Nursing Care of a Patient with Advanced Colon Cancer Complicated by Multiple Organ Metastasis and Pulmonary Embolism Jiang Shan Ward 9, Beijing Wangfu Integrated Traditional Chinese and Western Medicine Hospital

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Abstract

Objective: To summarize the nursing experience for one patient with advanced colon cancer, multiple organ metastases, and pulmonary embolism. Methods: Nursing care was provided for one such patient recently admitted to our hospital, including basic nursing care, condition monitoring, pulmonary embolism nursing care, pain management, psychological nursing care, and sleep management. Results: After active treatment and meticulous nursing care, the patient eventually improved and was discharged. Conclusion: For patients with advanced colon cancer, multiple organ metastases, and pulmonary embolism, comprehensive nursing assessment followed by the development of individualized nursing care plans can shorten hospital stay, improve nutritional status, enhance immune function, and increase patient satisfaction.

Full Text

Nursing Care of a Patient with Advanced Colon Cancer Complicated by Multiple Organ Metastasis and Pulmonary Embolism: A Case Report

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Abstract

Objective: To summarize the nursing experience in managing a patient with advanced colon cancer presenting with multiple organ metastasis and pulmonary

embolism. **Methods:** Comprehensive nursing care was provided to a patient admitted to our hospital with advanced colon cancer complicated by multiple organ metastasis and pulmonary embolism. Interventions included fundamental nursing care, condition monitoring, pulmonary embolism management, pain control, psychological support, and sleep hygiene. **Results:** Following active treatment and meticulous nursing care, the patient' s condition improved and she was discharged. **Conclusion:** For patients with advanced colon cancer and multiple organ metastasis complicated by pulmonary embolism, individualized nursing plans developed through comprehensive assessment can shorten hospitalization duration, improve nutritional status, enhance immune function, and increase patient satisfaction.

Keywords: advanced colon cancer, distant metastasis, pulmonary embolism, nursing care

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Introduction

Colon adenocarcinoma (COAD) represents one of the most prevalent malignant tumors of the digestive system worldwide, with persistently high morbidity and mortality. In 2020, global incidence and mortality reached 1.9 million and 935,000 new cases respectively, accounting for 10% and 9.4% of colorectal cancer (CRC) burden and ranking second and third among all cancers [1]. Projections estimate that global incidence will increase to 2.5 million cases by 2035 [2]. In China, both incidence and mortality have risen gradually over the past five years, with the latest data from the National Cancer Center indicating that colon cancer ranks second in incidence (after lung cancer) and fifth in mortality [3]. Due to subtle early clinical manifestations and rapid disease progression, many patients present at advanced stages. Advanced colon cancer frequently metastasizes to distant organs, and the hypercoagulable state induced by tumor characteristics predisposes patients to complications such as pulmonary embolism, posing significant challenges to clinical nursing care [4]. This report presents the nursing management of a patient with advanced colon cancer with multiple organ metastasis and pulmonary embolism recently admitted to our hospital, aiming to provide theoretical reference for nursing practice.

1. Case Report

1.1 Patient Information The patient, Si Pinrong, was a 72-year-old Han Chinese woman admitted on August 9, 2023, at 09:14 for "maintenance therapy following confirmed colon malignancy for over three months." She had no history of cardiovascular or cerebrovascular disease and was not on long-term medication. In late April 2023, she developed severe low back pain that prevented ambulation, prompting outpatient evaluation. Abdominal CT revealed a suspected sigmoid colon mass with mild peritoneal lymphadenopathy and multiple bone metastases involving vertebrae C1-S4 and associated structures. She

was referred to the Orthopedics Department at Beijing Tsinghua Changgeng Hospital, where percutaneous vertebroplasty was performed on April 29, 2023. Contrast-enhanced CT of the abdomen confirmed sigmoid colon carcinoma with recommendations for endoscopic evaluation, accompanied by multiple lymph node metastases and hypoenhancing hepatic lesions suspicious for metastasis. Extensive bone metastasis was highly probable, with postoperative changes in the lumbar spine. Colonoscopy demonstrated a sigmoid colon mass (awaiting pathology) with possible diverticula. Spinal puncture biopsy revealed bone and marrow tissue with focal tumor cells arranged in nests, showing moderate atypia and mitotic figures. Colonoscopic pathology from six sigmoid colon specimens showed villous tubular adenoma with low-grade dysplasia and focal high-grade features. Immunohistochemistry indicated neuroendocrine carcinoma, considered colonic in origin based on clinical correlation.

