium.
- **Ductus arteriosus:** Bypasses the lungs by allowing blood to flow from the pulmonary artery to the aorta.
- **Umbilical vessels:**
  - The umbilical cord contains:
  - One umbilical vein (carrying oxygenated blood to the fetus).
  - Two umbilical arteries (carrying deoxygenated blood back to the placenta).

How it Works

- **Oxygenated blood from placenta:** Oxygenated blood from the placenta travels through the umbilical vein to the fetus.
- **Bypassing the liver:** The ductus venosus allows most of this blood to bypass the liver and flow directly into the inferior vena cava.
- **Entering the heart:** Blood enters the right atrium of the heart.
- **Bypassing the lungs:**
  - The foramen ovale allows most of the blood to flow directly from the right atrium to the left atrium, bypassing the lungs.
  - Some blood that remains in the right atrium will flow into the right ventricle, and then into the pulmonary artery.
  - The ductus arteriosus then shunts most of the blood in the pulmonary artery into the aorta, again bypassing the lungs.
- **Systemic circulation:**
  - Blood circulates through the fetal body, delivering oxygen and nutrients.
  - Deoxygenated Blood to Placenta:
  - Deoxygenated blood returns to the placenta through the umbilical arteries.
- **Changes at birth:**
  - When a baby takes its first breath, the lungs expand, and pulmonary blood flow increases.
  - The shunts (foramen ovale, ductus arteriosus, and ductus venosus) begin to close.
  - The circulatory system transitions to the normal adult pattern.
  - Fetal circulation is a remarkable adaptation that ensures the fetus receives the necessary oxygen and nutrients for development.

4. Breast complications in puerperium.

Ⓐ Breast complications during the puerperium (postpartum period) can cause significant discomfort and impact breastfeeding. Here are some common complications:

- **Engorgement:** This is a common condition where the breasts become overly full of milk, leading to swelling, tenderness, and pain **(Fig. 6)**. It usually occurs a few days after birth when milk production increases. It can make it difficult for the baby to latch on.
- **Mastitis:**
  - This is an infection of the breast tissue, often caused by bacteria entering through a cracked nipple or milk stasis.
  - Symptoms include breast pain, redness, warmth, swelling, fever, and flu-like symptoms. It requires prompt medical attention and antibiotic treatment.
- **Cracked or sore nipples:** These are common, especially in the early days of breastfeeding, and are often caused by improper latching. They can be painful and lead to mastitis if not properly cared for.

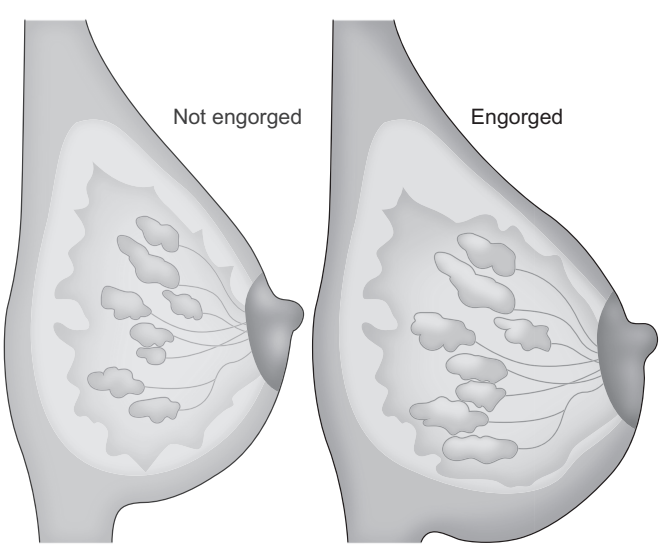

Fig. 6: Engorged breast.

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- **Blocked milk ducts:** This occurs when a milk duct becomes clogged, leading to a localized area of tenderness and swelling in the breast. It can be caused by infrequent feeding, tight bras, or incomplete emptying of the breast.
- **Breast abscess:**
  - This is a collection of pus within the breast tissue, usually a complication of untreated mastitis. It presents as a painful, red, and swollen lump.
  - It requires medical intervention, often including drainage of the abscess.
- **Thrush (nipple thrush):**
  - This is a fungal infection that can affect the nipples and the baby's mouth.
  - Symptoms include intense nipple pain, shiny or flaky nipples, and white patches in the baby's mouth. Both mother and baby need to be treated.
- **Galactocele:** This is a milk-filled cyst that can develop in the breast. It is usually painless and benign. It may resolve on its own or require aspiration.

