Dyspepsia in Early Pregnancy as a Result of Hormonal and Functional Changes: A Case Report

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Abstract.

Introduction: Dyspepsia is a common gastrointestinal complaint in early pregnancy, generally associated with hormonal and functional changes. This condition may reduce quality of life, affect maternal nutritional status, and present a diagnostic challenge in differentiating it from other conditions such as hyperemesis gravidarum or gastrointestinal infection. Case Report: A 27-year-old woman, G1P0A0, at 10 weeks of gestation, presented with nausea and vomiting more than two times per day, accompanied by epigastric discomfort and bloating after meals. Physical examination revealed epigastric tenderness without signs of severe dehydration. Laboratory tests showed normal hemoglobin, mildly elevated leukocytes, slightly decreased potassium, and the presence of bacteria and leukocytes in urine. Result: A working diagnosis of dyspepsia in early pregnancy was established after ruling out hyperemesis gravidarum and gastroenteritis. The patient was treated with Ringer's lactate infusion, intravenous ondansetron, antacids, and vitamin B complex supplementation, which led to improvement of symptoms. Conclusion: Dyspepsia during pregnancy is a common complaint with both hormonal and functional etiologies. Diagnosis requires thorough history-taking and exclusion of important differential diagnoses. Management should prioritize lifestyle modification and supportive therapy, with safe pharmacotherapy during pregnancy when necessary.

Keywords: *Dyspepsia; Pregnancy; Nausea; Vomiting and Early Pregnancy.*

I. INTRODUCTION

Pregnancy is a physiological condition accompanied by various hormonal and functional changes that affect almost every organ system in the mother's body, including the gastrointestinal system. These changes begin early in pregnancy and play a crucial role in the mother's adaptation to fetal growth and development. However, these changes often lead to various gastrointestinal complaints that can disrupt the comfort and quality of life of pregnant women, one of which is dyspepsia [1].Dyspepsia is defined as a collection of symptoms centered in the epigastric region, including pain or discomfort in the pit of the stomach, a feeling of fullness after eating, early satiety, nausea, vomiting, bloating, and excessive belching. In the general population, dyspepsia is a common complaint, but its prevalence is reported to increase in pregnant women, particularly in the first trimester [2]. Most cases of dyspepsia in pregnancy are functional in nature, although symptoms can mimic organic gastrointestinal disorders.Hormonal changes, particularly increased progesterone and estrogen levels, are major factors contributing to dyspepsia in early pregnancy. Progesterone has a relaxing effect on smooth muscle, including the smooth muscle of the gastrointestinal tract, resulting in decreased gastrointestinal motility and delayed gastric emptying [3]. This condition can cause a feeling of fullness, early satiety, and epigastric pain characteristic of dyspepsia. Furthermore, progesterone also decreases lower esophageal sphincter tone, which increases the risk of gastroesophageal reflux and exacerbates dyspeptic symptoms [4], [5].

In addition to hormonal changes, other functional factors contribute to the development of dyspepsia in early pregnancy. Increased visceral sensitivity, changes in gastric acid secretion, and psychological factors such as stress and anxiety, especially in primigravidas, are known to play a role in exacerbating gastrointestinal symptoms during pregnancy [4]–[6]. The interaction between these hormonal and functional factors makes dyspepsia a multifactorial and complex complaint. Although dyspepsia in pregnancy is generally not life-threatening and often improves with gestational age, it can significantly impact nutritional intake, nutritional status, and daily activities of pregnant women. Prolonged disturbances in food intake due to dyspepsia have the potential to impact maternal and fetal health if not properly managed [7], [8]. Management of dyspepsia in pregnancy also requires caution due to the limited availability of medications

that are safe for the fetus. Therefore, understanding the mechanisms of dyspepsia in early pregnancy and appropriate diagnostic and therapeutic approaches is crucial for clinicians. This case report aims to describe the clinical manifestations of dyspepsia in early pregnancy as a result of hormonal and functional changes, and emphasizes the importance of a safe and appropriate management approach for pregnant women.

