

# Congenital hydrocephalus with ventriculo-peritoneal bypass surgery: management of labor

## Abstract

**Background:** The number of patients in reproductive age with congenital hydrocephalus and liquor-shunting operations in history is steadily increasing. The issue of pregnancy, childbirth and the postpartum period is a very difficult task, which involves not only obstetrician-gynecologists, but also related specialists. One of the complications during pregnancy may be impaired function of the shunt, which in combination with the hypertensive form of hydrocephaly is an indication for cesarean section, in other cases, vaginal delivery is preferable.

**Materials and methods:** The purpose of this study is the demonstration of the clinical case of pregnancy and successful vaginal delivery of the young patient with congenital hydrocephalus and ventriculo-peritoneal shunting.

**Discussion:** This case demonstrates the advantages of vaginal delivery in patients with a ventriculo-peritoneal shunt using a Kiwi vacuum extractor for shorten the second stage of labor.

**Conclusion:** the observation and management of pregnant women with hydrocephalus and liquor-assisting surgeries in the anamnesis should be a joint both an obstetrician-gynecologist, and a neurologist, and a neurosurgeon. This pathology is not a contraindication to vaginal delivery, but in the case of compensated hydrocephalus is a more preferable delivery method than cesarean section. In order to anesthetize labor, both narcotic analgesics and epidural anesthesia can be used.

**Keywords:** hydrocephalus, pregnancy, childbirth, ventriculo-peritoneal shunting, fetal vacuum extraction, kiwi vacuum extractor, premature rupture of fetal membranes, caesarean section, epidural anesthesia

Volume 9 Issue 2 - 2020

**Maria Kaganova A, Spiridonova NV**

Department of Obstetrics and Gynecology, Samara state medical university, Russia

**Correspondence:** Maria Kaganova A, Department of Obstetrics and Gynecology, Samara state medical university, Russia, Tel +79033090303, Email mkaganov@yandex.ru

**Received:** March 05, 2020 | **Published:** March 18, 2020

## Introduction

Now more and more girls suffering from hydrocephalus,<sup>1,2</sup> and having cerebrospinal surgery reached reproductive age. Obstetricians and other doctors from multidisciplinary hospitals meet the need to provide emergency care for such pregnant women and their delivery.<sup>3</sup> Consider that these patients may have a vaginal delivery in view of using anesthesia methods that do not increase intracranial pressure. Caesarean section should be performed in the presence of obstetric indications at patients with intracranial hypertension. In the absence of decomposition of the disease, preference should be given to vaginal labor using epidural anesthesia, episiotomy or vacuum extraction of the fetus for reduction the pushing duration.

## Materials and methods

we want to report a clinical case of vaginal operative delivery using a vacuum extractor of a patient with congenital asymmetric hydrocephalus and ventriculo peritoneal shunting.

## Results

Patient K., 29years old, admitted to the department of the perinatal center of the Samara Regional Clinical Hospital with complaints of amniotic fluid discharge 12hours ago and regular contractions for about 5hours at 35.5weeks gestation. Anamnesis: the patient was born premature at 35weeks, suffers from congenital

asymmetric hydrocephalus,<sup>4</sup> retro cerebellar cysts of the brain, for which ventriculo peritoneal bypass surgery was performed in 2006, then clinical compensation of the condition was observed. There is also reflex tetraparesis, squint. The patient has a normal intellectual development, is socially adapted, and works as a nurse in a hospital. From the urinary system there was the following pathology: congenital anomaly of the urethra - dystopia in the middle third of the vagina, chronic pyelonephritis, and latent phase. Menstrual function was normal, without gynecological diseases, for contraception she used an intrauterine device during 7years.