5. Adaptation of newborn.

Ⓐ The adaptation of a newborn to extrauterine life is a complex and rapid process involving significant physiological changes.

Respiratory Adaptations (Fig. 7)

Initiation of Breathing:

- The first breath is crucial. It is triggered by a combination of factors, including chemical changes (decreased oxygen, increased carbon dioxide), thermal changes (sudden drop in temperature), and sensory stimuli.
- The lungs, previously filled with fluid, must expand.
- Surfactant, a substance that reduces surface tension in the alveoli, helps prevent lung collapse.

Establishment of Lung Function

- The lungs rapidly fill with air, and the fluid is absorbed.
- Pulmonary blood flow increases significantly.
- The respiratory rate is initially rapid and irregular, gradually stabilizing.

Cardiovascular Adaptations

Closure of Fetal Shunts

- The foramen ovale, ductus arteriosus, and ductus venosus close, transitioning from fetal to neonatal circulation.
- Increased oxygen levels and changes in pressure gradients trigger these closures.
- The umbilical vessels constrict and close.

Establishment of Independent Circulation

- The pulmonary circulation becomes functional, and blood flows through the lungs for oxygenation.
- The heart rate is initially rapid and may fluctuate.

Thermoregulation

- **Maintaining body temperature:** Newborns are prone to heat loss due to their large surface area to body mass ratio and limited subcutaneous fat.
- **Mechanisms to maintain temperature include:**
  - **Non-shivering thermogenesis:** Breakdown of brown adipose tissue (BAT) for heat production.
  - **Peripheral vasoconstriction:** Reducing blood flow to the skin to conserve heat. Flexed posture: to reduce surface area.
  - **Preventing cold stress:** Cold stress can lead to respiratory distress, hypoglycemia, and metabolic acidosis.

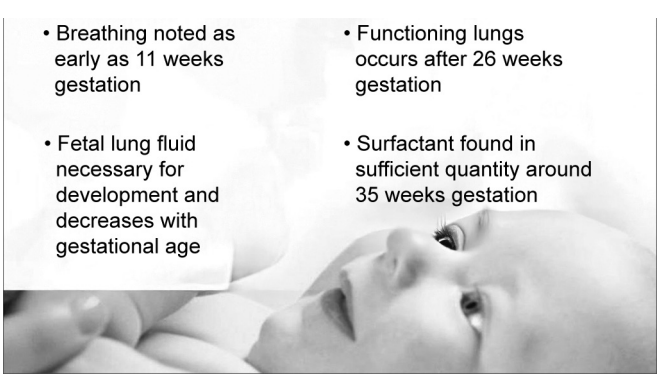

Fig. 7: Neonatal respiratory adaptations.

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Metabolic Adaptations

Glucose Regulation

- Newborns must adapt to an independent source of glucose.
- Glycogen stores are used initially, followed by glucose production from other sources.
- Monitoring for hypoglycemia is essential.

Electrolyte Balance

- Kidney function is immature, and newborns have limited ability to concentrate urine.
- Maintaining fluid and electrolyte balance is crucial.

Gastrointestinal Adaptations

Initiation of Feeding

- The newborn's digestive system begins to function.
- Meconium, the first stool, is passed.
- Sucking and swallowing reflexes are essential for feeding.

Establishment of Gut Microbiota

The gut begins to be colonized with bacteria.

Hepatic Adaptations

Liver Function

- The liver begins to process bilirubin, a byproduct of red blood cell breakdown.
- Jaundice can occur due to immature liver function.
- The liver also plays a role in glucose regulation and coagulation.

Immunological Adaptations

Passive Immunity

- Newborns receive passive immunity from maternal antibodies (IgG) that cross the placenta.
- This provides temporary protection against infections.

