

Case Report

CONTINUOUS EPIDURAL ANALGESIA FOR PAIN MANAGEMENT IN A PERITONEAL CARCINOMA PATIENT: A CASE REPORT

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Received: 07-12-2023 / Accepted: 05-06-2025

ABSTRACT

Background: Annually, more than 10 million people worldwide are diagnosed with cancer. Peritoneal carcinoma is a rare disease that occurs worldwide. Cancer-related pain is one of the most frequently found complications in advanced cancer patients. Chronic pain due to cancer can reduce the patient's quality of life. Providing interventional therapy is the ultimate step in the pain management stage. In this case, the patient experienced cancer pain that had metastasized into a maximum scale and had received polypharmacy to overcome the pain. The administration of epidural analgesics was proven to be able to overcome cancer pain.

Case Description: a 52-year-old female patient came with peritoneal carcinomatosis that metastasized to the abdominal area; the cancer had been a residual mass originating from a previous colon cancer. The patient had a history of a couple of surgeries due to appendicitis and colon cancer. Based on physical examination, the patient experienced severe pain with a Numeric Rating Scale (NRS) score of 10. Therefore, intervention therapy was crucial to reduce pain in this case. Epidural administration of local anesthetics with low concentrations and low doses of morphine can provide effective analgesia for high-level cancer pain without causing side effects such as nausea, vomiting, or hypotension.

Conclusion: Continuous epidural analgesia is a type of interventional therapy that can be used to treat cancer pain. Epidural analgesia can provide medication targeting local pain receptors while minimizing systemic side effects.

Keywords: analgesia, cancer pain, epidural, pain management

INTRODUCTION

Every year, more than ten million peoples are diagnosed with cancer worldwide. Peritoneal carcinoma is a rare disease that occurs worldwide, with an approximetly incidence 0,65 per 100.000 women in the United States. This is serious disease and make some uncomfortable condition in patient such as peritoneal cancer related pain.^[1] Cancer-related pain especially peritoneal carcinoma is a serious problem which is not managed with adequate treatment may affect the patient's quality of life.^[2]

The World Health Organization (WHO) present an algorithm for cancer pain control and proven as effective analgesia in 70-90% of patients.^[1-3] According to WHO guidelines, the neuraxial block method is the fourth step in the level of pain management.^[4]

Some of the techniques for the treatment of cancer-related pain include neurolytic blocks as well as spinal and epidural analgesia.^[5,6] Epidural analgesia, which has a longer block duration because it is stable in the epidural space. It reduces side effects on other organs by administering drugs systematically through oral or intravenous routes.

This method is safe, effective, and pain-reducing. Epidurally administering local anesthetics with low concentrations and low doses of morphine can provide effective analgesia for high-level cancer pain without causing side effects of nausea, vomiting or hypotension.^[7-9]

CASE DESCRIPTION

Patient Information

A 52 year old female (46 kg, 153 cm) presented to the hospital with the main complaint of left abdominal pain that spread to the back. The pain was since four months ago and increased in the last two weeks. The pain affected the patient's daily activities. The patient had a history of appendicitis and colon cancer, had undergone surgery, and had received pain medication in the previous 2 weeks.

Clinical Findings

Physical examination showed BP 126/76 mmHg, HR 87x/minute, GCS 456, and SpO2 98%. Abdominal examination revealed pain in all quadrant regions, and the Numeric Rating Scale (NRS) showed 10.

