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Special article

Operating position in colorectal surgery. The importance of the basics

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A B S T R A C T

Intra-operative positioning in colorectal surgery is very important from 3 points of view: the proper surgical approach and exposure, adequate anaesthetic requirements with maintenance of the airway, and the potential complications related to the position. In the present study, we analyse the indications, positioning, advantages and disadvantages of each operative position, their potential complications and how to avoid them. These complications can be of a diverse nature, the most common being injuries related to stretching or compression of peripheral nerves, followed by thromboembolic, haemodynamic, and ischaemic or compartmental syndromes related to ischaemia-reperfusion after a long time in the Trendelenburg position. Anaesthetists and surgeons should coordinate and take responsibility for the position of surgical patients.

Posición operatoria en cirugía colorrectal. La importancia de lo básico

Palabras clave:
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Posición de litotomía-Trendelenburg
Síndrome compartimental
Lesiones de nervios periféricos

R E S U M E N

La posición operatoria en coloproctología es fundamental desde tres puntos de vista: correcto abordaje quirúrgico y exposición adecuada, requerimientos anestésicos y del mantenimiento de la vía aérea, y las complicaciones potenciales relacionadas con la propia posición. En el presente trabajo se revisan las indicaciones, colocación, ventajas e inconvenientes de cada posición operatoria, así como sus posibles complicaciones y cómo evitarlas. Éstas pueden ser de diversa índole, si bien las más frecuentes están relacionadas con lesiones por estiramiento o compresión de los nervios periféricos, seguidas por las tromboembólicas, hemodinámicas e isquémicas o síndromes compartimentales por isquemia-reperfusión tras un largo periodo en posición de Trendelenburg. Anestesistas y cirujanos deben coordinar y responsabilizarse de la posición operatoria de los pacientes.

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Introduction

The positioning of the patient is a fundamental step before starting the surgical act in itself, and in coloproctology, this is especially true, as there are different treatment paths and the spectrum of gravity oscillates between interventions with purely local anaesthesia to complex surgery in simultaneous and successive fields.

Its importance can be considered from 3 points of view: adequate operatory access and visibility, anaesthetic requirements, and potential complications related with the position itself.[1] The patient is vulnerable during the surgical act as once the anaesthesia is administered, they cannot transmit their feelings and their reflexes are abolished.[2] Aside from the specific preferences of the surgeon, the correct position on the operating table is not something trivial, and therefore, the surgery staff is responsible for the placement and surveillance of the operatory position of the patient.

In this special article, the peculiarities, advantages and disadvantages, and possible complications are reviews regarding the different operatory positions used in coloproctology.

Historical antecedents

Throughout history, there has been extensive iconography that illustrates coloproctology operatory positions.[3,4] With advances in anaesthesia and anti-sepsia, abdominal surgery begins its development and in 1835, Frederick Salmon founded in London the St. Mark's hospital,[5] the use of light and the global handbook on coloproctology. James Sims describes a position for rectal examinations where the patient lays on their left side, with their right hip and knee flexed against the abdomen, that is still used today, and Friedrich Trendelenburg presents, in 1880, his famous position for pelvic surgery, where the patient is placed on a specially inclined table, with their head on an inferior plane and with an assistant that holds the patient's legs over his/her shoulders.[3] Later, Joseph Mathews, the father of American proctology, improved the above position by placing supports for the feet,[6] Kelly provides the genupectoral position,[7] and Paul Kraske, the prone position.[8]

Selection of the operatory position for abdominal procedures

Supine position

This position is the most common for open surgery of the right and transversal colon.

The patients should have their arms tucked against the body or in abduction. It is helpful to place padding under the back so that the epigastric and hypochondrias can be elevated to make access to the supramesocolic compartment easier. The calcaneus area as well as the occipital region must be protected from pressure. Other pressure areas of the upper members should be padded to avoid the over-distension of the brachial plexus in patients with their arms in abduction. Normally, in open surgery, the surgeon situates him or herself on the right side of the patient and the assistants situate themselves in front of the surgeon. In laparoscopic surgery, the position is the inverse of the above mentioned, although the situation of the assistants depends on the available monitors.

Compressive lesions such as alopecia, pressure ulcers, and lesions of the ulnar nerve may be produced.

Lithotomy-Trendelenburg position (Lloyd-Davies)

This is the most-used position in surgery of the left colon and the rectum, in open as well as laparoscopic surgery. It was initially described by Lloyd Davies[9] in 1939. Some surgeons use it when they expect to liberate the splenic flexure of the colon, and they work situated between the legs of the patient. Normally, in open surgery, the surgeon is situated on the left side, with an assistant on the right and another assistant between the legs of the patient, and in laparoscopic surgery, on the right side. This enables rectal enema, the introduction of a stapler to perform anastomosis, and the ability to control it, either with endoscopy or using air inflation, as well as to perform an intra-operatory colonoscopy in the case of obstructive tumours or other pathologic processes.

When working in 2 fields is necessary, such as in rectal amputations through the abdomino-perineal pathway, the position must be modified for the perineal portion so that the vision is adequate[10] (Table 1).

The patient is placed in the dorsal decubitus position, with hips in near extension, knees flexed some 45º and with support for the calves. The coccyx should be just off the operating table. It is important not to flex the hips more than 10º to make the access to the transversal colon easier in laparoscopic procedures. There are various ways to position the lower limbs. One of the most common ways it to use the supportive leg stands under the calves of the patient, that should comfortably rest on top of them, and to not place them in the popliteal fossa, which would compress vascular-neural structures. The support of the fibula must be also protected with a cloth or a pad. The Trendelenburg position, today, means an inclination of the trunk with the head lower than the rest.[2] Around 15º are very useful for pelvic dissections. As commented before, the leg stands should be covered with padding to prevent compressive lesions, and also to prevent skin burns and to maintain body temperature.

Another method includes the use of ankle straps, which consist of 2 strips that hang the sole of the foot and the posterior side of the ankle from a metal post without direct contact with the patient. Finally, the ideal method used today is the use of Allen-type boot leg stands, where the leg rests on a surface covered by a soft material held by adjustable bands, whose advantages are the possibility to modify the position during surgery in a simple manner and the support of the sole of the foot, more physiological, that reduces the possibilities of nerve compression, especially of the peroneal nerve (Figure 1).