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CASE REPORT

Pain management in children undergoing rhabdoid tumor resection. Case report

Manejo da dor pós-operatória em criança submetida a ressecção de tumor rabdoide. Relato de caso

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ABSTRACT

BACKGROUND AND OBJECTIVES: Rhabdoid tumors are rare aggressive tumors and affect specially the young population, with a predominance in children under 4 years of age. Literature data define them as a disease of high malignancy and grim prognosis. The proper control and adequate approach to postoperative pain in children should always be a priority in the anesthetic-surgical planning.

CASE REPORT: A child undergoing general anesthesia, associated with multimodal analgesia technique, epidural block, and Transversus Abdominis Plane block (TAP Block) for rhabdoid tumor surgical resection in the lower limb. The chosen anesthetic technique aimed to achieve good pain control in the postoperative period, in major oncologic surgery approach. The instrument used for measuring pain scores was the Children and Infants Postoperative Pain Scale (CHIPPS).

CONCLUSION: Multimodal anesthesia associated with epidural technique and peripheral nerve block seems adequate for postoperative pain control in major cancer surgeries. Adequate management and control of painful complaints can be beneficial not only in the short term and in the postoperative period but can also have beneficial impacts in the adulthood of pediatric cancer patients who underwent surgical treatment.

KEYWORDS: Anesthesia, Child, Pain, Cancer.

RESUMO

JUSTIFICATIVA E OBJETIVOS: Os tumores rabdoides são tumores agressivos raros, acometendo principalmente a população jovem, com predominância em crianças menores de 4 anos de idade. Dados da literatura definem a doença como de alta malignidade e prognóstico desalentador. O bom controle e adequada abordagem da dor pós-operatória na criança deve ser sempre prioridade no planejamento anestésico-cirúrgico.

RELATO DO CASO: Criança submetida à anestesia geral, associada à técnica de analgesia multimodal, bloqueio peridural e bloqueio do plano transverso do abdômen (TAP Block) para ressecção de tumor rabdoide em membro inferior. A técnica anestésica utilizada foi escolhida visando um bom controle de dor no período pós-operatório para uma abordagem cirúrgica de grande porte. O instrumento utilizado para a mensuração da queixa álgica foi a escala *Children and Infants Postoperative Pain Scale* (CHIPPS).

CONCLUSÃO: A anestesia multimodal associada à técnica peridural e ao bloqueio de nervo periférico parece ser adequada para o controle de dor pós-operatória em cirurgias oncológicas de grande porte. O adequado manejo e controle da queixa álgica pode ser benéfico não somente a curto prazo e no período pós-operatório, como também pode gerar impactos positivos na vida adulta dos pacientes pediátricos com câncer submetidos a tratamento cirúrgico.

DESCRITORES: Anestesia, Criança, Dor, Câncer.

HIGHLIGHTS

The importance of planning for perioperative pain control in children with cancer
General anesthesia combined with multimodal analgesia for rhabdoid tumor resection in the lower limb
Case report of the effect of multimodal anesthesia associated with epidural technique and peripheral nerve block

INTRODUCTION

Rhabdoid is rare but extremely aggressive tumors and tend to affect predominantly children younger than four years old. Currently, extracranial rhabdoid tumors are described as entities in oncology and occur mainly in kidneys, liver, head and neck, retroperitoneum, thorax, heart and pelvis. In the literature, they are described as cancers of rapid progression, high malignancy, and poor prognosis[1].

Pain in children is underestimated, mainly because it is a phenomenon which cannot be easily measured, usually due to the difficulty children have in reporting their complaints, fear of syringes and needles and the inability to express themselves, specially younger children and patients with cognitive deficits. Understaffed and unskilled healthcare teams may exacerbate this scenario in addition to lack of appropriate pain measurement instruments. The World Health Organization (WHO)[2] advocates adequate pain assessment tools for appropriate management of pediatric pain in order to achieve best results. They also recommend recording the data in medical files[3].

The goal of the present case report was to present the perioperative and postoperative pain management of a pediatric patient with pelvic rhabdoid tumor by the anesthesiologist.

CASE REPORT

A seven-year-old female patient, 17 kg, underwent surgical treatment for rhabdoid tumor on the right thigh root (Figure 1), after previous neoadjuvant chemotherapy treatment. The anesthetic technique of choice was combined general anesthesia, multimodal technique, associated with single injection epidural anesthesia, and Transversus Abdominis Plane block (TAP block) with 5mL of 0.3% ropivacaine in the left abdominal wall at the end of the surgery, which lasted approximately five hours.

