Teaching Plan for Nursing Ward Round of a Patient with Lumbar Disc Herniation

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Abstract

Nursing ward rounds constitute an important component of nursing practice. Nursing ward rounds involve collecting data through reviewing medical records, conducting nursing physical assessments, and inquiring with patients and their families, followed by formulating nursing diagnoses, implementing nursing interventions, conducting nursing evaluations, and summarizing findings. The appropriate form of ward round should be selected based on the intended objectives. Relevant theoretical knowledge should be studied, with a problem-based approach and the nursing process as the framework, ensuring that every phase is addressed. Prior to the ward round, there should be planning, preparation, and clear objectives, with explicit purposes and highlighted priorities. This article summarizes the nursing teaching experience from a nursing ward round for a patient with lumbar disc herniation. Students learned and mastered the nursing care for lumbar disc herniation, which enhanced their professional identity in serving patients and their learning motivation, thereby providing inspirational and guiding significance for clinical teaching and practice.

Full Text

Teaching Plan for Nursing Rounds: A Case of Lumbar Disc Herniation

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Abstract

Nursing rounds constitute a vital component of nursing practice, involving systematic collection of patient information through medical record review, physical assessment, and interviews with patients and families to formulate nursing

diagnoses, implement interventions, evaluate outcomes, and synthesize findings. The selection of round format should align with specific educational objectives, grounded in relevant theoretical knowledge, problem-based inquiry, and nursing process frameworks, with careful attention to each aspect. Effective rounds require advance planning, preparation, and clear, prioritized objectives. This article summarizes the nursing teaching experience from a nursing round conducted for a patient with lumbar disc herniation. Through this case, students learned and mastered specialized nursing care for lumbar disc herniation, enhanced their professional identity and motivation in patient service, and gained valuable insights for clinical teaching and practice.

Keywords: Lumbar disc herniation; Nursing; Nursing rounds; Clinical; Teaching method

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Lumbar disc herniation (LDH) results from degenerative changes in the nucleus pulposus, annulus fibrosus, and cartilage endplate, causing herniated nucleus material to compress and irritate nerve roots and cauda equina, leading to low back pain, sciatica, lower limb numbness, and cauda equina syndrome [**?**]. The condition predominantly affects individuals aged 20-50 years (more common in males), those with poor work posture, pregnant women, and perimenopausal females, representing one of the most common causes of lumbocrural pain [**?**]. Clinical treatment options for LDH are diverse, with clinicians selecting appropriate interventions based on herniation type and individual patient characteristics.

This teaching plan was designed for nursing students during clinical internships, reviewing the nursing intervention process for an LDH patient during treatment. By integrating nursing interventions with clinical teaching, the plan enhanced students' critical thinking and learning motivation. The nursing teaching plan is reported below.

1.1 General Information

Patient Xiao, female, 61 years old, was admitted on March 27, 2024, with a TCM diagnosis of lumbar bi syndrome (Yaobi) classified as qi stagnation and blood stasis pattern, and a Western medicine diagnosis of lumbar disc herniation. Chief complaint: recurrent lumbocrural pain for over 3 months, exacerbated with limb numbness for 1 week.

The patient developed left-sided low back pain with left lower limb pain and numbness over three months prior without apparent precipitating factors, characterized by left sacral pain after exertion accompanied by left lower limb pain and numbness most prominent on the dorsum and tip of the left foot, without significant weakness or gait disturbance, alleviated by rest. The symptoms recurred intermittently without systematic treatment. One week prior to admission, the symptoms recurred without provocation, with notably worsened

numbness severely affecting walking function (intermittent claudication). Outpatient lumbar CT revealed multilevel degenerative changes of lumbar vertebrae and intervertebral discs, postoperative changes, L5-S1 disc herniation with ossification, hypertrophic ligamentum flavum at corresponding levels, and secondary spinal canal stenosis. The patient was admitted for further surgical treatment with a diagnosis of "lumbar disc herniation." Since onset, the patient' s mental status, appetite, and sleep were fair, bowel and bladder functions normal, with no significant weight change.

Past medical history: Hypertension and diabetes mellitus for over 10 years, controlled with oral medications. Previous surgeries included right mastectomy, right ankle open reduction and internal fixation, and L5-S1 laminectomy (details unclear), all with good recovery. Three months prior, the patient underwent "L3-5 laminectomy, spinal canal decompression and exploration, discectomy with cage implantation, and pedicle screw fixation" at our hospital for LDH, with satisfactory postoperative recovery.

Allergies: Denied drug or food allergies. Psychosocial status: Positive attitude from patient and family, good economic status. Self-care level: Requires assistance.

TCM four examinations: Appearance and form: clear consciousness, ruddy complexion, overweight; Voice and odor: moderate speech, no special abnormal odors; Tongue and pulse: dark-red tongue with thin white coating, wiry and slightly choppy pulse.