Development of Immune System

The newborn's immune system gradually develops its own ability to produce antibodies.

Behavioral Adaptations

Neurological Function

- Newborns exhibit reflexes (e.g., Moro, rooting, sucking).
- They have periods of sleep and wakefulness.
- Sensory abilities are developed.

Bonding and Attachment

- Early skin-to-skin contact promotes bonding between parents and the newborn.
- These adaptations are essential for the newborn's successful transition from intrauterine to extrauterine life.

6. Hyperemesis gravidarum.

Hyperemesis gravidarum (HG) is a severe form of nausea and vomiting during pregnancy. It is much more intense than typical "morning sickness" and can lead to significant complications **(Fig. 8)**.

- **Severe nausea and vomiting:** HG involves persistent and excessive vomiting, often multiple times a day. This can make it impossible to keep down food or liquids.



Fig. 8: Complications of hyperemesis gravidarum (HG).

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- **Dehydration:** Frequent vomiting leads to fluid loss, causing dehydration.
- Signs of dehydration include dizziness, lightheadedness, and dark urine.
- **Weight Loss:** The inability to keep down food results in significant weight loss, often exceeding 5% of prepregnancy weight.
- **Electrolyte Imbalances:** Vomiting disrupts the balance of electrolytes in the body, which can cause serious health problems.

Causes

- The exact cause of HG is not fully understood.
- Hormonal changes during pregnancy, particularly elevated levels of human chorionic gonadotropin (hCG) and estrogen, are thought to play a role.
- Recent research has shown links to a hormone called GDF-15.

Risk factors include:

- First pregnancy.
- Multiple pregnancies (twins, triplets).
- History of HG in previous pregnancies.

Complications

- **Maternal complications:**
  - Dehydration can lead to kidney damage.
  - Electrolyte imbalances can cause cardiac arrhythmias.
  - Esophageal tears from severe vomiting.
  - Vitamin deficiencies.
- **Fetal complications:** Severe HG can lead to low birth weight.

Treatment:

- **Lifestyle changes:**
  - Eating small, frequent meals.
  - Avoiding trigger foods and smells.
  - Staying hydrated.
- **Medications:**
  - Anti-nausea medications (antiemetics) are often prescribed.
  - Vitamin B6 is also common.
- **Hospitalization:** In severe cases, hospitalization may be necessary for IV fluids, electrolyte replacement, and nutritional support.

7. Placental separation

Placental separation is a crucial event in the third stage of labor, occurring after the delivery of the baby. It involves the detachment of the placenta from the uterine wall **(Fig. 9)**.

Process

- **Uterine contractions:** After the baby is born, the uterus continues to contract. These contractions cause the uterus to shrink in size, reducing the surface area where the placenta is attached.
- **Shearing force:** The decrease in uterine surface area creates a shearing force that separates the placenta from the decidua basalis (the lining of the uterus where the placenta was attached).
- **Hematoma formation:** As the placenta separates, blood vessels rupture, forming a hematoma (collection of blood) behind the placenta. This hematoma helps to further detach the placenta.

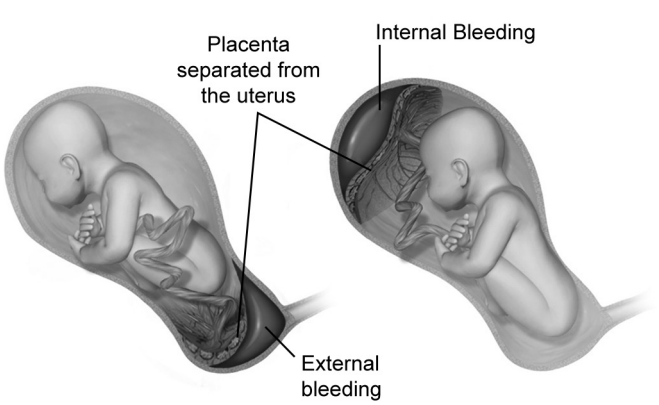

Fig. 9: Placental separation.

- **Descent and expulsion:** The detached placenta descends through the birth canal and is expelled from the uterus.

