

Postoperative Pain Control in Patients Undergoing Open Inguinal Hernia: Review Article

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ABSTRACT

Background: Nociceptive and neuropathic post-operative discomfort of moderate severity is related to inguinal hernia operations. The Wong-Baker FACES pain rating scale, the McGill Pain Questionnaire (MPQ), the Visual Analogue Scale (VAS), and the Numeric Rating Scale (NRS) for pain are all used to measure pain.

Objective: To control the postoperative pain in patients undergoing open inguinal hernia.

Methods: Pain Control, Undergoing Open Inguinal Hernia and Visual Analogue Scale were searched for in PubMed, Google Scholar, and The Egyptian Knowledge Bank. Systemic analgesic methods (such as opioids and nonsteroidal anti-inflammatory drugs), localised analgesic methods (such as quadratus lumborum block (QLB)), and a multimodal approach to perioperative recovery were used to control postoperative pain. High postoperative pain scores were seen in patients with high pain levels in the first week following surgery, patients who had recurrent hernia repairs, patients who had high levels of pain prior to surgery, and patients who had outpatient surgery were all risk factors for inguinal hernia postoperative pain. Only the most current or comprehensive studies were included after the authors thoroughly filtered references from the pertinent literature, which comprised all the recognised studies and reviews.

Conclusion: After open inguinal hernia surgery, a multimodal analgesic strategy (a mix of localised and systemic analgesia) is particularly successful at reducing postoperative discomfort and promoting early mobilisation.

Keywords: Pain control, Undergoing open inguinal hernia, Visual analogue scale.

INTRODUCTION

Moderate intensity nociceptive and neuropathic post-operative discomfort is linked to inguinal hernia operations ⁽¹⁾. The genitofemoral, ilioinguinal, and iliohypogastric nerves are interdigitated and overlapped in the inguinal region ⁽²⁾. Inadequate post-operative pain treatment increases patient stress leads to cardiovascular problems, patient discomfort, and slows recovery ⁽³⁾. In the standard of care for abdominal procedures, opioids are frequently used to treat moderate to severe post-operative pain. Strong opioids, on the other hand, might result in constipation, reduced bowel movement, nausea, vomiting, pruritus, urine retention, and even respiratory depression ⁽⁴⁾.

Regional nerve blocks and intravenous (IV) patient-controlled analgesia are being used to alleviate post-operative pain ⁽⁵⁾. Excellent site-specific pain alleviation and a decrease in negative side effects are provided by regional nerve blocks ^(6,7).

In addition to being helpful in the proper management of acute pain, newer methods of regional analgesia, longer acting (LA) and adjuvants, and safety with ultrasonography (US) are also helpful in avoiding the development of chronic pain ⁽⁶⁾. As opposed to transversus abdominis plane (TAP) block, which only relieves somatic pain, US-guided quadratus lumborum (QL) block has recently been proven to produce both somatic and visceral analgesia ⁽⁸⁾.

The International Association for the Study of Pain (IASP) defines pain as "An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage". Pain is the most prevalent symptom

of any illness. Pain's alerting effect elicits defensive reactions and works to minimise tissue damage. The ability to feel pain serves a protective purpose. If tissue damage cannot be prevented, a series of modifications in the peripheral and CNS that control pain perception takes place ⁽⁹⁾.

A complicated experience, pain includes elements that are physiological, sensory, emotional, cognitive, and behavioral. The interplay of physical, psychological, cultural, and spiritual variables affects how strongly pain is felt by an individual ⁽¹⁰⁾.

Classification of pain: neuropathic, nociceptive, acute, chronic, pathologic, and physiological pain.

Pathophysiology of postoperative: Acute postoperative pain is a typical reaction to surgical intervention and a factor in delayed healing and postoperative discharge. Chronic postsurgical pain (CPSP) can significantly affect a patient's daily activities and quality of life ⁽¹¹⁾.