Physical examination: T: 36.7°C, P: 80 beats/min, R: 18 breaths/min, BP: 130/90 mmHg. Auxiliary examination: Multilevel degenerative changes of lumbar vertebrae and discs, postoperative changes, L5-S1 disc herniation with ossification; hypertrophic ligamentum flavum at corresponding levels, secondary spinal canal stenosis.

Specialist examination: Normal lumbar curvature, limited lumbar flexion and extension due to pain, tenderness between L4-5 spinous processes (-), paraspinal tenderness (-), percussion pain (+). Straight leg raising test negative on left, positive on right (10°), reinforcement test negative on left and positive on right. Lumbar range of motion: flexion 30°, extension 20°, left lateral flexion 30°, right lateral flexion 30°. No obvious muscle atrophy in limbs, good muscle tone, significantly decreased pinprick sensation in right anterior tibial region compared to other areas, no other sensory deficits detected. Muscle strength: iliopsoas (V/VI), quadriceps (V/VI-), tibialis anterior (V/V-), extensor hallucis longus (V/V-), peroneus longus and brevis (V/V-), triceps surae (V/V-).

1.2 Treatment

Treatment plan: Western medicine: neurotrophic support, gastric mucosal protection, analgesia, infection prevention, and nerve root edema reduction. Adenosylcobalamin for injection 1.5 mg + sterile water for injection 2 ml IM qd9,

Omeprazole sodium for injection 40 mg + 0.9% sodium chloride 100 ml IV qd9, Flurbiprofen axetil injection 50 mg + 0.9% sodium chloride 100 ml IV qn, Ceftizoxime sodium for injection 2 g + 0.9% sodium chloride 100 ml IV bid3, Mannitol injection 50 g IV bid3. Traditional Chinese medicine: principle of regulating qi, activating blood, unblocking collaterals, and relieving pain.

On admission day: Patient alert and oriented, experiencing low back pain with left lower limb pain and numbness, limited mobility, fair appetite and sleep, normal bowel and bladder.

Surgery day: At 8:30, patient underwent L5-S1 laminectomy, spinal canal decompression and exploration, discectomy with cage implantation, and pedicle screw fixation under general anesthesia, returning to ward at 12:16. Patient complained of incisional pain, with reduced low back and left lower limb pain/numbness compared to preoperative status. Closed drainage tube patent and secured, draining bloody fluid. Patient placed supine without pillow for 6 hours, NPO for 6 hours and no water for 4 hours, then changed to low-salt, low-fat diabetic diet. Indwelling catheter patent with clear light yellow urine. Instructed to perform bilateral ankle pump exercises.

Postoperative day 1: Patient alert and oriented, complaining of incisional pain with significant relief of left lower limb pain and numbness. Closed drainage tube patent, draining bloody fluid, total output 230 ml. Fair appetite, poor sleep, no bowel movement. Indwelling catheter patent with clear light yellow urine. Supervised bilateral ankle pump exercises.

Postoperative day 3: Patient alert and oriented, complaining of mild incisional pain. Closed drainage tube patent, draining bloody fluid, 24-hour output 30 ml. Patient fitted with lumbar brace, assisted to sit up and ambulate after securing drainage tube. Good appetite, good sleep, bowel movement passed. Indwelling catheter patent with clear light yellow urine. Added straight leg raise exercises.

2.1 Nursing Assessment

Acute pain represents the most common symptom in hospitalized patients, particularly in trauma, acute abdomen, postoperative, and oncology cases. If uncontrolled, pain severely interferes with nutrition, sleep, and cardiopulmonary recovery, exacerbating physiological and psychological negative impacts [**?**]. The patient' s VAS score was 7. Impaired physical mobility: Postoperative bed rest and activity restrictions may lead to complications such as constipation and venous thrombosis.

2.2 Nursing Diagnosis

Acute pain: related to surgical incision. Impaired physical mobility: related to postoperative bed rest and mobility limitations.

2.3 Nursing Plan

Through nursing interventions, achieve relief of incisional pain, promote comfortable positioning, and prevent lower extremity venous thrombosis complications.

2.4.1 Pain Management and Mobility

Administer patient-controlled analgesia as prescribed, teaching proper use to patient and caregivers. Perform logrolling every two hours to comfortable positions, avoiding wound traction or pressure that exacerbates pain. Explain the pain pattern: most severe within 24 hours postoperatively, gradually resolving as hematoma drains and incision heals. Assist with hygiene, feeding, toileting, and personal care. Position limbs comfortably during turning. Supervise bilateral ankle pump exercises to promote circulation and prevent venous thrombosis.