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Types of Placental Separation

There are two main mechanisms of placental separation:

1. **Schultze mechanism:** The placenta separates centrally, with the fetal surface (shiny side) presenting first. Blood collects behind the placenta, forming a retroplacental hematoma. This is the more common type.
2. **Matthews-Duncan mechanism:** The placenta separates at the edges, with the maternal surface (rough side) presenting first. Blood trickles down the membranes.

Signs of Placental Separation

- **Sudden gush of blood:** A small gush of blood often occurs as the placenta separates.
- **Lengthening of the umbilical cord:** As the placenta descends, the umbilical cord appears to lengthen.
- **Uterine fundus rises:** The uterus becomes globular and rises in the abdomen.
- **Change in uterine shape:** The uterus goes from a discoid to a globular shape. A small gush of blood.

Complications:

- **Retained placenta:** The placenta fails to separate or be expelled within 30 minutes of delivery. This can lead to postpartum hemorrhage.
- **Placenta accreta, increta, or percreta:** Abnormal placental implantation where the placenta grows too deeply into the uterine wall. This can cause severe hemorrhage.
- **Postpartum hemorrhage:** Excessive bleeding after delivery, which can be life-threatening.

Management

- **Active management of the third stage of labor:** This involves administering oxytocin to stimulate uterine contractions, controlled cord traction, and uterine massage.
- Monitoring for signs of placental separation and complications.
- Ensuring complete expulsion of the placenta and membranes.
- Placental separation is a normal and essential part of childbirth. Proper management of the third stage of labor is crucial to prevent complications.

8. Role of NICU nurse in prevention of infection in the neonatal unit.

A NICU nurses play a crucial role in preventing infections in the vulnerable neonatal population. Their meticulous attention to detail and adherence to strict protocols are essential for minimizing the risk of healthcare-associated infections **(Fig. 10)**.

Hand Hygiene

- **Strict adherence:** NICU nurses are meticulous about handwashing, using soap and water or alcohol-based hand rubs before and after every patient contact, procedure, or handling of equipment.
- **Education:** They educate parents and visitors on the importance of hand hygiene.

Environmental Control

- **Cleaning and disinfection:** They ensure thorough cleaning and disinfection of all surfaces, equipment, and incubators according to established protocols.

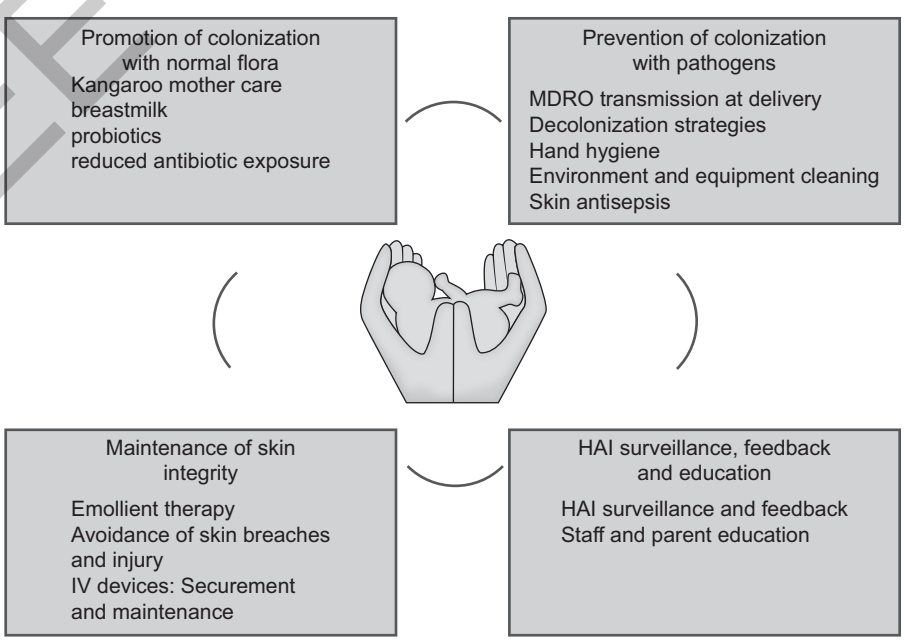

Fig. 10: Prevention of infections in NICU.

