Turk J Anaesthesiol Reanim 2017; 45: 234-6 DOI: 10.5152/TJAR.2017.65768

Case Report / Olgu Sunumu

Unique Liver Disease of Pregnancy Requiring Anaesthesia Support: A Case with Severe Hyperemesis Gravidarum

Anestezik Destek Gerektiren Gebeliğe Özgü Karaciğer Hastalığı: Şiddetli Hiperemezis Gravidarumlu Bir Olgu

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Cite this article as: Günaydın B, Özek A, Türk Özterlemez N, Taş Tuna A. Unique Liver Disease of Pregnancy Requiring Anaesthesia Support: A Case with Severe Hyperemesis Gravidarum. Turk J Anaesthesiol Reanim 2017; 45: 234-6.

Abstract / Öz

Hyperemesis gravidarum (HG) is one of the common unique liver diseases that occurs during pregnancy. Mild cases can be spontaneously resolved in time but severe cases usually require supportive medical treatment to relieve symptoms. Moreover, differential diagnosis may be required in severe cases that manifest with persistent nausea–vomiting, dehydration and weight loss refractory to treatment. Thus, to rule out any gastrointestinal pathology, this case was referred to the outpatient anaesthesia clinic after the first unsuccessful awake endoscopy attempt without sedation. Therefore, anaesthetic support for endoscopy of a pregnant woman with severe HG was presented in this case report.

Keywords: Hyperemesis gravidarum, pregnancy, monitored anaesthesia care

Hiperemezis gravidarum (HG), gebelik sırasında sıkça görülen karaciğer hastalıklarından biridir. Hafif olgular zaman içerisinde kendiliğinden düzelebilir ancak şiddetli olgularda semptomların hafiflemesi için genellikle destekleyici medikal tedavi gerekir. Ayrıca, devam eden bulantı-kusma, dehidratasyon ve tedaviye dirençli kilo kaybı olan ciddi olgularda ayırıcı tanı gerekebilir. Herhangi bir gastrointestinal patolojiyi ekarte etmek için, ilk başarısız sedasyonsuz uyanık endoskopi girişiminden sonra bu olgu anestezi kliniğine sevk edildi. Bu nedenle, bu yazıda şiddetli HG'li gebede endoskopi için uygulanan anestezik yaklaşımı sunuldu.

Anahtar Sözcükler: Hiperemezis gravidarum, gebelik, monitorize anestezik bakım

Introduction

Liver diseases that occur during pregnancy include hyperemesis gravidarum (HG), intra-hepatic cholestasis of pregnancy, acute fatty liver of pregnancy and the HELLP syndrome (1, 2). HG is a unique liver disease during early pregnancy, which resolves usually with symptomatic medical treatment. However, differential diagnosis may be required to rule out any gastrointestinal pathology in serious cases that manifest with severe nausea–vomiting, dehydration and weight loss refractory to treatment (3-7). This particular case was referred to us after the first unsuccessful awake endoscopy attempt without sedation. To our knowledge, no anaesthetic report related to HG has been presented to date. Therefore, we aimed to address specific anaesthetic considerations for endoscopy of a pregnant woman with severe HG by re-visiting risk factors, diagnosis, prognosis and treatment of HG.

Case Presentation

After obtaining written informed consent, a 21-year-old woman (G1, P0) with HG was admitted to our hospital at 16 weeks of gestation. She had experienced nausea, vomiting and weight loss refractory to the medical treatment she had received at another hospital. Her current weight was 56 kg (pre-pregnancy weight: 73 kg). Her vital signs and laboratory results, including blood, urine and thyroid function tests (TFT), were within normal clinical limits except ketonuria. Medical treatment was started with intravenous (IV) metochlopramide and pyridoxine during total parenteral nutrition. Fluid intake and urine output were adjusted accordingly. Because of persistent nausea and vomiting refractory to metoclopramide, we added ondansetron first and then switched to domperidon. For differential diagnosis, endoscopy was planned; however, the first endoscopy attempt without anaesthetic medication was unsuccessful. Therefore, a second endoscopy was planned under anaesthesia. Propofol IV 1 mg kg^{-1} was administered to provide sedation under monitored anaesthesia care (MAC). The

