

Anestesia Subaracnoidea para Cesariana em Paciente com Derivação Ventriculoperitoneal. Relato de Caso *

Subarachnoid Blockade for Cesarean Section in a Patient with Ventriculoperitoneal Shunt. Case Report

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RESUMO

Goulart AP, Moro ET, Rios RP, Pires RTF - Anestesia subaracnoidea para cesariana em paciente com derivação ventriculoperitoneal. Relato de Caso.

JUSTIFICATIVA E OBJETIVOS: Pacientes portadores de derivação ventriculoperitoneal (DVP) causam preocupação adicional quando o bloqueio do neuroeixo é indicado, sobretudo em obstetrícia. Atualmente não existe consenso na literatura sobre a técnica anestésica de escolha nesses casos. O objetivo deste relato foi descrever o caso de paciente com DVP submetida à cesariana sob anestesia subaracnoidea.

RELATO DO CASO: Paciente de 28 anos, secundigesta, um parto anterior sem história de aborto, de termo, pré-natal sem intercorrências, em trabalho de parto há cinco horas, uma cesariana há sete anos. Evoluiu com sofrimento fetal agudo, indicada cesariana de emergência. Portadora DVP há cinco anos, devido à hipertensão intracraniana (sic) de etiologia desconhecida. Exame neurológico normal. Foi submetida à anestesia subaracnoidea com bupivacaína a 0,5% pesada 15 mg e morfina 80 µg. Nascimento fetal com Apgar 8 (1 minuto) e 10 (5 minutos) após nascimento. Alta após dois dias em excelente condição clínica.

CONCLUSÕES: A abordagem anestésica de pacientes obstétricas com DVP é complexa, devendo-se comparar o risco e o benefício das técnicas no momento e circunstância da indicação. O bloqueio do neuroeixo tem sido relatado com sucesso em portadoras de doenças neurológicas. Quanto à DVP, não existe na literatura contra-indicação formal ao bloqueio. Os casos devem ser individualizados. Neste relato, diante da emergência obstétrica e do quadro neurológico vigente, optou-se pelo bloqueio no neuroeixo. A técnica proporcionou adequado manuseio da via aérea, boa condição materno-fetal e analgesia pós-operatória. A evolução foi favorável, sem alterações neurológicas decorrentes da técnica escolhida.

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SUMMARY

Goulart AP, Moro ET, Rios RP, Pires RTF – Subarachnoid Blockade for Cesarean Section in a Patient with Ventriculoperitoneal Shunt. Case Report.

BACKGROUND AND OBJECTIVES: Patients with ventriculoperitoneal shunt (VPS) represent an additional concern when neuroaxis block is indicated, especially in obstetrics. Currently, a consensus on the anesthetic technique of choice in those cases does not exist in the literature. The objective of this report was to describe the case of a cesarean section under subarachnoid blockade in a patient with VPS.

CASE REPORT: This is a 28 years old pregnant patient at term, in her second pregnancy, one prior delivery, a cesarean section seven years ago, no history of miscarriages, and pre-natal care without interurrences, in labor for five hours. The patient evolved with acute fetal distress and an emergency cesarean section was indicated. She had had a VPS for five years due to intracranial hypertension (sic) of unknown etiology. Neurological exam was normal. She underwent subarachnoid block with 15 mg of 0.5% hyperbaric bupivacaine and 80 µg of morphine. The newborn had an Apgar of 8 (in the first minute) and 10 (in the 5th minute). The patient was discharged two days later in excellent clinical condition.

CONCLUSIONS: The anesthetic approach of obstetric patients with VPS is complex, and the risk and benefits of anesthetic techniques, as well as the circumstances that led to this indication, should be considered at the time of the indication. Successful of neuroaxis block in patients with neurological diseases has been reported. As for VPS, formal contraindication for neuroaxis block does not exist in the literature. Cases should be individualized. In the present report, due to an obstetric emergency and the neurologic condition of the patient, a decision to use neuroaxis blockade was made. The technique provided adequate management of the airways, good maternal-fetal condition, and postoperative analgesia. The evolution was favorable and the patient did not show any neurologic changes secondary to the technique used.

Keywords: ANESTHETIC TECHNIQUES, Regional: subarachnoid; DISEASES, Neurological: ventriculoperitoneal shunt; SURGERY, Obstetric: cesarean section.

