CASE REPORT

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Epidural Analgesia for Palliative Pain Management for A Patient with An Advanced Stage Prostate Cancer: A Case Report

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ABSTRACT

Introduction: Patients with advanced-stage cancer should be able to stay at home with their families without suffering from pain. This case report aims to discuss challenges in pain management of a patient with bone metastasis of prostate cancer who received epidural analgesia at home. Challenges were related to the patients, health professionals, and system. Understanding each factor will bring insights to develop a workable pain management program in the palliative setting.

Case Presentation: A 66-year-old male was diagnosed with left sacroiliac joint pain due to metastatic prostate cancer. After a three-year history of prostate cancer and ineffective chemotherapy, the patient complained of pain in the left hip that did not improve with conventional medications (paracetamol, tramadol, and Morphine Sustained Release/MST). In response, the consideration of an epidural implant emerged as a potential solution, offering the prospect of home-based care and autonomous medication administration through an epidural continuous block with intermittent drug injection.

Conclusions: This case highlights home-based interventional pain management for cancer, addressing challenges at the patient, health professional, and system level. Overcoming these challenges requires a multidisciplinary approach and robust institutional policies. The insights gained offer valuable lessons for hospitals aiming to enhance the competence of pain and palliative care teams and establish comprehensive support systems in hospital and home settings.

INTRODUCTION

Pain is the most reported symptom and most feared by cancer patients. The incidence and prevalence of pain vary according to the type and stage of the disease and can reach more than 70% of cancer patients. Around 46% of cancer patients did not receive adequate pain management when facing death [1,2].

The goal of treatment for patients with advanced-stage cancer is to improve their quality of life. Therefore, staying close to their family whilst facing the end of life with dignity and pain-free may be one important endpoint of pain management in palliative care [3]. As opioids are often related to unwanted adverse effects and sometimes are not adequate for cancer patients with high-intensity pain, an interventional technique such as epidural block can be helpful [2]. However, administering the drug for an epidural at home can be problematic if adequate home care service is unavailable [4].

This case report discussed the management of left sacroiliac joint pain syndrome in a patient with bone metastases prostate cancer by self-administering medication through an epidural implant at home. In our setting in Indonesia, this is not a common approach. We discussed challenges in pain management from patients, health professionals, and system perspectives. Understanding these challenges will bring insights into patient care in similar contexts and the development of cancer pain management in palliative services.

CASE PRESENTATION

This case reported a 66-year-old male with left sacroiliac joint pain due to prostate cancer bone metastasis. The patient had been diagnosed with prostate cancer for three years and chemotherapy did not give satisfactory results. The patient and family understood the low prognosis for the disease, yet felt helpless to deal with the excruciating pain that the patient had been complaining about.

The patient complained of pain in the left hip that did not improve with conventional medications (paracetamol, tramadol, and MST). Pain often occurred at night and resolved spontaneously with a rest. The pain is raised when the left hip bone is compressed and whenever the patient moves. Patients reported a Numerical Pain Scale (NPS) of 6 or above. The pain was described as aching in the bone, not accompanied by a burning, tingling, or electric sensation. The pelvic radiological examination revealed multiple blastic lesions on the pelvic bones and proximal femur, consistent with the appearance of metastases. He was diagnosed with left sacroiliac joint pain syndrome in metastatic prostate cancer.

The patient received an intraarticular injection of steroid and local anesthetic drug in the left sacroiliac joint. The pain subsided for two days then it came back. Then the RFA (Radio Frequency Ablation) for the left sacroiliac joint was performed. The pain came back after three days, with NPS 8 during movement

We considered inserting an epidural implant and providing an epidural continuous block with intermittent drug injection. By using an epidural, the patient could go home and administer medication independently. Epidural anesthesia is generally safe, but it should not be used when absolute contraindications present, such as a patient's refusal, local infection at the injection site, traumatic spinal cord injury, or increased intracranial pressure. We did not find any contraindication of epidural in this patient.

While waiting for the epidural implant procedure, the patient obtained intravenous Patient-Controlled Analgesia (PCA) fentanyl for breakthrough pain. For base analgesia, the patient received routine oral opioids. An anesthesiologist performed the epidural insertion with a Celsite® spinal set (BBraun) using a caudal approach. The confirmation of catheter tip placement used an x-ray with contrast agents. The tip of the catheter was at the S1 level, confirmed with an x-ray with a contrast agent. Tunneling was performed, and the catheter was implanted along with a port-a-cath up to the left anteromedial anterior superior iliac spine. On the port, winged surecan no 16G was inserted (**Figure 1**). The needle should be replaced every three days.

Before the port insertion, we confirmed the effectiveness of analgesia and evaluated the disturbance to the motoric function. The patient continued receiving PCA for two days post-implantation.

The pain and palliative care team prepared the patient's discharge and home care planning. We trained the patient and family to administer the medication via epidural and provided written instructions.