Risk factors for chronic postsurgical pain: Recurrent surgery, imagining the worst-case scenario, anxiety, female gender, younger age (adults), workers' compensation, genetic predisposition, surgical technique with risk of nerve injury, moderate to severe postoperative pain, radiation therapy to the region, neurotoxic chemotherapy, depression, and neuroticism ⁽¹¹⁾.

Pain pathway (Figure 1): It can be thought of as a three-neuron chain, with the first-order neuron coming from the periphery and projecting to the spinal cord, the second-order neuron climbing the spinal cord, and the third-order neuron coming from the cerebral cortex ⁽¹²⁾.

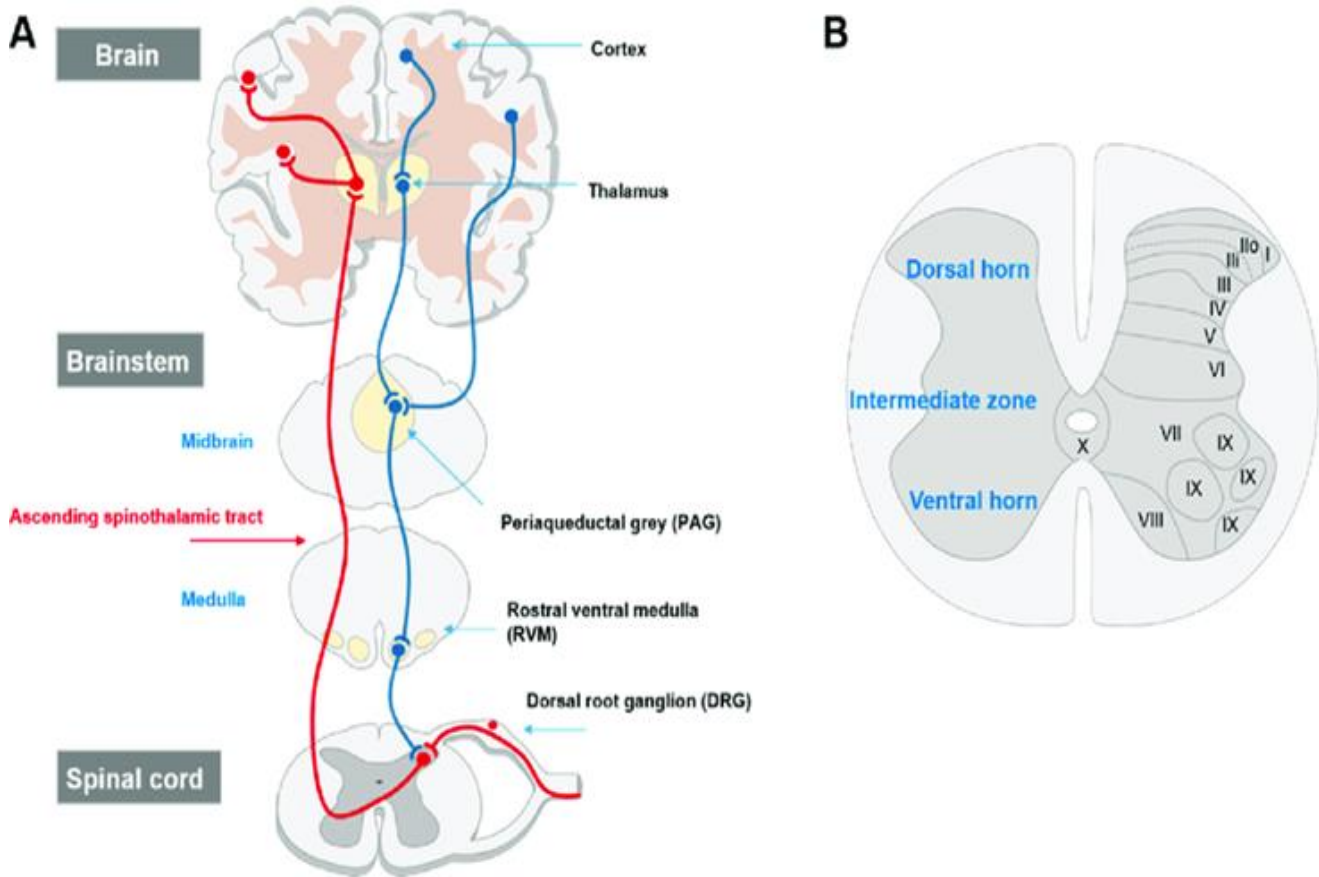


Figure (1): Pain pathway ⁽¹³⁾.

Pain assessment:

To give the best post-operative pain treatment, assessments and reassessments are necessary. A pain assessment can help determine whether analgesic or analgesic dose adjustments are necessary, whether changes to the post-operative pain management plan or additional interventions are warranted, and whether specialty consultation or other measures are required in the case of difficult-to-manage pain ⁽¹⁴⁾.

- **The Numeric Rating Scale (NRS)** is one of the most used methods for assessing pain since it is straightforward to use ⁽¹⁵⁾.
- **The Visual Analogue Scale (VAS)**, which is essentially similar to NRS for pain and another established method of measuring pain ⁽¹⁶⁾.
- **Wong-Baker FACES** displays images of various face expressions illustrating a spectrum of emotions ⁽¹⁷⁾.
- **The MPQ (McGill Pain Questionnaire)** twenty groups of seventy-eight pain adjectives were further divided into sets of words expressing the sensory characteristics of pain ⁽¹⁸⁾.

Risk factors associated with postoperative pain of inguinal hernia:

Patients who underwent recurrent hernia repair, experienced high levels of pain before to surgery, had outpatient surgery, and experienced high levels of pain during the first week following surgery all had high postoperative pain ratings ⁽¹⁹⁾.

