Introduction: Hyperemesis gravidarum during pregnancy can be complicated by Wernicke’s encephalopathy (WE). It is a neuropsychiatric syndrome due to thiamine deficiency generated by increased requirement and loss. It is a fatal but preventable complication. The management and prevention of this disorder is still unclear for lack of guidelines.

Case Series: These are two cases of Wernicke’s encephalopathy complicating hyperemesis gravidarum occurred in two women during the first trimester of pregnancy. Diagnosis was confirmed by MRI scan, and the treatment consisted of intravenous thiamine and parenteral nutrition with a good maternal and fetal outcome.

Conclusion: Wernicke’s encephalopathy must be suspected in women showing its characteristic clinical signs to avoid worse outcome, such maternofetal death or permanent neuromuscular sequelae. Medical management by thiamine is simple and efficient.
Wernicke’s syndrome associated with hyperemesis gravidarum

Mohamed Amine Bouslama, Afraa Brahim, Ahmed Nedhir Sfeyhi, Khalil Tarmiz, Khaled Ben Jazia

ABSTRACT

Introduction: Hyperemesis gravidarum during pregnancy can be complicated by Wernicke’s encephalopathy (WE). It is a neuropsychiatric syndrome due to thiamine deficiency generated by increased requirement and loss. It is a fatal but preventable complication. The management and prevention of this disorder is still unclear for lack of guidelines. Case Series: These are two cases of Wernicke’s encephalopathy complicating hyperemesis gravidarum occurred in two women during the first trimester of pregnancy. Diagnosis was confirmed by MRI scan, and the treatment consisted of intravenous thiamine and parenteral nutrition with a good maternal and fetal outcome. Conclusion: Wernicke’s encephalopathy must be suspected in women showing its characteristic clinical signs to avoid worse outcome, such as maternal death or permanent neuromuscular sequelae. Medical management by thiamine is simple and efficient.

Keywords: Esophageal rupture, Hyperemesis gravidarum, Thiamine deficiency, Wernicke’s encephalopathy

INTRODUCTION

Hyperemesis gravidarum is uncontrollable vomiting during pregnancy that can lead to serious complications like liver damage, esophageal rupture or Wernicke’s encephalopathy (WE), especially if it remains untreated.

Wernicke’s encephalopathy is an acute neurological disorder related to poor thiamine absorption. It is a medical metabolic emergency which can lead to death if not managed aggressively. It was described by Carl Wernicke in 1881, in patients presenting with the triad of ocular signs, ataxia, and confusion [1].

There are currently no suitable, evidence-based guidelines for managing or preventing this disorder.

We report two clinical cases of WE in pregnancy presenting in the department of intensive care of Farhat Hached Teaching Hospital.
CASE SERIES

Case 1

A 28-year-old primigravida with no notable medical history was hospitalized in ICU at 14 weeks gestation for uncontrollable vomiting occurs six times per day during eight weeks before hospitalization. Vomiting was clear and not associated with abdominal pain.

Despite initial therapy with antiemetics and intravenous glucose, the evolution was by the persistence of vomiting and the appearance of neurological disorders involving rotatory vertigo and horizontal nystagmus. Laboratory investigations had shown severe hypokalemia 2.1 mmol/L and mild liver cytolysis: aminotransferase 185 U/L. Cerebral MRI scan had been demanded because of neurological signs. It showed periventricular and periaqueductal hyper intensities in T2 sequence affirming WE syndrome. Therapy consisted on metoclopramide 10 mg intravenously 8 hours, rehydration with 2000 ml saline solution with added potassium 20 mmol given over four hours, and thiamine supplementation 500 mg/day. Neurological signs disappeared after 48 hours of hospitalization. Total recovery was noted after 12 days. The patient delivered eutrophic baby at 40th gestation week with good outcome.

Case 2

A 24-year-old pregnant woman at 19th gestation week was admitted in the ICU with the history of excessive vomiting for several weeks followed by progressive weakness of lower limbs. Vomiting was blood-streaked with epigastric pain. At the admission, the physical examination found a drowsiness and bilateral nystagmus. Serum biochemistry showed altered hepatic indices: aminotransferase 67 U/L, acute renal failure: creatinine clearance: 43 ml/min, and lactic acidosis: 3.6 mmol/l.