The pharmacy prepared the regimen for epidural administration in factory packaging while the pain team performed the dilution of the regimen. To make a regimen of bupivacaine 0.125%, we used bupivacaine 0.5% diluted in NaCl 0.9%. Because this is the first case of home administration of an epidural in our hospital, the pharmacy had no experience providing diluted medication for home use. Nevertheless, the pharmacy confirmed that the patient could use the diluted ready-to-inject regimen for three days.

On day one after implant placement, the patient received bupivacaine 0.125% 10 mL and reported muscle weakness and numbness in both legs 1-2 hours after the epidural administration. At NPS 4, the patient opted for PCA instead of bupivacaine. The patient reported discomfort during epidural administration. He was still reluctant to use the epidural.

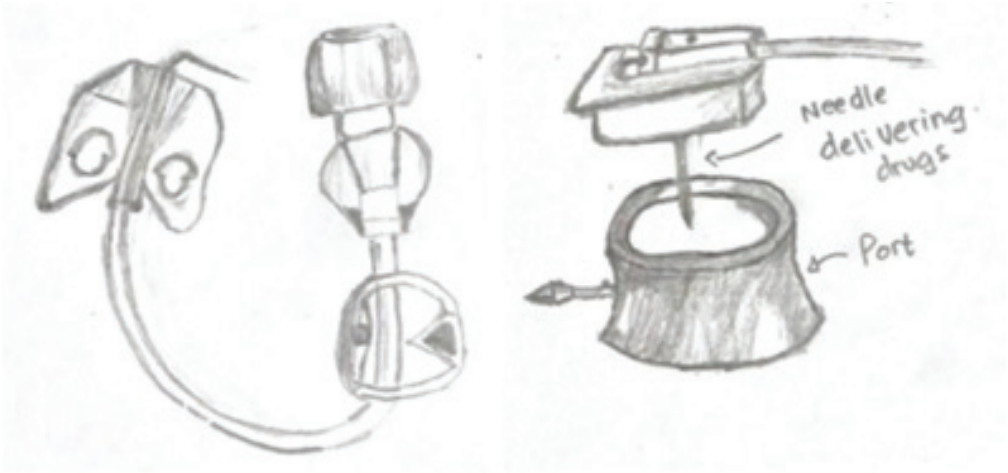

Figure 1. Winged Surecan.

On day two after implant placement, the patient received epidural administration twice a day. He reported NPS 2, could adapt to the epidural implant, and no longer used PCA. Numbness and motor weakness occurred 1 to 2 hours after injection. The patient's wife started learning epidural administration under the professionals' supervision.

On day three after implant placement, the patient reported NPS 2 and was ready for hospital discharge. The wife felt quite comfortable administering the epidural. The patient went home the next day.

After hospital discharge, two incidents of breakthrough pain made the patient come to the emergency unit with high-intensity pain. The first was the dislodgement of the winged surecan. We found no blood or pus coming out from the catheter. The anesthesiologist decided to replace the winged surecan and re-trained the family to perform this procedure. The patient's son successfully installed a winged surecan under the supervision of an anesthesiologist.

The second breakthrough was due to the blockage of the catheter. When injecting the medicine into the epidural port through the winged surecan catheter, we felt heavy retention. We suspected a blockage in the winged surecan catheter, epidural catheter, or both. The senior anesthesiologist changed the winged surecan needle and then injected hyaluronidase diluted 0.9% NaCl.

In both incidents, nurses and junior doctors were not able to identify the problems. The senior anesthesiologist was the one who provided the problem-solving. We also changed the regimen within a month with a ropivacaine 0.25% 4x15 mL to adjust to the increasing pain. During the adjustment, the patient was hospitalized and fentanyl PCA as backup analgesia was provided. After the pain decreased, ropivacaine 0.25% was given 4x10 mL, and when breakthrough pain occurred.

In addition to the pain and palliative team, a psychiatrist and a rehabilitation physician were involved in patient care. The psychiatrist managed the patient's depression and provided education to the family, while the rehabilitation team helped the patient with mobilization exercises.

DISCUSSION

The quality of life of cancer patients can improve if they can undergo treatment at home [3]. Using epidural analgesia at home is an alternative to cancer pain management. Besides epidural, there are other techniques like sympathetic nerve blocks with neurolytic agents, that are available for managing intractable cancer pain [5]. The choice of the techniques should consider the effectiveness and the feasibility.

The patient, in this case, had prostate cancer with bone metastases. The revised WHO analgesia step ladder was reflected in pain management. MST was given as a baseline analgesic orally (by mouth) and routinely (around the clock). The highest step-ladder pain management was selected, namely, the use of interventional cancer pain management (by the ladder) with the type and dose adjusted to the patient's condition (attention to detail) [6]. The anterior lumbar plexus innervates the sacroiliac joints and the posterior sacral plexus originates from S1 to S4 [7]. The epidural is placed at the sacral hiatus, thus providing a pain block to the sacroiliac joints innervated by the anterior lumbar plexus and posterior sacral plexus originating from S1 to S4. Epidural was chosen because the interventional technique with steroid injection and Radio Frequency Ablation did not give satisfactory results. With the insertion of an epidural implant, the patient could undergo palliative care at home [4].