At the time of receipt, the general condition is satisfactory; the consciousness is clear, adequate. Vital functions are normal. Consillium consisting of an obstetrician-gynecologist, anesthetist-resuscitator, neurologist and neurosurgeon examined the patient, diagnosis was made: Pregnancy I 35.5weeks. Head presentation, first period of labor; Premature rupture of membrane was 12hours. Congenital asymmetric hydrocephalus; condition after craniotomy for retro cellular cysts in 2006, ventriculo-peritoneal shunting. Reflex tetraparesis, exotropia, congenital malformation of the urinary system (urethral dystopia), chronic pyelonephritis and latent phase

Considering the compensated condition of the woman in labor and the fetus according to the results of the examination, the absence of focal neurological symptoms, the normal functioning of the shunt according to clinical and anamnesis data, it was decided to continue

vaginal deliveries with shortening of the II period using the Vacuum Delivery System Kiwi. A female child was born with a mass of 3060g and a height of 53cm, with an Apgar score of 7-8points. In the postpartum period, antibiotic therapy with third-generation cephalosporin was prescribed, for reasons of high infectious risk. The postpartum period was uneventful. For the functional assessment of the shunt, computed tomography was performed: there are no signs of hydrocephalus; the ventriculo-peritoneal shunt lies correctly.

## Conclusion

The observation and management of pregnant women with hydrocephalus,<sup>5-7</sup> and liquor-assisting surgeries in the anamnesis should be a joint both an obstetrician-gynecologist, and a neurologist, and a neurosurgeon. This pathology is not a contraindication to vaginal delivery, but in the case of compensated hydrocephalus is a more preferable delivery method than cesarean section. In order to anesthetize labor, both narcotic analgesics and epidural anesthesia can be used. Vacuum extraction delivery of the fetus, episiotomy should be provided for relief and shortening of the pushing period. The question of prescribing antibiotic therapy remains open, because the risk of fluid shunt infection,<sup>8-11</sup> during childbirth through the natural birth canal does not increase, it is necessary to evaluate infection additional risk factors: obstetric (long duration of rupture of membrane, a large number of vaginal examinations, operative delivery and large sutures) and general (epidural anesthesia, etc.).

## Acknowledgments

None.

## Conflicts of interest

The author declares that there are no conflicts of interest.

## Funding

None.

## References

1. Oi S. *Classification and definition of hydrocephalus-origin, controversy and assignment of the terminology*. In: Cinalli G, Sainte-Rose C, Maixner W, editors. *Pediatric Hydrocephalus*. Italia: Springer-Verlag. 2005;95–112.
2. Mouelhi C, Srasra M, Zhioua F, et al. Maternal hydrocephaly and pregnancy. A new case report and review of the literature. *Rev Fr Gynecol Obstet*. 1994;89(2):88–90.
3. Bursac D, Kulas T, Persec J, et al. Pregnancy and vaginal delivery in epidural analgesia in woman with cerebrospinal fluid shunt. *Coll antropol*. 2013;37(4):1343–1345.
4. Maheut-Lourmiere J, Chu Tan Si. Hydrocephalus during pregnancy with or without neurosurgical history in childhood: Practical advice for management. *Neurirurgie*. 2000;46(2):117–121.
5. Stagno V, Navarrete EA, Mirone G, et al. Management of hydrocephalus around the world. *World Neurosurg*. 2013;79(2):17–20.
6. Cusimano MD, Meffe FM, Gentili F, et al. Management of pregnant women with cerebrospinal fluid shunts. *Pediatr Neurosurg*. 1991-1992;17(1):10–13.
7. Nicolov A, Surchev Zh, Nalbanski B, et al. Pregnancy and delivery in women with cerebrospinal fluid shunt due to hydrocephalus. *Akush Ginekol (Sofia)*. 2008;47(2):3–10.
8. Perez-Lopez C, Duran P, Isla-Guerrero A, et al. Cerebrospinal fluid shunting and pregnancy. *Rev Neurol*. 2003;36(9):872–876.
9. Samuels P, Driscoll DA, Landon MB, et al. Cerebrospinal fluid shunts in pregnancy. Report of two cases and review of the literature. *Am J Perinatol*. 1988;5(1):22–25.
10. Wisoff JH, Kratzert KJ, Handwerker SM, et al. Pregnancy in patients with cerebrospinal fluid shunts: report of a series and review of the literature. *Neurosurgery*. 1991;29(6):827–831.
11. Schiza S, Stamatakis E, Panagopoulou A, et al. Management of pregnancy and delivery of a patient with malfunctioning ventriculoperitoneal shunt. *J Obstet Gynaecol*. 2012;32(1):6–9.