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Case report

Importance of sympathectomy induced by continuous brachial plexus block for digital replantation in a patient with liver cirrhosis: Case report[☆]



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ABSTRACT

Hand microsurgeries are procedures performed by reconstructive surgeons and require a complex and highly individualized approach. The management of anesthesia in patients with cirrhosis may be challenging. Liver dysfunction may condition the extended use of anesthetic agents as a result of a disrupted metabolism and clearance.

This case describes the anesthetic management of a patient with cirrhosis, using a combined anesthetic technique with continuous axillary block of the brachial plexus to prevent postoperative pain and maintain extended vasodilatation. The continuous brachial plexus block under local anesthesia has shown improved tissue perfusion following limb replantation surgery. This technique is particularly helpful to prevent vasospasm in the reconstructed tissue during the postoperative period. In patients with cirrhosis, this technique provides adequate postoperative pain control.

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Importancia de la simpatectomía inducida por el bloqueo continuo del plexo braquial para la cirugía de reimplante digital en un paciente con cirrosis hepática: reporte de caso

R E S U M E N

Palabras clave:

Cirrosis hepática
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Las intervenciones de microcirugía sobre la mano son procedimientos realizados por cirujanos reconstructores que requiere un abordaje complejo y altamente individualizado. El manejo anestésico en pacientes con cirrosis puede ser difícil. La disfunción hepática puede condicionar una duración prolongada de los fármacos anestésicos por un metabolismo e índice de aclaramiento alterados.

Describimos el manejo anestésico de un paciente con cirrosis, empleando una técnica anestésica combinada con bloqueo axilar continuo del plexo braquial para prevenir el dolor posoperatorio y mantener una vasodilatación prolongada. El bloqueo continuo del plexo braquial con anestésicos locales ha mostrado mejorar la perfusión tisular tras la cirugía de reimplante de miembros. Esta técnica es especialmente beneficiosa para prevenir el vasoespasmo en el tejido reconstruido en el periodo posoperatorio. En los pacientes cirróticos, esta técnica ofrece un adecuado control del dolor posoperatorio.

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Introduction

The continuous brachial plexus block (CBPB) in digital replantation surgery offers numerous advantages in terms of the best graft perfusion¹⁻³. Patients with liver disease are at high risk of perioperative morbidity and mortality due to the effects of surgery and the drugs used, that may further deteriorate the baseline condition leading to liver decompensation⁴. The metabolism of most opioid drugs is slow⁵, with a long half-life and increased risk of respiratory depression.

Clinical case

This is a 46 year-old patient with traumatic amputation of the proximal phalanx of the first and second digits (Fig. 1). The personal history highlights liver cirrhosis due to stage A according to the Child-Turcotte-Pugh classification and surgical resection of the liver carcinoma. Following the evaluation of the patient by a multidisciplinary team including plastic surgeons, trauma surgeons and anesthesiologists, the decision was made to do digital replantation. The complementary tests including complete blood count, biochemistry and coagulation tests were all unremarkable.

Upon the usual non-invasive blood pressure monitoring, ECG, pulse oximetry (SpO₂), neuromuscular block using the TOF watch SX monitor and placement of an electric blanket, 3 mg of midazolam were administered to reduce anxiety. The patient was placed in decubitus supine with the arm abducted at 90° with regard to the trunk. The axillary artery was localized with ultrasound and the medial, ulnar, musculocutaneous and radial nerves were identified, for a needle approach of the plexus plane. The catheter was inserted into the perivascular fascia compartment of the brachial plexus to maintain continuous anesthesia with an initial 0.2% ropivacaine dose of 20 ml. An anesthetic induction then followed



Fig. 1 – Traumatic amputation of the first and second digit
Source: Authors.

with propofol 150 mg, fentanyl 150 µg and cisatracurium 18 mg and the patient was intubated and connected to mechanical ventilation. 1 CAM sevoflurane and continuous infusion of ropivacaine 0.2% at 6 ml/h were used for maintenance of the anesthesia through a nerve catheter. The patient was hemodynamically stable during the intraoperative period of 5 h. The first digit was remodeled and the anastomosis of the vascular pedicles was performed, maintaining adequate level of analgesia. At the end of the procedure the patient was extubated and transferred to the postoperative care unit. The patient had a satisfactory evolution during the postoperative period, demonstrating good distal perfusion according to

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