The decision to insert an epidural implant should also consider the contraindication. Epidural analgesia is generally safe, but it should not be used when absolute contraindications present, such as a patient refusal, local infection at the injection site, traumatic spinal cord injury, or allergy to any of the drugs to be administered for the epidural catheter. Additionally, there are relative contraindications to consider, including hemodynamic instability, thrombocytopenia, obstructive cardiomyopathy, uncorrected coagulopathy or therapeutic anticoagulation, anatomic spinal abnormalities, and difficulty in maintaining the necessary positioning for epidural placement [8–10]. We did not find any contraindication of epidural in this patient.

The choice of bupivacaine and ropivacaine regimens was based on the long-acting nature of the two regimens. For epidural use, the duration of bupivacaine is 120–300 minutes, while the duration of ropivacaine is 120–360 minutes. Concentrations of bupivacaine 0.125% and ropivacaine 0.25% were chosen because the patient could obtain an adequate analgesic effect with minimal motoric block effect while preserving blood pressure at these concentrations after several titration processes. Ropivacaine has a less cardiotoxic and anti-inflammatory effect, also a lower motoric block effect than bupivacaine [11]. Therefore, when pain intensity increased, and a dose adjustment was required, the regimen was switched from bupivacaine to ropivacaine.

At this stage of the disease, the goal was to improve the quality of life. For the patients to be treated at home, administering drugs through the epidural must be done safely and independently [1]. In this case, several factors served as challenges in implementing epidural administration, namely patient and family factors, health professional factors, and system factors [12,13].

The first factor is related to the patient and family. They need to be prepared to use the epidural safely and independently. Initially, the patient had doubts about the effectiveness of the epidural and still chose

to use PCA. However, once the patient was comfortable, the PCA was discontinued. In this case, PCA was beneficial for titrating down opioids until the patient was ready to switch totally to the epidural.

Family members are essential to palliative home care, taking on significant responsibilities in symptom assessment, monitoring, and delivering complex treatments. When deciding whether to use caudal epidurals in palliative home care, it's important to consider the family's role to ensure they can understand and correctly administer the drug regimen [14]. Planning is an essential factor in preparing patients and families to be able to administer the epidural regimen.

In this case, families felt unsure of giving medicine independently. Assistance and education by the pain team, when the patient's wife and son learned to administer the regimen at the hospital, supported the preparation and played an important process before the patient went home [1].

Patient's expectations that are different from the doctors' are also an obstacle in the early use of epidurals. Doctors, patients, and families should discuss the same achievable expectations for pain control when choosing the right intervention technique [1].

The second factor is the limited knowledge and skills of some health professionals [13]. Pain management with epidural implants is not used routinely in Indonesia and the international context. Therefore, not all doctors, nurses, and pharmacies are skilled in its practical usage and treatment [1]. For example, only the senior anesthesiologist could identify and provide the problem-solving related to the dislodgement of the winged surecan and the blockade of the catheter. Additionally, the Celsite® spinal set is not readily available in Indonesia. Therefore, the use of a standard epidural set with tunneling is an alternative. Rigorous monitoring is necessary to ensure that the catheter is not becoming a source of infection [15].

The third factor is related to the system. The palliative care team works based on the authority mandated by hospital management, including when providing home care treatment. Informed consent, intensive communication with patients and families, and an interdisciplinary approach are essential elements [16]. To develop palliative services in their respective institutions, the hospital needed to build a policy in line with government regulations. The policy should support human resources availability and medication supply by an approach at the institutional level.

The process of providing sterile local anesthetic to take home, for example, needs to be regulated in hospital policy. Ideally, the pharmacy should have prepared the diluted regiments under laminar airflow to ensure physical, chemical, and microbiological stability (sterility) and prepared the regiments according to the dose for administration. Data on this stability vary from several studies, with a range of 72 hours to 91 days. Institutional conditions also influence microbiological stability (sterility) [6,17]. However, they were reluctant to prepare the regimen for home use because there was no hospital policy to support them, and they had no experience supporting such cases. The readiness of the healthcare team to solve problems related to various modes of pain management also needs to be supported by various structured training [16]. The collaboration among professionals should be strengthened by regular discussions of complex clinical cases [18]. Support from hospital leaders is essential to management and plays an important role in strengthening collaboration [19].

CONCLUSIONS

This case is an example of a cancer pain case that received interventional pain management at home. Challenges to cancer pain management come from the patient side, the health professional side, and the system side. Challenges related to the system strongly influence challenges from the side of patients and health workers. A multidisciplinary approach supported by solid institutional policies is essential to ensure the success of pain management. This case is a valuable learning opportunity for hospitals to improve the competence of the pain and palliative team and develop a palliative care support system in the hospital and the patient's home.

DECLARATIONS

Competing interest

The authors declare no competing interest in this study.

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