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Received / Geliş Tarihi : 02.10.2016
Accepted / Kabul Tarihi : 17.04.2017

endoscopy revealed minimal superficial gastritis and motility dysfunction with no pyloric stenosis and helicobacteria presence. Nausea and vomiting was relieved gradually with medical treatment, and she was discharged 4 weeks after her admission. She was readmitted at 32 weeks of gestation because of pre-term labour and mild hypertension without proteinuria. Nifedipine 10 mg, 4 times a day, was given orally and 3 mg betamethasone IV was administered. She was discharged the following day. Her blood pressure was stable for 4 weeks at home. She experienced hypertension again at 36^{4} weeks of gestation. She was re-hospitalised to administer nifedipine 30 mg and methyldopa 250 mg 4 times a day until delivery. She also received magnesium oxide 365 mg once daily. At a 37 weeks of gestation, caesarean delivery under spinal anaesthesia was performed due to the arrest of labour. A female foetus weighing 3040 g was delivered. Methyldopa except all other medications was continued postpartum for 4 days.

Discussion

We performed MAC with propofol, which is a safe IV anaesthetic agent both in liver diseases and in pregnancy. There is rarely a need for anaesthetic support in the management of HG since it is usually seen during early pregnancy.

Hyperemesis gravidarum generally occurs between 4 and 10 weeks of gestation but may occur as late as 20 weeks gestation. The incidence is 1–20 patients per 1000 pregnancies, and the rate is approximately less than 2% (1-3). Our patient was admitted at 16 weeks of gestation, which was slightly late because of her unsuccessful treatment at another hospital.

The aetiology is unclear but psychological predisposition and certain hormones, such as human chorionic gonadotropin and estradiol may seem to be responsible for severe nausea and vomiting symptoms (3). Risk factors include a history of HG, hyperthyroidism, psychiatric illness, molar pregnancy, pre-existing diabetes, multiple gestations, multi-parity, increased body mass index and high daily intake of saturated fat before pregnancy (1). The female foetus and maternal *Helicobacter pylori* infection might be considered as additional risk factors (4). Psychological predisposition and female foetus are the reasons that might play a role in the present case report, and *Helicobacter pylori* infection has been ruled out using endoscopy.

The hallmark symptoms consist of severe nausea and vomiting and dehydration with poor weight gain requiring hospitalisation (1, 3). Clinical diagnosis is made based on persistent vomiting in addition to acute starvation (usually manifests with ketonuria) and acute weight loss of $^{3}5\%$ (5) as seen in our case. The levels of aminotransferase, alkaline phosphatase, serum amylase, lipase and direct and indirect bilirubin may increase more than the normal values (1, 6), which was not observed in our patient.

Medical treatment includes vitamin B6 with or without doxylamine, promethazine or dimenhydramine during IV fluid administration in case of dehydration. Ginger and multi-vitamin can be combined with acupuncture and/or wristband application as a complementary option (1, 5, 8, 9). The risk/benefit ratio for the use of methylprednisolone or ondansetron is considered due to methylprednisolone-associated oral clefts in the first 10 weeks of gestation. Admission should be considered in case of persistent vomiting with weight loss (1, 10). Based on these recommendations, we administered metochlopramide, ondansetron and domperidon with pyridoxine supplementation during IV parenteral nutrition in the present case.

Concerns about the foetal safety of drugs used specifically for procedural sedation are utmost important. According to the Food and Drug Administration, there are 5 categories of drugs with regard to safety during pregnancy. For endoscopic procedures, only categories B and C drugs are recommended (11). The IV anaesthetic agent propofol is a category B drug during pregnancy. It is also the most favourable drug of choice either in pregnant or non-pregnant patients with liver disease due to its short half-life even in case of decompensated cirrhosis (12). Midazolam, which is a short-acting benzodiazepine, is the most commonly used drug in non-pregnant patients during endoscopy (13). Unfortunately, midazolam is a category D drug during pregnancy, and interestingly, it is completely antagonised by flumazenil (category C drug). Although midazolam has not been associated with congenital abnormalities, its use is not recommended in the first trimester (11). Therefore, we administered propofol instead depending on our previous overview on anaesthetics considerations for liver diseases unique to pregnancy (14). We did not administer aspiration prophylaxis since it is a must during and after mid-pregnancy (15).

Conclusion

Rational selection of safe drugs during pregnancy with appropriate close monitoring are the key factors for providing successful endoscopy under MAC in a patient with severe HG where anaesthesia support is rarely needed.