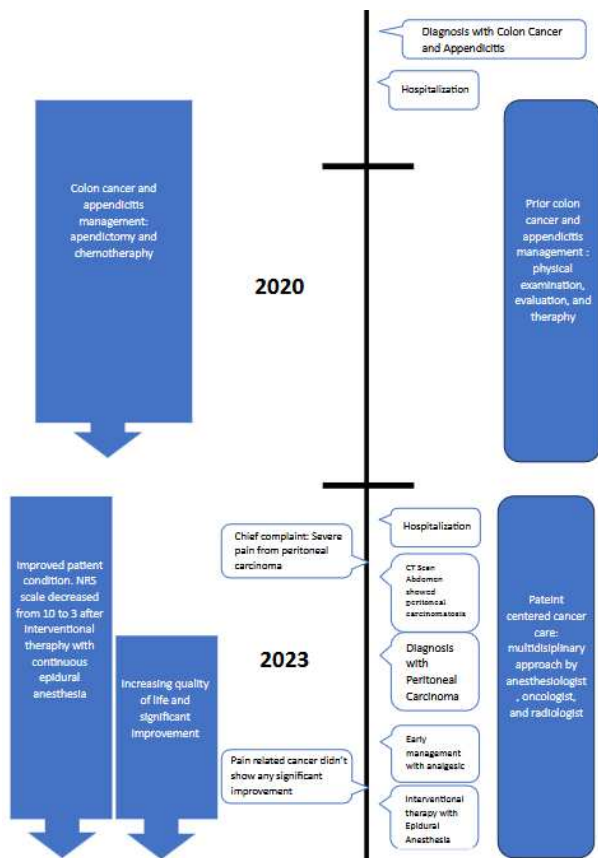


Figure 1. Timeline of chronologically

Diagnostic Assesment

Plain abdominal photographs did not show any abnormalities. Laboratory examination showed anemia (Hb 10.6 g/dL), monocytosis (8%) and trombositosis (466 cells/mm³). CT Scan of the abdomen was performed (Figure 2-4). The results showed peritoneal carcinomatosis, a recurrent mass that caused ureteral obstruction, and distal ureteral dilatation due to obstruction causing hydronephrosis of the right kidney. Other examinations, such as laparoscopy and biopsy, were not performed because of cost. Based on the International Federation of Gynecology and Obstetrics (FIGO) classification system, the patient was diagnosed with stage 3 peritoneal carcinoma and abdominal metastasis (tumor involves one or both ovaries or fallopian tubes, or primary peritoneal cancer without distant metastasis).



Figure 3. Abdominal CT scan showing hidronephrosis in the right kidney (orange arrow)

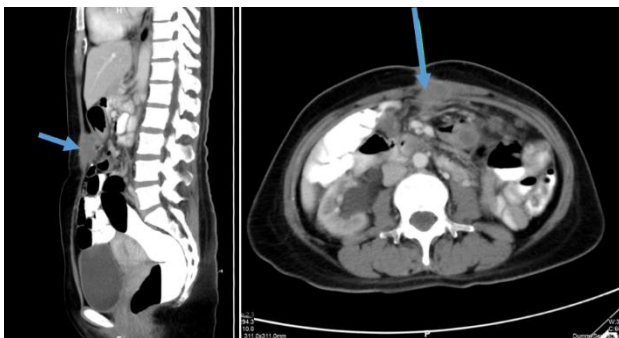


Figure 2. Abdominal CT scan in the sagittal and transverse planes showing peritoneal carcinomatosis (blue arrow)



Figure 4. Abdomen CT Scan showed Ca Colon (green arrow)

Therapeutic Intervention

The initial therapy for this patient was Ringer's Lactate infusion and 30 mg Ketorolac (3x1). On the fifth day, the patient was given hyoscine butylbromide 2 × 1, paracetamol injection 3 × 1, and a Duragesic Patch once at 25 mcg. Abdominal pain slightly reduced with an NRS of 8-9. Subsequently, an epidural catheter was installed to administer medication via epidural injection for pain control, and the NRS score decreased to 3.

The patient was positioned in lateral decubitus then the needle insertion was determined using an ultrasound. The epidural space is visible after the ligamentum flavum. Insertion of the epidural needle in the patient was performed at approximately the T10 level to determine the location of the abdominal pain. The dosage was based on two-segment regression calculations to block the pain area. The target epidural block was from the T5 to S3 levels.

Installation of an epidural catheter uses a loss of resistance technique by connecting the epidural needle with a syringe filled with water, then inserting the needle while pushing the contents of the syringe, there will be a sudden drop in pressure when the needle is in the epidural space. In this case, the aim was only to block sensory function; therefore, an adjustment of the analgesic agent was necessary. Levobupivacaine (12.5 mg) mixed with morphine (2 mg) was administered through an epidural catheter.

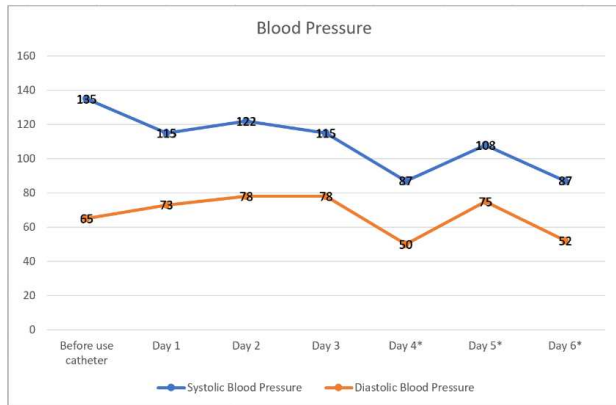


Figure 5. Blood pressure of the patient

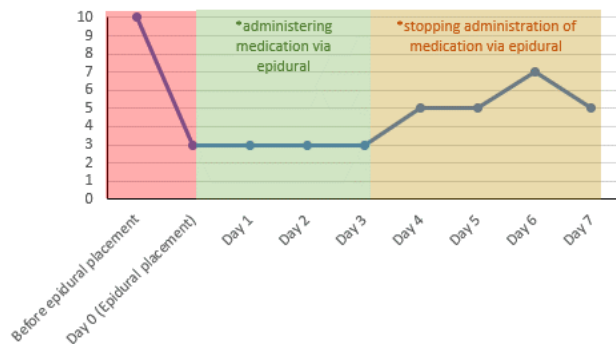


Figure 6. NRS scale of the patient

Follow-up and Outcomes

Epidural medication was administered every 12 h and stopped after the blood pressure decreased on the third day after receiving epidural anesthesia (Figure 5). While administering medication via epidural route, the patient

also received Hyoscine butylbromide 2x1 and Paracetamol 2x1. Every time after administering medication through an epidural, the patient felt nauseous and spinning, so Ondansetron 4 mg, Betahistine Mesylate 6 mg, and Flunarizine 5mg were added into treatment. However, after the administration of the drug via the epidural was stopped, the pain elevated again with an NRS score of 5-7 (Figure 6).