A metabolic encephalopathy was suspected. The cerebral MRI scan revealed a neuroradiologic picture compatible with WE: images of signal-intensity alterations with different intensity patterns are seen in the thalami, signal-intensity alterations in the mammillary bodies (Figures 1 and 2). The patient was treated with 500 mg of thiamine per day associated with total parenteral nutrition. The fetal well-being was good, checked daily.

Vomiting and drowsiness had disappeared after 48 hours. Nystagmus had regressed at 13 hospital days, so thiamine supplementation was stopped. Maternofetal outcome was good.

DISCUSSION

Hyperemesis gravidarum is pathology of the first trimester of pregnancy which impact is about 0.6% [2]. It can be complicated by WE in case of thiamine deficiency. In fact, thiamine plays a vital role in the metabolism of carbohydrates. Thiamine is a cofactor for several essential enzymes in the Krebs cycle and the pentose phosphate pathway [3].

In the setting of thiamine deficiency, thiamine-dependent cellular systems begin to fail, resulting eventually in cell death that feeds the localized vasogenic response. Thiamine-dependent enzymes play an essential role in cerebral energy utilization that's why thiamine deficiency can cause brain tissue injury most notably in regions with higher metabolic demands.

Diagnosis is based on the classic clinical triad made by encephalopathy, ataxic gait, and some variant of oculomotor dysfunction (nystagmus in 93% of cases). But symptoms may be vague and non-specific, i.e., headaches,
Fatigue and irritability [4]. Magnetic resonance imaging scan is the most valuable method to confirm the diagnosis with a 93% of specificity.

The typical signs of WE are increased periventricular and periaqueductal signal intensity (FLAIR and T2) and mamillary bodies [5].

Wernicke's syndrome is fatal but reversible medical emergency. Neurologic deficits could persist despite treatment. Mortality range is about 20% [6].

If WE is suspected, parenteral thiamine should be immediately given at the dose of 500 mg/day during the first two days then 250 mg/day until the resumption of oral feeding [7].

Some authors recommend the thiamine intake until the delivery [8]. Wernicke’s syndrome threaten the fetal prognosis. It is associated with an increased risk of low birth weight, neurodevelopmental disorders, intrauterine growth restriction, preterm delivery, and fetal and neonatal death. Ischemic stroke can be seen in fetuses of women affected by US with no specific explanations [9].

Early diagnosis and vitamin therapy within the first 24 hours prevent fetal worse outcome [10]. Anti-emetics are also useful as adjoining therapy to reduce the intensity of vomiting.

A chronic WE can develop in Korsakoff syndrome which consists in impairment in memory with loss of working memory. Moreover, in severe forms of WE, muscular sequelae are possible [8].

For our two patients, no incidents had been recorded, and the remission was complete.

CONCLUSION

Wernicke’s syndrome is a rare but serious neurologic complication of hyperemesis gravidarum that must be suspected in pregnant women in the first trimester showing the clinical symptoms. Magnetic resonance imaging findings confirm the diagnosis. Maternofetal outcome depends on the rapidity of the treatment by thiamine.

********

Author Contributions

Mohamed Amine Bouslama – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Afraa Brahim – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Ahmed Nedhir Sfeyhi – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Khalil Tarmiz – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

Copyright

© 2016 Mohamed Amine Bouslama et al. This article is distributed under the terms of Creative Commons Attribution License which permits unrestricted use, distribution and reproduction in any medium provided the original author(s) and original publisher are properly credited. Please see the copyright policy on the journal website for more information.