II. METHODS

This study is a case report with a descriptive design that aims to describe the incidence of dyspepsia in early pregnancy related to hormonal and functional changes in the gastrointestinal tract. The study subjects were pregnant women in their first trimester who presented to a healthcare facility with a chief complaint of heartburn accompanied by dyspeptic symptoms, such as nausea, a feeling of fullness after eating, and early satiety. Subject selection was based on the clinical presentation of dyspepsia and confirmation of gestational age.Data was collected through: 1) Anamnesis, including patient identity, gestational age, chief complaint, history of present illness, past medical history, obstetric history, dietary habits, and factors that aggravate or alleviate the symptoms; 2)

Physical examination, focusing on abdominal examination and evaluation of vital signs to assess the patient's general condition and rule out other possible organic causes; 3) Supportive examinations, including laboratory tests and/or obstetric ultrasonography, if necessary, to confirm gestational age and assess the condition of the mother and fetus; 4) Evaluation of management, including non-pharmacological and pharmacological therapies administered and the patient's clinical response to these therapies.Data were analyzed descriptively by comparing the patient's clinical findings with relevant scientific literature. The analysis focused on the relationship between hormonal and functional changes in early pregnancy and the onset of dyspeptic symptoms and the response to treatment. This research was conducted in accordance with the principles of medical ethics. Informed consent was obtained prior to clinical data collection and publication, and patient confidentiality was strictly maintained.

III. RESULT AND DISCUSSION

Case Report

A patient named Mrs. CDW, 27, G1P0A0, presented to the Emergency Department of UKI Hospital complaining of nausea and vomiting for 2 days. She had vomited more than twice, containing food and liquid. She denied morning vomiting. She also complained of intermittent epigastric discomfort and bloating, especially after eating. Her appetite was reported to be good, and she denied weight loss.The patient also experienced two loose stools today. She denied any tarry stools, mucus, or blood. She had been hospitalized the day before arriving at the emergency room, but laboratory results were normal, so she was provided with medication and outpatient care. She reported no improvement. She also denied occasional abdominal cramps, spotting, and blood from the birth canal. She denied fever and acetone-like breath odor. Her urination was normal. The patient reported being 9 weeks pregnant, with a positive pregnancy test (positive) from 9 weeks prior. She regularly visits an obstetrician and gynecologist and regularly takes folic acid and iron supplements.

This is her first pregnancy. She began menstruating at age 15, with a 28-day cycle lasting 5-7 days. She changes her sanitary pads 3 times daily, and her last menstrual period was June 28, 2025. She denied experiencing excessive pain during her period. She stated that this was her first marriage and had been married for 1.5 years.A physical examination revealed a good general condition, with vital signs within normal limits, with tenderness and percussion in the epigastric region. No sunken eyes, decreased skin turgor, and a capillary refill time of <2 seconds were noted. Obstetric and gynecological examinations revealed no abnormalities. Laboratory tests revealed a hemoglobin of 12.8 g/dL, a slightly elevated leukocyte count (10,900/µL), and nearly normal electrolytes except for a slightly decreased potassium (3.3 mmol/L). Urine analysis revealed positive bacteria and a slightly elevated leukocyte count (3-5/µL), but negative for acetone.Based on the history and examination, a working diagnosis of dyspepsia in early pregnancy was established. Differential diagnoses considered included hyperemesis gravidarum, gastritis, and acute gastroenteritis.

Management of dyspepsia in pregnancy

Management of dyspepsia in pregnancy is carried out in stages, prioritizing non-pharmacological approaches. Patients are advised to eat small, frequent meals, avoid fatty, spicy, and acidic foods, and avoid lying down immediately after eating. Elevation of the head of the bed and loose clothing are recommended to reduce intra-abdominal pressure.If symptoms do not improve, pharmacological therapy can be given. The pharmacological treatment given to this patient is IVFD RL 500 ml + Ondansetron 1 x 8 mg Lactated Ringer (RL) is an isotonic crystalloid fluid that is very important for rehydration. In this case, RL is used to treat dehydration caused by excessive vomiting, as well as to restore electrolyte balance. Ondansetron is an antiemetic drug in the serotonin 5-HT_3 receptor antagonist class that works centrally to control nausea and vomiting. Administering this drug intravenously (IV) provides a fast and effective effect, especially in cases of excessive vomiting.