Anesthetic induction was performed with propofol (2mg/kg), fentanyl (3µg/kg), rocuronium (1.2mg/kg), ketamine (0.3mg/kg), dexamethasone (1.5mg/kg), continuous dexmedetomidine infusion (0.3µg/kg/h), magnesium sulfate (40 mg/kg), and intravenous lidocaine (2mg/kg). Sevoflurane (1.2 MAC) was used for maintenance of anesthesia. Morphine 800µg with 0.3% ropivacaine 10 mL were used in single shot epidural anesthesia.

Hemodynamic monitoring consisted of non-invasive blood pressure, cardioscopy, pulse oximetry, capnography, gas analyzer, and bispectral index (BIS). Epidural anesthesia was performed using pediatric Touhy 20G needle, with the patient already intubated, shortly before the beginning of the surgery. The Transversus Abdominis Plane (TAP) block was chosen to complement analgesia, associated with intravenous dipyrone at the end of the surgical procedure, due to the extensive duration of the surgery (Figure 2). The Children and Infants Postoperative Pain Scale (CHIPPS)[4] was used to assess pain complaints in the first 48 hours postoperatively at the Pediatric Intensive Care Unit (PICU), at 10:00 A.M. and 18:00 P.M. by the anesthesiologist and at a six hours interval by the PICU staff. The cut off value for rescue analgesia was 4 in CHIPPS.

The PICU team followed pain management protocols, including contact with the anesthesiology staff for refractory pain control situations. All measurements were scored as CHIPPS = 0, meaning that the patient was painless, or did not complain of pain during the 48 hours on PICU and was hemodynamically stable (mean arterial pressure = 63-78mmhg; cardiac frequency = 67-93bpm and pulse oximeter = 97-100%). Data was recorded in a study-specific form approved by the National Cancer Institute (INCA - Instituto Nacional do Câncer) Ethics Committee. The patient signed the Free and Informed Consent Term (FICT).

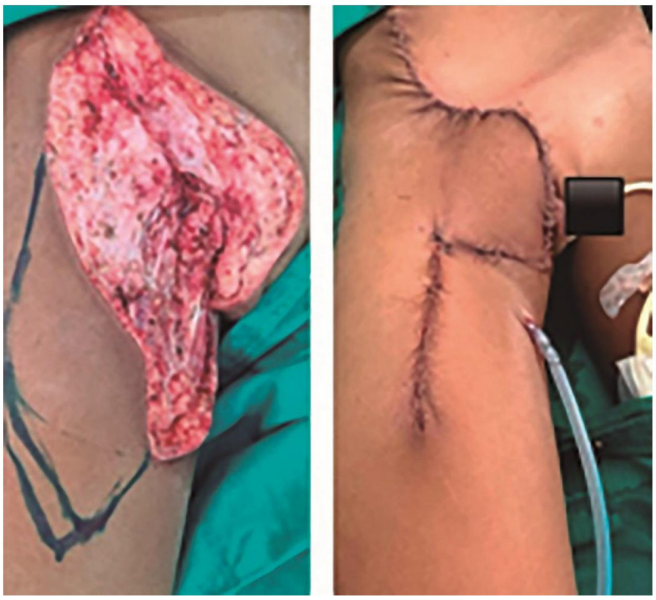

Figure 1. Tumors surgical resection.

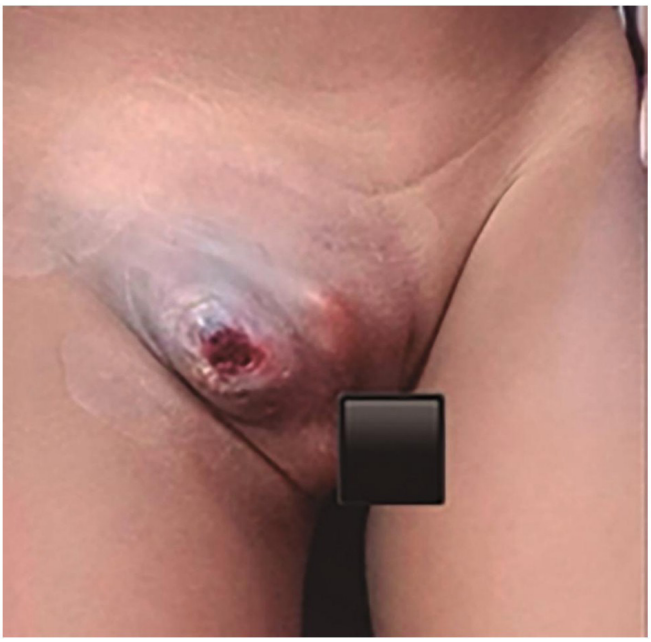

Figure 2. Tumor lesion before treatment.