Subarachnoid Blockade for Cesarean Section in a Patient with Ventriculo-peritoneal Shunt. Case Report

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INTRODUCTION

Several studies have demonstrated that neuroaxis blocks and general anesthesia can be used in parturients with ventriculoperitoneal shunts (VPS) without complications directly related to the anesthetic technique ¹. Patients with neurological disorders, such as syringomyelia and Arnold-Chiari malformation have successfully undergone subarachnoid blocks ².

Regional blocks are not contraindicated in obstetric patients with VPS; the type of anesthetic technique should be indicated according to the obstetric, clinical, and neurologic condition of the patient. The objective of the present report was to present the case of a patient with a VPS who developed an obstetric emergency, in which neuroaxis block was successfully used. Since a consensus on the matter does not exist in the literature, this report intends to contribute with this debate.

CASE REPORT

This is a 28 years old pregnant patient, on the 39th week of her second pregnancy, history of a prior pregnancy and a cesarean section seven years ago, negative history of miscarriages, in labor for five hours with amniorrhexis two hours ago who evolved with acute fetal distress leading to the indication of a cesarean section.

The patient reported pre-natal care without interurrences; she denied gestational diabetes, hypertensive disease of pregnancy, asthma, bronchitis, allergies, smoking, drinking, and use of illicit drugs. She also denied any obstetric interurrence during her pregnancy. She reported having a VPS for five years due to intracranial hypertension (sic), i.e., in the first cesarean section she did not have this shunt. She did not know the etiology of this intracranial hypertension; she was controlled with an annual head CT, and she had seen her neurologist one month before this admission and that she was compensated; she did not have any signs of intracranial hypertension. When emergency cesarean section was indicated, the neurological exam did not show any abnormalities.

Physical exam was as follows: BP 130 x 80 mmHg, HR 88 bpm, and RR 16 bpm. Cardiovascular and respiratory exams did not show any abnormalities; gravidic abdomen; and moderate edema of the lower limbs (++ out of ++++). She was classified as Mallampati II, with a thyromental distance

greater than six centimeters without restriction to cervical extension or flexion.

The patient had been fasting for approximately six hours. An 18G catheter was used for venipuncture; monitoring consisted of electrocardiogram in three derivations (II, V, and aVF), pulse oximeter, non-invasive blood pressure measured at one-minute intervals until delivery, and at 5-minute intervals thereafter. Oxygen 5 L.min⁻¹ was administered via a face mask as soon as the patient arrived to the operating room and continued until the end of the procedure. Subarachnoid puncture was performed with a median puncture between the third and fourth intervertebral lumbar space with the patient in the sitting position, using a 27G Quincke needle. The drugs used included 15 mg of 5% hyperbaric bupivacaine with 80 µg of morphine administered over one minute. The patient was placed in dorsal decubitus, and the uterus was dislocated manually to the left until delivery. The procedure began five minutes after the blockade, when it had reached the T₄ level. During the procedure, 1,500 mL of crystalloids were infused. When present, hypotension was treated by manual dislocation of the uterus and the administration of a bolus of ephedrine sulfate, 5 mg, for a total of 20 mg during the procedure. After delivery, 20 IU of oxytocin, 2 g of cefazolin, and 100 mg of ketoprofen were administered. The procedure lasted for approximately 50 minutes. The newborn presented an Apgar of 8 (in the first minute) and 10 (in the fifth minute). The patient showed good postoperative evolution and she was discharged from the post-anesthetic recovery room three hours after the procedure with an Aldrete-Kroulik index of 10. The patient did not have neurological or any other complaints. She was discharged from the hospital after two days, neurologically asymptomatic. She was oriented about symptoms that could signal the presence of central nervous system infection or any other neurological changes, which did not develop in the late postoperative period. Her neurological status remained unchanged.

DISCUSSION

Successful neuroaxis blocks in patients with neurological diseases have been reported¹. It has advantages over general anesthesia when used in obstetric patients, such as lower risk of potential damage in the attempt to maintain opened airways, less ventilatory disruption², and better quality of postoperative analgesia. In patients with ventriculoperitoneal shunt, neuroaxis blocks have generated controversies in the literature, especially regarding CSF infection and extravasation³. Formal contraindications to neuroaxis blocks in patients with VPS, including children, do not exist. Concerns about the use of this blockade in those patients have been attributed to the fear of contamination of the VPS and infections like meningitis³. Parturients with VPS undergoing surgical procedures both under general anesthesia and neuroaxis blockade without complications

directly related with the anesthesia have been reported^{1,3}. The present case represented an obstetric emergency in a patient with VPS with a normal neurological exam at the moment of evaluation. The etiology of the intracranial hypertension before the shunt was unknown. The risks and benefits of the neuroaxis block were evaluated before choosing the anesthetic technique. The risk of bronchoaspiration in the obstetric population was taken into consideration, not forgetting that the maternal mortality rate associated exclusively with anesthesia is due mainly to general anesthesia related to a failure on approaching the airways (pulmonary aspiration of gastric contents and disrupted ventilation). The need of emergency cesarean section, fetal distress, and stable neurological status were considered when neuroaxis block was chosen.