DISCUSSION

The patient had an NRS score of 10 when he first visited the emergency room. It is known that the patient had previously been administered medication to control pain. Epidural injection in patients is administered a combination of Levobupivacaine and Morphine. The results of this treatment effectively reduced pain (NRS 3). In accordance with research conducted by use a combination of Levobupivacaine and Morphine can reduce chronic pain from a pain assessment scale score of seven to a score of three.

The observation method using an NRS scale of 10 is easy to perform in health facilities with limited facilities and health personnel. Intervention with continuous epidural analgesia is in accordance with funding schemes in developing countries.

Pain in cancer patients occurs due to interactions between cancer cells, the peripheral and central nervous systems, and the immune system.^[10] The pathophysiology of pain in cancer can be divided into nociceptive and neuropathic pain. Nociceptive pain is divided into somatic and visceral pain, has characteristics diffuse and not localized; meanwhile, neuropathic pain has the characteristics of burning, hyperalgesia, and allodynia.^[12]

Cancer pain therapy consists of pharmacological therapy and interventional therapy.^[13] Indications for choosing therapy depend on the clinical condition of the patient. Pharmacological therapy for pain management is known as a Three-Step Analgesic Ladder (Figure 7). Analgesics were administered according to the severity of pain. For mild pain (1-3) start from the first step. Moderate pain (4-6) begins in the second step. Severe pain (7-10) affects all aspects of daily activities and social functions.

Overall, 80–90% of cancer pain can be treated with conventional and adjuvant analgesics based on the three-step analgesic ladder pain management principle. However, 10-20% of cancer patients still feel pain when applying this method, so interventional treatment is needed.^[14]

Analgesics for terminal cancer can act as palliative therapy to improve the patient's quality of life.^[15,16] Interventional therapies vary from simple nerve blocks to invasive techniques, such as regional blocks, neurolytic drugs, or neurosurgical procedures. The choice of procedure differs for each patient, depending on the risk factors and benefits. The use of opioids as an analgesic can have effects on other organ systems, such increase parasympathetic nerve activity and inhibit sympathetic nerve activity.^[17] In this case, hypotension occurred because opioid affect

parasympathetic nerve activity. Some of the analgesic techniques administered can last for several days to weeks. Analgesic techniques using neuraxial blocks such as spinal or epidural blocks can provide significant effects.^[18]

Epidural anesthesia and related analgesic techniques involve parallel procedures to spinal blocks.^[19] They involve the skin and subcutaneous layers crossing the ligamentum flavum with a needle. However, the endpoint of the needle tip is the epidural space, which contains fat, lymphatics, blood vessels, and spinal nerves as they exit the spinal cord. The drugs can be injected directly into this space, although it is more common use a catheter which can be used to administer a variety of pharmacological agents.^[20]

Levobupivacaine has a clinical profile similar to Bupivacaine, but has several advantages, more effective to blockade lower motor, better safety profile for cardiovascular and central nervous system toxicity in regional analgesia.^[4]

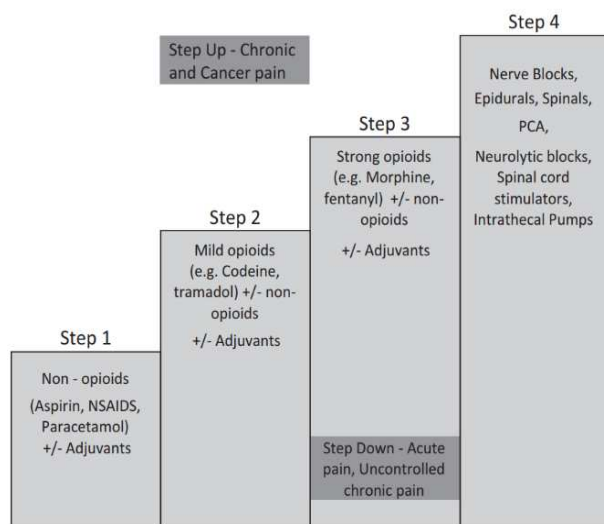


Figure 7. NRS scale of the patient

CONCLUSION

Pain is a significant issue for patients with cancer, and various pharmacological methods have been employed to alleviate it. However, despite the use of drug combinations, pain management often remains inadequate and severely affects a patient's quality of life. Interventional pain therapies, such as epidural anesthesia, offer a potential solution. This technique has been shown to effectively reduce cancer-related pain and the need for other analgesic modalities.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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