Following definitive diagnosis, chemotherapy was initiated. On May 16, 2023, the patient completed the first cycle at Beijing Tsinghua Changgeng Hospital with etoposide 0.1g IV on days 1-4 plus capecitabine 2.5g orally on days 1-14, repeated every 21 days. The treatment course was uneventful, though laboratory results indicated drug-induced liver injury, which was managed with hepatoprotective agents. The second and third cycles were administered on June 29 and July 21, 2023, respectively, using the same regimen without significant abnormalities or toxicities. The patient presented to our outpatient clinic for maintenance therapy and was admitted with a diagnosis of "sigmoid colon malignancy."

Physical examination revealed a flat abdomen with tenderness in the right lower quadrant but no rebound tenderness. The liver and spleen were non-palpable. A pressure ulcer approximately 2.0 cm × 2.0 cm was noted over the sacrococcygeal area. Shifting dullness was negative, and bowel sounds were normal. Western medicine diagnosis included: malignant tumor maintenance chemotherapy; sigmoid colon malignant tumor cTxNxM1b Stage IVB; secondary hepatic malignancy; secondary bone malignancy; secondary lymph node malignancy; drug-induced liver injury; and pain. Traditional Chinese Medicine (TCM) diagnosis was abdominal mass accumulation with deficiency of vital qi and blood stasis.

1.2 Treatment Course On August 9, the patient underwent comprehensive auxiliary examinations. TCM management included modified Xuefu Zhuyu Decoction with peach kernel, safflower, and salvia to activate blood circulation and unblock collaterals; platycodon and aurantium fruit to regulate qi flow; angelica and rehmannia root to nourish yin and blood; codonopsis to tonify qi; and ophiopogon and schisandra to nourish yin. On August 11, chest CT revealed pulmonary artery trunk embolism. The chemotherapy regimen was adjusted to oxaliplatin 120mg IV over 2 hours on day 1, leucovorin calcium 0.7g IV over 2 hours on day 1, fluorouracil 0.6g IV bolus on day 1, and fluorouracil 3.5g continuous infusion over 48 hours on day 1, repeated every 14 days, pending sta-

bilization of the pulmonary embolism. Pulmonology consultation recommended low-molecular-weight heparin 4250 IU for anticoagulation. Systemic chemotherapy was administered on August 15 with concurrent antiemetic, gastroprotective, hepatoprotective, and corticosteroid premedication, proceeding without complications. On September 3, treatment focused on promoting digestion and gastrointestinal motility, albumin supplementation, rectal tube decompression, and pharmacological flatulence relief.

Nursing assessment scores included: Morse Fall Scale 35; thrombosis risk score 4; nutritional risk score 6; Numeric Rating Scale (NRS) pain score 4; and Barthel Index 55.

2. Nursing Interventions

2.1 Fundamental Nursing Care Given the patient' s advanced colon cancer with metastases to lung, liver, and lumbar spine, and the hypercoagulable state resulting from tumor necrosis-induced vascular endothelial damage and impaired anticoagulant formation [5], intensive fundamental nursing care was implemented. Environmental management was prioritized: recognizing that prolonged hospitalization, changing environments, and distress from pain and insomnia could trigger emotional fluctuations, we provided a quiet, comfortable setting with a clean, orderly ward beginning on August 9. Patient education was tailored to her repeated admissions and existing disease awareness, with communication delivered using appropriate tone and manner to promptly address negative emotions. TCM nursing interventions included auricular point pressing, an acupoint stimulation technique using *Semen Vaccariae* seeds to prevent nausea, vomiting, and insomnia while enhancing immunity [7]. The main acupoints selected were sympathetic, shenmen, and subcortex. With the patient supine, the auricle was disinfected and stabilized while seeds were applied to target points and pressed bilaterally for 2 minutes per point until the patient experienced soreness, distension, pain, or warmth, three times daily. Moxibustion was applied to Qihai (CV6), Guanyuan (CV4), and bilateral Zusanli (ST36), selecting two points per session for 20 minutes daily, alternating point groups every other day throughout hospitalization.