DISCUSSION

The assessment of pain intensity during the patient's hospitalization is essential for appropriate application of drugs and assistance. The use of pain measurement scales helps healthcare professionals to obtain actual information about the pain phenomenon and assist in pain management in children undergoing surgical procedures[5]. These scales represent a safe, rapid, and simple assessment parameter.

The American Society of Anesthesiologists (ASA) guideline for perioperative pain control recommends multimodal anesthesia, peripheral nerve blocks and peridural aprroach[6]. The authors believed that a behavioral scale would be more appropriate to evaluate the pain for the present case, although not the gold standard of self-reported scales for the age of the patient. The reference study[7] compared caudal, TAP block and Quadratus Lumborum block (QL) in 94 children aged from 6 months to 14 years classified as ASA I and II undergoing lower abdominal surgery. They concluded that the QL block was the best option, considering safety and postoperative analgesia. The authors[8] studied 90 children with cancer, age 7-12 years, classified as ASA I and II, scheduled for major abdominal cancer surgery. The results showed that multimodal analgesia provided adequate relief of the pain intensity for up to 24 hours postoperatively.

According to the findings by authors[8], reports of mild intensity postoperative pain correspond to scores of 1- 4/10. In this study, the child had pain scores of 0 in the first 48 hours postoperatively, as well as in the three months following the surgical intervention. This period can already be considered sufficient to assess the functional results of the surgical procedure, according to other reference studies[9] who classified the pain complaint persisting in this postoperative period as Persistent Postoperative Pain (PPSP)[10].

Postoperative pain control was achieved in the present case as the patient did not present any painful complaints. Multimodal anesthesia associated with epidural technique was chosen due to literature recommendations[9]. In a retrospective study, reference authors[11] evaluated continuous epidural analgesia in the postoperative period of children undergoing surgical procedures to manage abdominal solid tumors. Two groups were investigated, the intervention group with children receiving epidural analgesia, dipyrone and paracetamol, oral or intravenous, at established schedule and the control group, without epidural analgesia, receiving paracetamol or dipyrone, ibuprofen, orally or intravenously, and subsequently piritramide in continuous infusion or patient-controlled analgesia (PCA). The mean age was 55.8 months for the intervention group (IG) and 39.0 months for the control group (CG). Infants under two years of age received continuous intravenous morphine only. The scales used to measure pain were the Numerical Rating Scale (NRS) and the Wong-Baker Faces pain rating scale (WBFS). The study concluded that children undergoing surgery to treat abdominal tumors benefit from perioperative continuous epidural analgesia. The method is safe and is associated with low complication rates when performed by a skilled team.

In the present case, anesthesia and surgery took approximately seven hours, beyond the surgical staff expectations, therefore, the anesthesiologist's team decided to perform the peripheral nerve block at the end of the surgery, attempting to achieve better postoperative pain control. Only single-use pediatric epidural needle was available, although the authors' choice was the continuous epidural technique for major abdominal procedures.

The case report is relevant because no studies on anesthetic management and pain evaluation of pediatric patients diagnosed with and treated for rhabdoid tumors have been found so far.

CONCLUSION

Multimodal anesthesia associated with epidural block and/or peripheral nerve block seems to offer good pain control to pediatric patients undergoing major oncological surgeries. Rigorous monitoring, adequate assessment and management of postoperative pain complaints are critical to achieve favorable outcomes in postsurgical interventions.

Poor perioperative pain control in children may lead to chronic pain and impact the adult life of these pediatric patients. The scarcity of literature on this topic brings up the necessity of more studies addressing postoperative pain control to improve the prognosis and quality of life of pediatric patients.

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AUTHORS' CONTRIBUTIONS

Flavia Claro da Silva: Data Collection, Methodology, Writing - Preparation of the Original, Writing - Review and Editing, Supervision
Vanderson Carvalho Neri: Project Management, Writing - Review and Editing, Supervision
Rachel Motyl Gutman: Data Collection, Conceptualization, Resource Management, Methodology, Writing - Preparation of the Original, Supervision, Visualization
Matheus Cabral Raulino de Oliveira: Data Collection, Writing - Review and Editing, Visualization