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- **Waste management:** They follow proper procedures for disposing of contaminated materials.
- **Maintaining a clean environment:** They strive to keep the NICU environment as clean and organized as possible.

Infection Surveillance and Monitoring

- **Observing for signs of infection:** They closely monitor newborns for any signs of infection, such as temperature instability, changes in feeding, lethargy, or respiratory distress.
- **Reporting suspected infections**: They promptly report any suspected infections to the medical team.
- **Monitoring lab values:** They monitor lab values, such as white blood cell counts and C-reactive protein levels, for indicators of infection.

Aseptic Techniques

- **Sterile procedures:** They perform all invasive procedures, such as IV insertion, central line care, and endotracheal suctioning, using strict aseptic techniques.
- **Maintaining sterile fields:** They maintain sterile fields during procedures to prevent contamination.
- **Proper handling of equipment**: They handle all equipment and supplies using sterile or clean techniques.

Respiratory Care

- **Suctioning techniques:** They use proper suctioning techniques to prevent respiratory infections.
- **Ventilator care:** They provide meticulous care for infants on ventilators, including frequent circuit changes and monitoring for ventilator-associated pneumonia.
- **Oxygen therapy:** They administer oxygen therapy using sterile equipment and follow proper humidification protocols.

Feeding and Nutrition

- **Safe feeding practices:** They adhere to safe feeding practices, including proper preparation and storage of breast milk or formula.
- **Oral care:** They provide regular oral care to prevent oral thrush and other infections.
- **Monitoring feeding tolerance:** They monitor infants for signs of feeding intolerance, which can increase the risk of infection.

Skin Care

- **Umbilical cord care:** They provide proper umbilical cord care to prevent infection.
- **Skin integrity:** They maintain skin integrity by using gentle cleansing techniques and preventing skin breakdown.
- **Diaper care:** they ensure frequent diaper changes.

Medication Administration

- **Proper administration:** They administer antibiotics and other medications as prescribed, following proper dosage and administration guidelines.
- **Monitoring for adverse reactions:** They monitor infants for any adverse reactions to medications.

Education and Training

- **Ongoing training:** NICU nurses participate in ongoing training and education on infection prevention practices.
- **Parent education:** They educate parents on infection prevention measures, such as hand hygiene and recognizing signs of infection.

Implementing Infection Control Policies

- **Following guidelines:** NICU nurses follow all established infection control policies and guidelines.
- **Reporting deviations:** They report any deviations from infection control protocols.
- **Participating in audits:** They participate in infection control audits to assess compliance with protocols.

9. Explain the essential components of RCH.

Ⓐ It is important to clarify that "RCH" most commonly refers to "Reproductive and Child Health." This program, especially within the context of Indian public health, has some essential components.

The RCH program aims to provide comprehensive healthcare services to women and children, focusing on **(Fig. 11)**:

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Maternal Health

- **Antenatal care (ANC):** Regular check-ups, monitoring, and education for pregnant women.
- **Safe delivery:** Ensuring access to skilled birth attendants and emergency obstetric care.
- **Postnatal care (PNC):** Monitoring and support for mothers after delivery.

Management of obstetric complications.

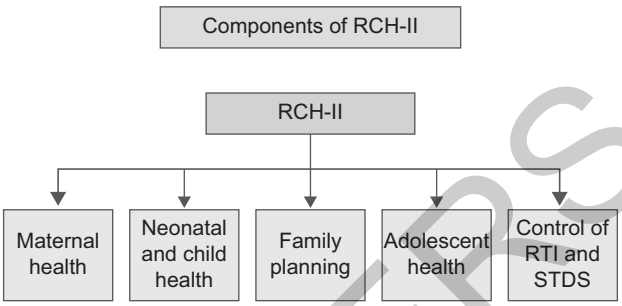

Fig. 11: Components of RCH.

Child Health

- **Immunization:** Protecting children from preventable diseases.
- **Management of childhood illnesses**: Treating common childhood infections like pneumonia and diarrhea.
- **Nutritional support**: Promoting healthy growth and development. Infant and young child feeding practices.

