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Predictors of Pain Development after Laparoscopic Adnexectomy: A Still Open Challenge

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Surgical postoperative pain is one of the key factors affecting patient recovery after a procedure and one of the most important elements to consider when dealing with new surgical approaches. Based on pathophysiological background, pain can be linked to different macro-factors, as follows: pre-operative patient conditions (i.e., individual characteristics and the type of the disease requiring surgery), surgical procedure, and post-operative analgesic therapy. Since the last two items could be affected by our interventions, the mean efforts in pain management should be addressed in improving surgical techniques and post-operative management, including analgesic administration.

Adnexectomy is a procedure performed by removing both the tube and the ovary from one or both side of the pelvis. Benign or (pre-)malignant conditions can be managed by laparoscopic approach. Moreover, risk-reducing bilateral salpingo-oophorectomy is offered to BRCA-1/BRCA-2 patients, with a prophylactic aim [1]. In this regard, a minimally invasive approach should be always the first choice to minimize complications and pain, whenever it is possible.

The laparoscopic approach is widely known for reducing recovery time and minimizing post-operative pain, although patients should be carefully selected and undergo a proper counseling in case of large adnexal masses, for the risk of spillage [2]. In this scenario, during the last years we saw a constantly increasing trend toward minimally invasive surgical options, including new feasible techniques such as single-port surgery, mini-laparoscopy, micro-laparoscopy, vaginal natural orifice transluminal endoscopic surgery (vNOTES), and percutaneous surgery [3,4]. In addition, novel techniques are pushing forward the current limits of fertility-sparing surgery, allowing the preservation of healthy ovarian parenchyma even in case of borderline tumors [5].

Overall, minimally invasive techniques have been associated with reduced post-operative pain, assessed usually by visual analogue scale, and a lower amount of analgesic needed compared to open surgery. For instance, vNOTES surgical interventions both on the uterus and on the adnexa

were found to provide a shorter duration of surgery, lower pain scores, and lower total dose of analgesics [4,6]. However, the recently published NOTABLE trial found that vNOTES was associated with a trend for more adverse events compared with laparoscopy [6], suggesting that this technique requires adequate training and skills to be safely used, as it occurs for all the new surgical approaches. Nevertheless, vNOTES allows an adequate exposure of the ureter reducing the risk of ureteric injury and, in addition, may prevent from the abdominal wall vessels injury associated with trocars insertion [7].

Other than complications, an optimal surgical technique should tend to the minimal pain development after the procedure. Indeed, pain related to adnexectomy should be further addressed, to reduce also recovery time as well as the opioids administration. Predictors for post-operative pain are often assessed comparing different techniques (e.g., minimally invasive approaches vs. laparotomy), aiming to find new targets of technical intervention. For instance, when comparing single-port laparoscopy with traditional laparoscopic approach, the number of trocars inserted was found associated with postoperative pain. However, a laparoscopic approach with a reduced number of trocars is associated with less space in the operative field and, possibly, the intra-operative time required could be increased [8]. Accordingly, a large systematic review and meta-analysis answered the question providing evidence about pain related to adnexal surgery when comparing single-port laparoscopy and the traditional laparoscopic approach. Indeed, the techniques presented similar pain scores [9]. These findings may suggest that the sole surgical technique can be insufficient for determining the best option in terms of pain reduction. Based on a perspective of focus-targeted medicine, the subgroup analysis on large cohorts should be always performed.

According to this need, we read with great interest the article by Ebanga et al. [10] about the surgical predictors of postoperative pain in women undergoing laparoscopic adnexectomy. All women older than 18 years old with an

indication to undergo laparoscopy for adnexal surgery were included in the study. Several patient characteristics and surgical correlated parameters were recorded, and the pain was assessed every 30 min within the following 2 h through the numeric rating scale, ranging from 0 to 10. The univariate analysis was performed dividing patients according to the pain intensity. Interestingly, for patients with low postoperative pain (with a score <3) only the fascia closure was associated with pain. Moreover, for patients referring to the highest pain (>5) only fascia closure and duration of pneumoperitoneum longer than 60 min were significantly correlated. On the contrary, intraperitoneal pressure, peri-operative adhesiolysis, and previous surgery were not correlated with greater postoperative pain. Because none of the patients had any intraoperative or postoperative complication, we can therefore observe a population free from pain-related biases. Moreover, we appreciated the efforts of the authors spent in searching patient, surgical, and anesthesiological predictors, giving strength to the belief that postoperative pain has a multifactorial origin. Specifically, the results highlighted the need for reducing operation time (i.e., reduce the time of pneumoperitoneum) and the fascia closure. Both these achievements should be key points in the futuristic, but actual, pathway of minimally invasive surgery. Indeed, reducing port size and using the culdotomy approach [3,5] are only two feasible examples on how the minimally invasive surgery can move further its technology and provide more pain relief for the patient. In this scenario, the study by Ebanga et al. [10] offers new insights in peculiar methodological surgical features that need implementation for pain relief. Future investigation could therefore consider subgroup population analysis for detecting surgical ways of improvement, addressing more specifically the individual patient needs.








Disclosure statement

The authors have no proprietary, financial, professional, or other personal interest of any nature in any product, service, or company. The authors alone are responsible for the content and writing of the paper.

Author contributions

All the authors conform the Journal and the International Committee of Medical Journal Editors (ICMJE) criteria for authorship, contributed to the intellectual content of the study and gave approval for the final version of the article.

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