The patient was also given Antacid syrup 3 x 1 C. Antacids are stomach acid neutralizing agents that work locally. This drug functions to coat the gastric mucosa and neutralize increased stomach acid. In cases of dyspepsia, increased stomach acid can cause stomach irritation and symptoms of heartburn. Syrup (syrup) was chosen because it has a faster onset of action than tablets, providing faster symptom relief. In addition, the patient was also given Vitamin B Complex 3 x 1. Vitamin B complex, especially Pyridoxine (Vitamin B6), plays an important role in metabolism and nervous system function. Pyridoxine is known to be effective in relieving nausea and vomiting in pregnancy by modulating neurotransmitters in the brain. This vitamin also helps address nutritional deficiencies and supports the body's metabolism, which is important for the health of both mother and fetus.Complications of dyspepsia during pregnancy are generally rare. However, if severe and untreated, it can lead to decreased maternal nutritional intake, weight gain, and indirectly affect fetal growth. Evaluation and monitoring are necessary to prevent negative impacts on both the mother and the fetus.

Discussion

Dyspepsia, also known as "heartburn," is a discomfort or pain originating from the upper gastrointestinal tract. Common symptoms include bloating, heartburn, nausea, and a burning sensation in the chest (heartburn). This condition is very common in pregnant women, estimated to affect up to 80% of pregnancies. It often peaks in the second and third trimesters. Dyspepsia in pregnancy is caused by a combination of hormonal, physiological, and mechanical factors. Increased progesterone during pregnancy decreases gastrointestinal smooth muscle tone, slows gastric emptying, and lowers lower esophageal sphincter pressure, thus predisposing to gastroesophageal reflux. Estrogen also plays a role in slowing intestinal motility. Furthermore, uterine enlargement with advancing gestation increases intra-abdominal pressure, which can exacerbate symptoms. Psychological factors and dietary habits can also influence the onset of symptoms [9].This case highlights the link between hormonal and functional factors in the development of dyspepsia in early pregnancy. In the first trimester, progesterone levels increase significantly to maintain the pregnancy. A side effect of this condition is relaxation of gastrointestinal smooth muscle, which leads to slower gastric emptying and decreased lower esophageal sphincter pressure. This mechanism explains why pregnant women often experience fullness, nausea, and a burning sensation in the pit of the stomach. Increased estrogen also affects intestinal motility by slowing food transit.

However, functional factors also play a significant role. In this patient, a history of recurrent vomiting and dyspepsia is influenced not only by hormones but also by lifestyle and dietary factors. Eating large meals at once, consuming fatty or spicy foods, and lying down immediately after eating can exacerbate symptoms. Psychological conditions such as anxiety in early pregnancy can also exacerbate functional gastrointestinal symptoms [10]. Therefore, understanding both hormonal and functional aspects is crucial in the clinical approach. Management should not rely solely on pharmacotherapy; it must begin with modifications to eating behaviors, lifestyle, and psychological support. These interventions will reduce the need for pharmacological therapy and improve patient comfort during pregnancy [11]. The diagnosis is based on a history of typical symptoms such as epigastric pain, postprandial fullness, and nausea and vomiting. A thorough history is taken to assess the symptoms: onset, frequency, characteristics (dull/sharp pain, burning sensation), triggers (food/position), and alleviating factors [10].

The physical examination is generally nonspecific. It focuses on evaluating vital signs, weight, and signs of complications such as anemia. Differential Diagnosis: It is important to rule out other conditions such as gastritis, peptic ulcer disease, pancreatitis, and gallbladder disease. Endoscopy is not routinely recommended during pregnancy unless there are strong indications (e.g., red flags).In this case report, a 27-year-old patient, G2P1A0, 10 weeks gestation, presented with nausea and vomiting more than five times per day and epigastric discomfort. The primary differential diagnosis was hyperemesis gravidarum. However, the patient showed no signs of dehydration, weight loss, or acetone odor, and laboratory tests did not support a metabolic disorder [12], [13]. This is in accordance with ACOG guidelines (2018), which emphasize that hyperemesis gravidarum is typically characterized by persistent vomiting, ketonuria, and significant electrolyte imbalance. In this case, mild hypokalemia (3.3 mmol/L) may be more related to recurrent vomiting than severe hyperemesis. Other differential diagnoses such as gastritis and gastroenteritis can also be ruled out due to the absence of a history of gastric irritant medication use, high fever, or bloody diarrhea

IV. CONCLUSION

Dyspepsia is a common complaint during pregnancy due to hormonal and physiological changes. Diagnosis is based on history and physical examination, eliminating possible differential diagnoses such as hyperemesis gravidarum. Primary management involves lifestyle and dietary modifications, with pregnancy-safe pharmacotherapy if necessary.

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