Caution is needed in interpreting the results of comparative studies regarding oncological operations by minimally invasive versus laparotomic access

É necessário cautela na interpretação dos resultados de estudos comparativos de cirurgias oncológicas por acessos minimamente invasivos vs laparotômicos

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Abstract

We aim to alert the difference between groups while comparing studies of abdominal oncological operations performed either by minimally invasive or laparotomic approaches and potential conflicts of interest in presenting or interpreting the results. Considering the large volume of scientific articles that are published, there is a need to consider the quality of the scientific production that leads to clinical decision making. In this regards, it is important to take into account the choice of the surgical access route. Randomized, controlled clinical trials are the standard for comparing the effectiveness between these interventions. Although some studies indicate advantages in minimally invasive access, caution is needed when interpreting these findings. There is no detailed observation in each of the comparative study about the real limitations and potential indications for minimally invasive procedures, such as the indications for selected and less advanced cases, in less complex cavities, as well as its elective character. Several abdominal oncological operations via laparotomy would not be plausible to be completely performed through a minimally invasive access. These cases should be carefully selected and excluded from the comparative group. The comparison should be carried out, in a balanced way, with a group that could also have undergone a minimally invasive access, avoiding bias in selecting those cases of minor complexity, placed in the minimally invasive group. It is not a question of criticizing the minimally invasive technologies, but of respecting the surgeon’s clinical decision regarding the most convenient method, revalidating the well-performed traditional laparotomy route, which has been unfairly criticized or downplayed by many people.

Keywords: Surgical Oncology. Selection Bias. Laparoscopy. Conversion to Open Surgery.

Content

In some laparotomic surgeries, the extent and location of the incision, in addition to intracavitary manipulation, may represent unnecessary, therefore preventable, trauma, following the old and false surgical adage: “great incisions, great surgeons”.

There is no standard, homogeneous and adequate practice of postoperative analgesia (blockages, parenteral, enteral, oral - preventive, peremptory or therapeutic) disseminated in the daily lives of most hospitals. Nor are there regular and efficient physical therapy care in the routine of many centers. Both practices can minimize major adverse events, which can be avoided or mitigated in patients undergoing laparotomy.

Some minimally invasive surgeries result in less bleeding, as they are usually compared with laparotomic surgeries without the use of high-tech hemostatic forceps and staplers, among other special devices, used in minimally invasive approaches, but which can and should also be used in laparotomies.

Major bleeding in laparotomic surgeries, in the general reckoning of comparative studies, can represent situations of greater complexity that could not be solved by the minimally invasive route. In fact, when there are major hemorrhagic or other complex complications during a minimally invasive surgery, there is usually a disorderly conversion to “maximized” laparotomy surgery, sometimes with unfavorable outcomes.

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Surgeries initiated by minimally invasive access and converted to laparotomy access due to some intraoperative limitation cannot be considered merely as one more procedure by laparotomy. This contaminates this group's statistics (crossover), because if they had been performed through laparotomic access from the beginning, the transoperative and, consequently, the postoperative outcomes could be different. In addition, one should consider the fact that it was not feasible to perform them through a minimally invasive access.

The selection for minimally invasive surgeries is usually made up of less complex cases, even within the same oncological stage. Patients at an earlier stage and with less comorbidity, the majority of those submitted to minimally invasive access, tend to have display outcomes, unlike the more complex and complicated ones, which are common in groups of patients submitted to laparotomic procedures.

The lack of touch, in some situations of oncological dissections by minimally invasive accesses, can cause dissection or resection below or even beyond what is necessary (in peritoneal carcinomatosis, retroperitoneum, advanced pelvic endometriosis, multivisceral adhesions, and/or the vicinity of noble structures, etc.).

Just because minimally invasive surgery can be performed does not mean it should. In some situations, such as with cancer of the cervix treated by minimally invasive access, there may be worse cancer outcomes than those that occur by laparotomy. This is possibly due to greater tumor manipulation and/or due to a difference in the pattern of dissection, resection and surgical oncological hygiene on a disease in which locoregional surgical treatment is essential for the final outcome.

In qualified hands, especially in pelvic surgeries with incisions limited to the infraumbilical or suprapubic region, and in operations for enteral catheterization by minilaparotomy, especially when respecting the access through the Linea Alba and limiting the aforementioned biases, postoperative outcomes in both groups may be closer.

Conflicts of interest can go unnoticed when there are greater offerings of technologies, marketing, media, commerce, cosmetics, exhibitionism and fame. Surgeries of lesser complexity can also be performed through parsimonious, moderately invasive laparotomic accesses, through smaller, more appropriate, less traumatic incisions and manipulations, with fruitful clinical, analgesic, anti-inflammatory, nutritional and physical therapy post-operative assistance, approaching the results of minimally invasive accesses. So we perceive in our practice.

In several cases, with a small increase in the total dimension of the incisions of the minimally invasive accesses (sum of the dimensions of the incisions for inserting the trocars and removing the specimen), surgery can be performed in the laparotomic form with an appropriate incision to the procedure in question, observing technical and oncologic safety, moderate invasiveness, less complexity, shorter time and lower costs.

The few randomized, controlled and well-conducted studies show no inferiority of some recognized and limited advantages of minimally invasive access for abdominal cancer resections. In selected situations, they are more appropriate, what should not, however, induce the non-realization or discredit of laparotomic accesses of adequate extension. These are quite economical and safe in hands and minds skilled in highly complex cancer surgery, inseparable from a broad multidisciplinary and multiprofessional perioperative care. The choice of the surgeon (and team) should prevail over the choice of the surgical access method.

According to Dipen Parekh, director of robotic surgery at the University of Miami, “Just because something is new doesn’t necessarily mean it is better [or that it replaces the traditional way – our addendum]. We need to be making evidence-based decisions instead of marketing-based [or passion-based – our addendum] decisions”. The results show that open surgery remains a good option and that the surgeon’s experience is what matters. At the moment, according to Marcus Sadi, coordinator of the Uro-Oncology area at the Escola Paulista de Medicina, “the best cost-benefit is conventional surgery with an experienced multidisciplinary team.”

Perhaps, the heart of the matter is the choice of a more expensive and elective method at a disadvantage to the investment in access to fruitful assistance and cancer prevention to the majority of our needy...
population. Thus, “truths” such as incisions of adequate size, through technological access, with lower morbidity and early discharges may be secondary or more limited.

We need more randomized, controlled, clinical trials with high methodological quality (clear, balanced and detailed methodological design, adequate eligibility criteria for selecting homogeneous groups that can receive either of the two interventions, randomization, control for biases and limitations) and systematic reviews that use rating scales to analyze methodological quality, free of conflicts of interest.

There is no demerit to those who continue performing highly complex oncological surgeries through an adequate laparotomic access.

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