

# Cesarean Section in Post-polio Patient

Alexandre Roth de Oliveira<sup>1,2</sup>, Eduarda Schütz Martinelli<sup>3</sup>, Lisiane Lui<sup>4</sup>

<sup>1</sup>Anesthesiologist of Roth and Roth Anesthesia Clinic, Rio Grande do Sul, Brazil, <sup>2</sup>Department of Anesthesiology, Hospital Moinhos de Vento, Porto Alegre, Rio Grande do Sul, Brazil. <sup>3</sup>Department of Anesthesiology, Hospital Nossa Senhora da Conceição, Porto Alegre, Rio Grande do Sul, Brazil, <sup>4</sup>Department of Gynecology and Obstetrics, Hospital Moinhos de Vento, Porto Alegre, Rio Grande do Sul, Brazil

## ABSTRACT

Despite the success of the World Health Organization's policy for global eradication of poliomyelitis, this disease is still endemic in some countries. Besides that, in the past few years, there is a low demand for polio vaccination in children despite the campaigns. This can be a big challenge for medicine in some years: The returning of poliomyelitis and its consequences. Based on that, the anesthesiologist should be familiar to these patients and their particularities.

**Key words:** Anesthetic, minimal sequelae, neuroaxial anesthesia, post-polio, spinal anesthesia

## INTRODUCTION

Despite the success of the World Health Organization's policy for global eradication of poliomyelitis, this disease is still endemic in some countries. Besides that, in the last few years, there is a low demand for polio vaccination in children despite the campaigns. This can be a big challenge for medicine in some years: The returning of poliomyelitis and its consequences. Based on that, the anesthesiologist should be familiar to these patients and their particularities.

Although many post-polio survivors have got great anatomical and physiological problems that increase anesthetic risk, sometimes they present only minimal sequelae. Even so, just a history of poliomyelitis can difficult a correct evaluation for anesthesia procedure when the anesthesiologist is not familiar to the situation. The decision to select regional or general anesthesia should be made on an individual patient basis with due consideration for risks versus benefits. Many anesthesiologists are hesitant to administer regional anesthesia to patients with preexisting neuromuscular disorders because of concern about exacerbating existing disease or difficulty evaluating complications.

## CASE REPORT

A 26-year-old primigravida patient, ASA I, 39-week gestation, presented with 24 h premature rupture of membranes, without active labor. She had been in anesthetic pre-operative clinic 2 weeks before and had described poliomyelitis with 1 year old and complete recovering in childhood. With 16-year-old, she was submitted to appendectomy through spinal anesthesia presenting weakness in entire body for approximately 24 h. At physical examination, the only sign was shorter tibial tendon of both legs. For the cesarean, after volume expansion with crystalloids, the choice was an epidural anesthesia with 15 mg of bupivacaine 0.3% (without epinephrine) and morphine 2 mg. "The surgery was initiated after 4 min of blockade with T4 sensitive level reached. Hypotension and tachycardia were corrected with metaraminol 1 mg." After 50 min, the procedure was finished with the same metameric level of anesthesia, but with cardiovascular stability. The entire recovering from anesthesia has occurred after 11 h. An elevated consume of analgesics (nonsteroidal inflammatory drugs and opioids) and antiemetics was observed.

## RESULTS

One of the most important aspects in pre-operative evaluation is to clarify clinical situation to medical team and patient, and

### Address for correspondence:

Alexandre Roth de Oliveira, Anesthesiologist of Roth and Roth Anesthesia Clinic, Grande do Sul, Brazil.  
E-mail: alexandro7h@gmail.com

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together, planning surgery.<sup>[1]</sup> Recommendations are based on “rule of 2” in surgery setting. Polio survivors require 2 times as long to recover from the effects of any anesthetics and usual dose of anesthetic must be divided by two.<sup>[2]</sup> We had 11 h to complete motor and sensory recovering with less than half anesthetic dosage, that is like rules. The injection of a local anesthetic near the spine results in both pain-conducting nerves and motor neurons being anesthetized. Polio survivors are very sensitive to anything that further impairs their poliovirus-damaged motor neurons, and a spinal anesthetic may cause polio survivors to be paralyzed for many hours.<sup>[1,2]</sup> The autonomic nervous system is often dysfunctional, due to the damaged caused by the poliovirus in that time. This can cause gastroesophageal reflux, tachyarrhythmias and, sometimes, difficulty maintaining blood pressure when anesthetics are given.<sup>[1]</sup> They can have difficulty to control the size of their blood vessels because the nerves that make the smooth muscles contraction around veins and capillaries were paralyzed or have some damaged.<sup>[2,3]</sup> The use of a vasopressor drug was indicated in this case and readily corrected the hypotension. The accentuation of emesis and pain is expected, with a lot of medications being used on demand. Polio survivors need 2 times the dose of pain medication for twice as long. When possible, opioid dose should be minimal, and other kinds of analgesics, such as nonsteroidal anti-inflammatory agents, are advised as adjuvants. Doses of opioids should initially be low and carefully titrated to effect, and long-acting medications should be used cautiously.<sup>[3]</sup> In the other hand, they are more sensitive to virtually any drug.<sup>[2]</sup> When this occurs, benefits and risks should be managed.

## DISCUSSION

Pre-operative is the most important period, especially in post-polio patients.<sup>[4]</sup> A careful history and physical examination are, as always, vitally important.<sup>[3]</sup> Post-polio syndrome symptoms are disabling fatigue, muscle weakness (including dysphagia and reflux disease), joint pain, cold intolerance and swallowing, and sleep and breathing problems.<sup>[3,5]</sup> Pulmonary function studies are recommended in all polio survivors that will experience a surgery, even those without pulmonary issues.<sup>[2]</sup> In patients who have laryngeal or swallowing problems, an upper airway evaluation is advised even when the general anesthesia is not the choice because of several cases of one paralyzed cord or bilateral cord paralysis that has occurred in post-operative after upper extremity blocks or intubation.<sup>[1,2]</sup> Because the poliovirus damaged the brain stem area, called reticular activating system, in those who had paralytic and non-paralytic polio, a little anesthetic

goes a long way and lasts a long time.<sup>[1,2]</sup> Post-polio patients are more sensitive to virtually any drug. Since that, muscle relaxants can be a problem if they are overused or not complete reversal at the end of the surgery, especially in those patients who have pulmonary issues.<sup>[6]</sup> Spinal anesthesia can be a solution, and neuroaxial blockade should not be considered an absolute contraindication within these patient population,<sup>[1-3,5,7]</sup> despite the recommendations in the past.<sup>[8]</sup> Although an extended duration of the blockade,<sup>[7]</sup> no study, including ours, showed a new or worsening neurologic deficit when compared to pre-operative findings.<sup>[5,7,9]</sup>

## CONCLUSION

Ultimately, the decision to use general or regional anesthesia should be made on an individual patient basis weighing the risks and benefits. This case report describes some of the fewest practical guidelines available about regional anesthesia in post-polio patients with minimal sequelae. The importance of communications about these cases and the anesthetic conduct in this setting needs more debate to optimize the facilities in another similar case.

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