Family Planning

- Providing access to contraceptive services.
- Counseling on family planning methods.
- Promoting responsible parenthood.

Reproductive Health

- Addressing adolescent reproductive health needs.
- Preventing and managing reproductive tract infections (RTIs) and sexually transmitted infections (STIs).

Key Aspects of RCH

- **Integration:** RCH aims to integrate maternal, child, and reproductive health services.
- **Community involvement:** Engaging communities to promote health-seeking behaviors.
- **Strengthening healthcare infrastructure:** Ensuring adequate facilities and skilled personnel.
- The RCH program is designed to reduce maternal and child mortality and improve the overall health of women and children.

SHORT ANSWERS

10. What is GTT?

A. The abbreviation "GTT" can have different meanings depending on the context. However, it most commonly refers to:

- **Glucose tolerance test:**
  - This is a medical test used to diagnose diabetes or gestational diabetes (diabetes during pregnancy).
  - It measures how well your body processes sugar (glucose).
  - The test involves drinking a sugary solution and then having blood samples taken at specific intervals to measure blood glucose levels.
  - In the context of the stock market, GTT means:
- **Good till triggered (GTT):**
  - This is a feature in stock trading that allows investors to place buy or sell orders that remain active until a specified price ("trigger price") is reached.
  - This automates trading and eliminates the need to constantly monitor market fluctuations.

11. List four obstetric emergencies in labor.

A. Obstetric emergencies during labor require immediate medical intervention to safeguard the health of both the mother and the baby.

1. **Umbilical cord prolapse:** This occurs when the umbilical cord descends into the vagina before the baby, potentially compressing the cord and cutting off the baby's oxygen supply.

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2. **Uterine rupture:** This is a tear in the wall of the uterus, which can lead to severe internal bleeding and fetal distress. It is more common in women who have had previous cesarean deliveries or other uterine surgeries.
3. **Placental abruption:** This involves the premature separation of the placenta from the uterine wall, which can cause heavy bleeding and deprive the baby of oxygen.
4. **Shoulder dystocia:** This occurs when the baby's shoulders become impacted in the mother's pelvis after the head has been delivered, making it difficult to deliver the rest of the baby's body.

12. Types of pelvis.

A There are four main types of pelvis classified based on their shape and dimensions. These classifications are important in obstetrics as they influence the ease of childbirth. Here are the types of Pelvis **(Fig. 12)**:

1. **Gynecoid pelvis:**
   - This is the "typical female" pelvis and is considered the most favorable for childbirth.
   - It has a rounded or oval inlet, straight side walls, and a wide subpubic arch.
   - Approximately 50% of women have this type of pelvis.
2. **Android pelvis:**
   - This pelvis resembles the male pelvis and is less favorable for childbirth.
   - It has a heart-shaped or triangular inlet, convergent side walls, and a narrow subpubic arch.
   - It is associated with a higher risk of prolonged labor and cesarean delivery.
   - Approximately 20% of women have this type of pelvis.
3. **Anthropoid pelvis:**
   - This pelvis is characterized by an oval inlet with a longer anteroposterior diameter than the transverse diameter.
   - It has straight side walls and a wide subpubic arch.
   - While vaginal delivery is possible, there is a tendency for the baby to be born in the occiput posterior position.
   - Approximately 25% of women have this type of pelvis.
4. **Platypelloid pelvis:**
   - This pelvis has a flattened, oval inlet with a short anteroposterior diameter and a wide transverse diameter.
   - It has straight side walls and a wide subpubic arch.
   - This type is the least common and can make vaginal delivery challenging.
   - Approximately 5% of women have this type of pelvis.

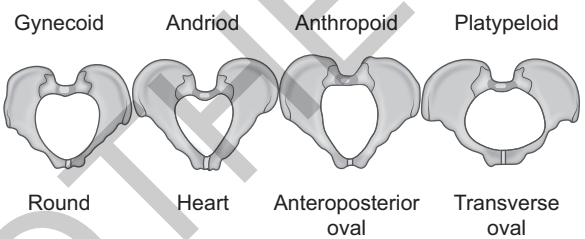

Fig. 12: Types of pelvis.