2.2 Condition Monitoring As an advanced malignancy patient, we closely monitored abdominal symptoms including pain characteristics, location, severity, duration, aggravating and relieving factors, with particular attention to changes in pain intensity and bowel habits, ensuring thorough handover communication. Pulmonary metastasis was evident through elevated tumor markers (non-small cell lung cancer antigen 5.9 ng/mL, neuron-specific enolase 36.9 ng/mL), pleural effusion, and thoracic back pain. Pulmonary CTA on August 27 confirmed pulmonary embolism. Given the complexity, vigilant monitoring was essential: hypoxia from pulmonary embolism could cause anxiety and agitation, while insomnia and anxiety could obscure clinical progression. Continuous cardiac monitoring was instituted with regular assessment of vital signs, ob-

serving for diaphoresis, cyanosis, hypotension, hemoptysis, and dyspnea, with immediate physician notification for emergencies. Anticoagulation with low-molecular-weight heparin 4250 IU began on August 15, requiring meticulous observation for bleeding at all compression sites, oral mucosa, gums, epistaxis, and subcutaneous ecchymosis. Patients were instructed to avoid nose picking and tooth picking, to refrain from spicy, hard, or high-residue foods, and to use soft-bristled toothbrushes. Mental status changes were monitored for intracranial hemorrhage. Subcutaneous, intradermal, intramuscular, and venous punctures were minimized; when necessary, 20-30 minutes of compression was applied post-venipuncture, with compression bandaging for 2-6 hours if needed [8].

2.3 Pain Management Cancer pain affects 60-90% of advanced colon cancer patients, with over 30% experiencing intolerable severe pain that profoundly impacts quality of life and treatment [9]. The patient presented with significant abdominal and back pain. The attending physician and primary nurse developed a multimodal analgesic plan: the nurse comprehensively assessed pain characteristics, severity, frequency, treatment history, and functional impact, while the physician selected and titrated analgesic medications including subcutaneous morphine hydrochloride, oral oxycodone hydrochloride extended-release tablets, zoledronic acid infusion to inhibit bone destruction, and Kanglaite injection for antitumor effects. In TCM theory, cancer pain belongs to the "pain syndrome" category, where "pain due to obstruction" arises from internal accumulation of phlegm, toxin, stasis, and fire causing channel blockage and qi stagnation, while "pain due to malnourishment" stems from deficiency of qi, blood, yin, and yang leading to loss of channel nourishment. Treatment principles focus on dispelling pathogenic factors, supporting vital qi, regulating qi, and activating blood circulation [11]. Acupuncture can regulate yin-yang and qi-blood, unblock channels, and alleviate pain [12]. Following physician orders, acupuncture was administered at main points (Neiguan [PC6], Hegu [LI4], Sanyinjiao [SP6], Zusanli [ST36]) and adjunct points (Ah Shi points, back-shu points, Xi-cleft points). Symptom-specific points included: stomach cancer with Ah Shi, Weishu [BL21], and Liangqiu [ST34]; lung cancer with Feishu [BL13], Ah Shi, and Kongzui [LU6]; liver cancer with Ganshu [BL18], Ah Shi, and Zhongdu [LR6]. Needles were retained for 30 minutes after obtaining deqi, with one manipulation midway, once daily. The primary nurse provided medication education, pain assessment, and adverse effect monitoring. Following implementation of this analgesic regimen, the patient' s NRS scores decreased to 1-3 with no breakthrough pain, and both patient and family expressed satisfaction.

2.4 Psychological Support and Sleep Management Advanced colon cancer with distant metastasis engendered profound psychological distress and fear of death, necessitating active communication and emotional support. Through effective dialogue, nurses elicited the patient' s genuine concerns, addressed her needs, and employed techniques including suggestion, catharsis, and distraction.

Based on TCM emotional nursing principles, nurses explained the detrimental effects of anxiety and depression, guided breathing exercises and relaxation techniques, and facilitated emotional transfer to promote self-regulation. Sleep quality deterioration secondary to psychological distress was addressed through creation of a tranquil environment, pre-sleep warm milk consumption, warm foot baths, and auricular seed therapy for insomnia [13]: using a probe to locate shenmen, sympathetic, heart, and brain points on the auricle, disinfecting with alcohol, and applying *Semen Vaccariae* seeds with bilateral pressure.

3. Nursing Implications

Colon cancer is a common malignant tumor of the digestive system with complex etiology and rapid progression. Advanced stages frequently involve distant metastasis, and prolonged suffering often precipitates adverse psychological reactions that increase nursing complexity. This case demonstrates that comprehensive nursing assessment and individualized care planning for advanced colon cancer patients with multiple organ metastasis and pulmonary embolism can effectively reduce pain, improve psychological status, shorten hospitalization, and enhance patient satisfaction. These findings support the clinical implementation of personalized nursing interventions for this challenging patient population.

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Note: Figure translations are in progress. See original paper for figures.