REFERENCES

1. Cirignotta F, Manconi M, Mondini S, Buzzi G, Ambrosetto P, Wernicke-korsakoff encephalopathy and polyneuropathy after gastroplasty for morbid obesity: report of a case. Arch Neurol 2000 Sep;57(9):1356–9.
2. Ducarme G, Dochez V. Vomissements incoercibles de la grossesse: mise au point. La Presse Médicale 2015.
3. Thiamine. Monograph. Altern Med Rev 2003 Feb;8(1):59–62.
4. Ebué C, Carlier-Guérin C, de La Sayette V, Grall JY, Herlicovici M. A rare complication of vomiting in pregnancy: Wernicke’s encephalopathy. [Article in French] J Gynecol Obstet Biol Reprod (Paris) 2006 Dec;35(8 Pt 1):822–5.
5. Antunez E, Estruch R, Cardenal C, Nicolas JM, Fernandez-Sola J, Urbano-Marquez A. Usefulness of CT and MR imaging in the diagnosis of acute Wernicke’s encephalopathy. AJR Am J Roentgenol 1998 Oct;171(4):1311–7.
6. Kleinit-Altamirano AP, Juárez-Jiménez H, Wernicke’s encephalopathy and Caine criteria. Report of six cases. [Article in Spanish]. Rev Med Inst Mex Seguro Soc 2014 Jan-Feb;52(1):104–7.
7. Chataway J, Hardman E. Thiamine in Wernicke’s syndrome--how much and how long? Postgrad Med J 1995 Apr;71(834):249.
8. Di Gangi S, Gizzo S, Patrelli TS, Saccardi C, D’Antona D, Nardelli GB. Wernicke’s encephalopathy complicating hyperemesis gravidarum: from the background to the present. J Matern Fetal Neonatal Med 2012 Aug;25(8):1499–504.
9. Yahia M, Najeh H, Zied H, et al. Wernicke’s encephalopathy: A rare complication of hyperemesis gravidarum. Anaesth Crit Care Pain Med 2015 Jun;34(3):173–7.
10. Reuler JB, Girard DE, Cooney TG. Current concepts. Wernicke’s encephalopathy. N Engl J Med 1985 Apr 18;312(16):1035–9.
ABOUT THE AUTHORS

Article citation: Bouslama MA, Brahim A, Sfeyhi AN, Tarmiz K, Jazia KB. Wernicke's syndrome associated with hyperemesis gravidarum. Int J Case Rep Images 2016;7(7):427–430.

Mohamed Amine Bouslama (MD-PhD), Anesthesia and Intensive Care Department, University Hospital Farhat Hached, Sousse, Tunisia

Afraa Brahim (MD-PhD), Anesthesia and Intensive Care Department, University Hospital Farhat Hached, Sousse, Tunisia

Ahmed Nedhir Sfeyhi (MD), Anesthesia and Intensive Care Department, University Hospital Farhat Hached, Sousse, Tunisia

Khalil Tarmiz is (PhD) Professor, Anesthesia and Intensive Care Department, University Hospital Farhat Hached, Sousse, Tunisia

Khaled Ben Jazia (PhD) Professor, Anesthesia and Intensive Care Department, University Hospital Farhat Hached, Sousse, Tunisia

Access full text article on other devices

Access PDF of article on other devices
Edorium Journals: An introduction

Edorium Journals Team

About Edorium Journals
Edorium Journals is a publisher of high-quality, open access, international scholarly journals covering subjects in basic sciences and clinical specialties and subspecialties.

Invitation for article submission
We sincerely invite you to submit your valuable research for publication to Edorium Journals.

But why should you publish with Edorium Journals?
In less than 10 words - we give you what no one does.

Vision of being the best
We have the vision of making our journals the best and the most authoritative journals in their respective specialties. We are working towards this goal every day of every week of every month of every year.

Exceptional services
We care for you, your work and your time. Our efficient, personalized and courteous services are a testimony to this.

Editorial Review
All manuscripts submitted to Edorium Journals undergo pre-processing review, first editorial review, peer review, second editorial review and finally third editorial review.

Peer Review
All manuscripts submitted to Edorium Journals undergo anonymous, double-blind, external peer review.

Early View version
Early View version of your manuscript will be published in the journal within 72 hours of final acceptance.

Manuscript status
From submission to publication of your article you will get regular updates (minimum six times) about status of your manuscripts directly in your email.

Our Commitment

Six weeks
You will get first decision on your manuscript within six weeks (42 days) of submission. If we fail to honor this by even one day, we will publish your manuscript free of charge.*

Four weeks
After we receive page proofs, your manuscript will be published in the journal within four weeks (31 days). If we fail to honor this by even one day, we will publish your manuscript free of charge and refund you the full article publication charges you paid for your manuscript.*

Favored Author program
One email is all it takes to become our favored author. You will not only get fee waivers but also get information and insights about scholarly publishing.

Institutional Membership program
Join our Institutional Memberships program and help scholars from your institute make their research accessible to all and save thousands of dollars in fees make their research accessible to all.

Our presence
We have some of the best designed publication formats. Our websites are very user friendly and enable you to do your work very easily with no hassle.

Something more...
We request you to have a look at our website to know more about us and our services.

* Terms and condition apply. Please see Edorium Journals website for more information.

We welcome you to interact with us, share with us, join us and of course publish with us.

CONNECT WITH US

Edorium Journals: On Web
Browse Journals

This page is not a part of the published article. This page is an introduction to Edorium Journals and the publication services.