13. State two indications of forceps delivery.

A Forceps delivery is an assisted vaginal delivery procedure used when certain complications arise during childbirth. Here are two key indications:

1. **Prolonged second stage of labor:** This occurs when the pushing stage of labor lasts longer than expected, and there is concern for maternal exhaustion or the baby's well-being.
2. **Fetal distress:** If there are signs that the baby is in distress, such as an abnormal fetal heart rate pattern, and a rapid delivery is necessary.

14. Mention two indicators of fetal well-being.

A

1. **Fetal heart rate (FHR):** A normal FHR range indicates that the baby is receiving adequate oxygen. Variations in the FHR (e.g., accelerations, decelerations) provide information about the baby's response to stress.
2. **Fetal movement:** Regular fetal movement is a sign that the baby is active and healthy. A decrease in fetal movement can be a warning sign that the baby is in distress.

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15. Define position, presentation.

A In obstetrics, "position" and "presentation" describe the relationship between the fetus and the maternal pelvis. Here is a clear definition of each:

Presentation

Definition: Presentation refers to the part of the fetus that enters the pelvic inlet first and occupies the lower pole of the uterus.

Types

- **Cephalic presentation:** The baby's head is presenting (most common).
- **Breech presentation:** The baby's buttocks or feet are presenting.
- **Shoulder presentation:** The baby's shoulder is presenting.
- **Compound presentation:** A limb presents alongside the presenting part.
- **Significance:** Presentation determines the route of delivery and potential complications.

Position

Definition: Position refers to the relationship of a designated point on the presenting part to the four quadrants of the maternal pelvis.

Designated Points:

- In cephalic presentation, the occiput (back of the head) is the designated point.
- In breech presentation, the sacrum is the designated point.
- In shoulder presentation, the acromion process of the scapula is the designated point.

Quadrants: The maternal pelvis is divided into four quadrants: left anterior, right anterior, left posterior, and right posterior.
Significance: Position influences the progress of labor and the mechanism of delivery.

16. Phases of physiology of lactation.

A

- **Mammogenesis:** Breast development.
- **Lactogenesis I:** Milk production begins (colostrum), but is limited by progesterone.
- **Lactogenesis II:** Copious milk production starts after birth (progesterone drops).
- **Galactopoiesis:** Maintenance of milk supply.
- **Involution:** Milk production stops, breasts return to prepregnancy state.

17. What is Jacquemier's sign?

A Jacquemier's sign, also commonly known as Chadwick's sign, is an early indication of pregnancy. It refers to:

- A purplish or bluish discoloration of the cervix, vagina, and vulva.
- This discoloration is caused by increased blood flow (vascular congestion) to those areas due to hormonal changes in early pregnancy. It typically appears around 6 to 8 weeks of gestation.

18. Write any two diameters of fetal skull.

1. **Biparietal diameter (BPD):**
   - This is the distance between the two parietal bones of the fetal skull.
   - It is the largest transverse diameter of the fetal head.
   - It is a key measurement used to estimate fetal gestational age and assess fetal growth.
2. **Occipitofrontal diameter (OFD):**
   - This is the distance from the occiput (back of the head) to the frontal bone (forehead).
   - It is an important anteroposterior diameter of the fetal head.
   - This diameter is relevant to the ability of the fetal head to pass through the maternal pelvic inlet.

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19. Define normal labor.

A Normal labor, also known as spontaneous vaginal delivery, is defined as a series of progressive uterine contractions that result in the effacement and dilation of the cervix, leading to the expulsion of the fetus and placenta through the birth canal.

- **Onset of regular contractions:** Labor begins with regular, painful uterine contractions that increase in frequency, duration, and intensity.
- **Cervical changes:** These contractions lead to progressive effacement (thinning) and dilation (opening) of the cervix.
- **Fetal descent:** The fetus descends through the birth canal.
- **Expulsion of the fetus and placenta:** The baby is delivered vaginally, followed by the delivery of the placenta.
- **Spontaneous onset and progression:** Normal labor occurs spontaneously, without artificial induction, and progresses naturally.
- **Vertex presentation:** the baby presents head down.
- **No major complications:** Normal labor is free from major maternal or fetal complications.

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