In the presence of VPS attention to thorough antisepsis before the blockade is extremely important. General anesthesia should be used in patients with neurological deterioration with an increase in intracranial pressure and the neurosurgical team must be notified¹. However, continuous epidural analgesia is an alternative if labor analgesia is indicated in a patient with signs of moderate increase in intracranial pressure, avoiding the use of intravenous opioids (hypoventilation and respiratory depression) and maintaining the patient awake and oriented, which allows serial neurological evaluations. The technique should be carefully done avoiding accidental dura mater puncture which could be a disaster in cases of non-communicating hydrocephalus. Another scenario would be the preference of some authors for subarachnoid block in obstetric emergencies, such as in awake and oriented patients, with moderately elevated intracranial pressure and fetal distress, who have the potential risk of difficult airways. In this case, difficult tracheal intubation with airways manipulation could increase the intracranial pressure, while subarachnoid block with a 27G Whitacre needle would cause extravasation of a small amount of CSF, which is not enough to cause neurological damage¹.

Note that the obstetric population has a higher incidence of inadequate function of VPS during the pregnancy¹.

The fact that accidental or intentional puncture of the dura mater can cause herniation is also important. Patient with intracranial pressure controlled by the VPS compensate the reduction in CSF pressure by reducing the flow through the shunt. Extravasation of CSF through the dura mater orifice caused by the small caliber (27G) non-traumatic needles used in subarachnoid blocks is small, hindering the development of low CSF pressure. Studies have demonstrated that the orifice produced in the dura mater by the 27G Whitacre needle allows the extravasation of 11.8 mL of CSF in five hours. In adults, the CSF is produced at a rate of 0.3 mL.kg⁻¹.h⁻¹, approximately 20 mL.h⁻¹, i.e., it does not produce a large pressure gradient over a short time, which represents a very small risk of decreased CSF pressure and, consequently, herniation¹.

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RESUMEN:

Goulart AP, Moro ET, Rios RP, Pires RTF - Anestesia Subaracnoidea para Cesárea en Paciente con Derivación Ventriculoperitoneal. Relato de Caso.

JUSTIFICATIVA Y OBJETIVOS: Los pacientes portadores de derivación ventriculoperitoneal (DVP) nos causan una preocupación adicional cuando el bloqueo del neuro-eje está indicado, principalmente en obstetricia. Actualmente no existe un consenso en la literatura sobre la técnica anestésica de elección en esos casos.

El objetivo de este relato, fue describir el caso de un paciente con DVP sometida a cesárea bajo anestesia subaracnoidea.

RELATO DEL CASO: Paciente de 28 años, secundípara, con un parto anterior sin historial de aborto, de término, prenatal sin interurrencias, en trabajo de parto hacía ya cinco horas, y una cesárea realizada hace siete años. Evolucionó con sufrimiento fetal agudo, indicada una cesárea de emergencia. Portadora DVP hace cinco años, debido a la hipertensión intracraneal (sic) de etiología desconocida. Examen neurológico normal. Se sometió a la anestesia subaracnoidea con bupivacaína a 0,5% pesada 15 mg y morfina 80 µg. El nacimiento fetal fue con Apgar 8 (1 minuto) y 10 (5 minutos) después del nacimiento. El alta fue concedida después de dos días en excelente condición clínica.

CONCLUSIONES: El abordaje anestésico de pacientes obstétricas con DVP es complejo, y deben ser comparados el riesgo y el beneficio de las técnicas en el momento y en las circunstancias de la indicación. El bloqueo del neuro-eje ha sido relatado con éxito en las portadoras de enfermedades neurológicas. En cuanto a la DVP, no existe en la literatura ninguna contraindicación formal para el bloqueo. Los casos deben ser individualizados. En este relato frente a la emergencia obstétrica y el cuadro neurológico vigente, se optó por el bloqueo en el neuro-eje. La técnica proporcionó un adecuado manejo de la vía aérea, una buena condición materno-fetal y una analgesia postoperatoria. La evolución fue favorable sin alteraciones neurológicas provenientes de la técnica escogida.