Informed Consent: Written informed consent was obtained from patient who who was presented participated in this report.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – B.G., A.Ö.; Design – B.G., A.T.T.; Supervision – B.G., A.T.T.; Resources – B.G., A.T.T.; Materials – A.Ö., B.G.: Data Collection and/or Processing – B.G., A.Ö., N.T.Ö.; Analysis and/or Interpretation – B.G., N.T.Ö.; Literature Search – A.T.T., A.Ö., B.G.; Writing Manuscript – B.G., A.T.T.; Critical Review – A.Ö., N.T.Ö.; Other – B.G., A.Ö., A.T.T., N.T.Ö.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

Hasta Onamı: Yazılı hasta onamı bu olguya katılan hastadan alınmıştır.

Hakem Değerlendirmesi: Dış bağımsız.

Yazar Katkıları: Fikir – B.G., A.Ö.; Tasarım – B.G., A.T.T.; Denetleme – B.G., A.T.T.; Kaynaklar – B.G., A.T.T.; Malzemeler – A.Ö., B.G.: Toplanması ve/veya İşlemesi – B.G., A.Ö., N.T.Ö.; Analiz ve/veya Yorum – B.G., N.T.Ö.; Literatür Taraması – A.T.T., A.Ö., B.G.; Yazıyı Yazan – B.G., A.T.T.; Eleştirel İnceleme – A.Ö., N.T.Ö.; Diğer – B.G., A.Ö., A.T.T., N.T.Ö.

Çıkar Çatışması: Yazarlar çıkar çatışması bildirmemişlerdir.

Finansal Destek: Yazarlar bu çalışma için finansal destek almadıklarını beyan etmişlerdir.

References

1. Sasaki KJ. Liver Disease and Pregnancy. Updated August 27, 2015 Available from: URL: http://emedicine.medscape.com/article/188143-overview#a1
2. Hepburn IS, Schade RR. Pregnancy-Associated Liver Disorders. Dig Dis Sci 2008; 53: 2334-58. [CrossRef]
3. Schutt VA. Liver diseases unique to pregnancy. Best Pract Res Clin Gastroenterol 2007; 5: 771-92. [CrossRef]
4. Golberg D, Szilagyi A, Graves L. Hyperemesis gravidarum and Helicobacter pylori infection: a systematic review. Obstet Gynecol 2007; 110: 695-703. [CrossRef]
5. ACOG (American College of Obstetrics and Gynecology) Practice Bulletin: nausea and vomiting of pregnancy. Obstet Gynecol 2004; 103: 803-14. [CrossRef]
6. Adams RH, Gordon J, Combes B. Hyperemesis gravidarum. I. Evidence of hepatic dysfunction. Obstet Gynecol 1968; 31: 659-64. [CrossRef]
7. Larrey D, Rueff B, Feldmann G, Degott C, Danan G, Benhamou JP. Recurrent jaundice caused by recurrent hyperemesis gravidarum. Gut 1984; 25: 1414-5. [CrossRef]
8. Matthews A, Haas DM, O'Mathuna DP, Dowswell T, Doyle M. Interventions for nausea and vomiting in early pregnancy. Cochrane Database Syst Rev 2014; 3: CD007575.
9. Sahakian V, Rouse D, Sipes S, Rose N, Niebyl J. Vitamin B6 is effective therapy for nausea and vomiting of pregnancy: a randomized, double-blind placebo-controlled study. Obstet Gynecol 1991; 78: 33-6.
10. Veenendaal MV, van Abeelen AF, Painter RC, van der Post JA, Roseboom TJ. Consequences of hyperemesis gravidarum for offspring: a systematic review and meta-analysis. BJOG 2011; 118: 1302-13. [CrossRef]
11. ASGE Standard of Practice Committee, Shergill AK, Ben-Menachem T, Chandrasekhara V, Chathadi K, Decker GA, et al. Guidelines for endoscopy in pregnant and lactating women. Gastrointest Endosc 2012; 76: 18-24. [CrossRef]
12. Rahimzadeh P, Safari S, Faiz SH, Alavian SM. Anesthesia for patients with liver disease. Hepat Month 2014; 14: e19881.
13. Neuman G, Koren G. Drugs in pregnancy motherisk rounds: Safety of procedural sedation in pregnancy. J Obstet Gynecol Can 2013; 35: 168-73.
14. Gunaydin B, Tuna AT. Anesthetic considerations for liver diseases unique to pregnancy. World J Anesthesiol 2016; 5: 54-61. [CrossRef]
15. Bonnet MP. Sedation and anaesthesia for non-obstetric surgery. Anaesth Crit Care PAin Med 2016; 35S: S35-41.