The surgeon's high level of pain communication to the patient prior to surgery, the patient's high expectations of pain, being younger than 40 years old, the patient's fear of pain, and the fact that regional anaesthesia only reduced pain on the day of surgery were all reported as risk factors for chronic postoperative pain ⁽²⁰⁾.

Control of post operative pain:

1. Treatment methods

- **Systemic analgesic techniques:**
 - A. **Opioids:** One of the main methods for the management of pain following surgery. Although opioids may also function at peripheral opioid receptors, they typically exert their analgesic effects through μ -receptors in the CNS ⁽²¹⁾. Sedation, wooziness, nausea, vomiting, constipation, physical dependency, tolerance, and respiratory depression are typical adverse effects of opioid treatment ^(22, 23).
 - B. **Nonsteroidal Anti-inflammatory Agents (NSAIDs):** In addition to acetaminophen and aspirin. Prostaglandins, which are crucial mediators of peripheral sensitization and hyperalgesia, and COX inhibition, which is the major mechanism, are involved in the process ⁽²⁴⁾. In high-risk patients with hypovolemia, aberrant renal function, or abnormal serum electrolytes, NSAID-induced renal impairment may happen during surgery ⁽²⁵⁾.
- **Regional analgesic techniques:**

Postoperative pain can be effectively treated with a range of neuraxial (mostly epidural) and peripheral regional analgesic treatments, such as quadratus lumborum and transversus abdominis plane blocks (26).

- 2. Multimodal approach to perioperative recovery:** Early enteral nutrition, education, and attenuation of the perioperative stress response through the use of regional anaesthetic techniques and a combination of analgesic drugs (i.e., multimodal analgesia) are all components of a multimodal strategy. Postoperative pain is controlled to allow early mobilisation (27).

CONCLUSION

After open inguinal hernia surgery, a multimodal analgesic strategy (a mix of localised and systemic analgesia) is particularly successful at reducing postoperative discomfort and promoting early mobilisation.

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