2.4.2 Lifestyle and Positioning

Instruct proper lumbar brace wear before ambulation. Teach correct lifting technique: squat with knees bent while keeping back straight, moving slowly. Advise daily lumbar spine protection: sit on hard chairs, sleep on firm mattress with thin soft pad, maintain correct posture, balance work and rest, avoid overexertion, and prevent cold exposure. Teach proper coughing and sneezing techniques to protect the lumbar spine and prevent pain exacerbation. Encourage maintaining positive mood and optimistic attitude toward illness.

2.4.3 Dietary Care

Advise light, easily digestible diet, avoiding spicy, irritating foods, beef, mutton, and seafood. Recommend qi-moving and blood-activating foods such as white radish, enoki mushrooms, and peach kernels; avoid fried, greasy, and cold foods. Encourage high-protein foods like bone broth and pigeon soup to promote bone healing.

2.4.4 Emotional Support

Assess patient' s emotional state, using verbal guidance for comfort to maintain emotional stability and mental tranquility. Employ distraction therapy to shift or modify emotions and will, smoothing qi flow and nourishing the mind for physical and mental wellbeing. For pain-related irritability, use tranquilization methods: instruct patient to close eyes, calm mind, relax whole body, and breathe peacefully to promote smooth qi and blood circulation.

2.4.5 Health Education

Maintain regular lifestyle, avoid exposure to wind-cold and overexertion. Regulate emotions, avoid irritability and anxiety. Perform appropriate exercises, particularly persistent lumbar and back muscle strengthening. Main exercises

include: straight leg raise, five-point support, and swallow-flying position for back muscle training.

2.5 Nursing Evaluation

Patient reported significant relief of incisional pain, VAS score 3. Patient actively cooperated with position changes, with no lower extremity venous thrombosis complications.

3.1.1 Student Situation Analysis

With population aging intensifying, orthopedic conditions such as spinal diseases, senile femoral neck fractures, knee and hip arthritis, and sports injuries are becoming increasingly common and clinically significant. The "Healthy China 2030" plan issued by the CPC Central Committee and State Council emphasizes "promoting healthy aging"and "strengthening health personnel training" [**?**]. Orthopedic nursing is a required component of Surgical Nursing for nursing students. Before clinical placement, students have completed foundational courses including Basic Nursing, Medical Nursing, and Surgical Nursing, making the clinical internship a critical phase for consolidating professional knowledge. The goal of clinical nursing internships is to provide nursing students with essential professional experience and knowledge skills [**?**], representing the transition from theory to practice, a foundational stage for developing basic clinical skills, critical thinking, and doctor-patient communication, a key phase for career development, and a critical period for shaping professional behavior and stabilizing professional ideology [**?**].

3.1.2 Purpose of This Case

Lumbar disc herniation represents an advantageous disease category in our department with specialized nursing characteristics that can deepen nursing students' understanding of the disease and impart specialized orthopedic nursing knowledge.

3.3 Teaching Method

This case employs Problem-Based Learning (PBL), with nursing students as the main participants, using questions and case discussion as the foundation and problem-solving as the driving force. This approach enables students to integrate theory with clinical application, achieving comprehensive understanding of disease diagnosis, treatment, and nursing care. In case-based PBL teaching, medical students can explore and solve various clinical problems through contact with or simulation of real clinical scenarios, effectively developing adaptability and enhancing clinical awareness and judgment [**?**].

3.4.1 Preparation

The instructor assists in case selection, students collect case data, review literature, understand disease knowledge, and discuss cases with instructors. Students write case reports and prepare PowerPoint presentations. The instructor helps revise and improve the nursing case and demonstrates specialized physical examination, logrolling technique, and lumbar brace application.

3.4.2 Implementation

The lead instructor introduces teaching objectives. Students present the case covering disease knowledge, patient data, treatment principles, nursing diagnoses and interventions, bedside examination, logrolling and brace application, and health guidance. Students demonstrate bedside examination, logrolling, brace application, and health guidance. The lead instructor summarizes and facilitates case discussion among participants. Students answer questions from instructors and peers, with instructors providing supplementary input.

3.4.3 Summary

This case applied PBL teaching mode through student-initiated problem identification, in-depth cooperative learning, and active solution development, stimulating learning interest and initiative, enhancing autonomous learning and teamwork abilities, thereby significantly improving practical skills and professional competence [**?**].

3.5.1 Evaluation of Teaching Objectives

Integrating clinical practice with theory improved nursing students' ability to solve clinical nursing problems. Through implementation, students learned to consider issues from a clinical nursing perspective, using foundational theory and case analysis with instructor guidance to achieve teaching objectives.

3.5.2 Analysis and Problem-Solving Ability

The PBL approach enhanced students' analytical and problem-solving capabilities, improved autonomous learning through question answering, and significantly strengthened practical abilities.

3.5.3 Student Feedback and Reflection

Nursing rounds emphasize case-based practice, enhancing teaching authenticity by combining theory with practice and applying theoretical knowledge to clinical problem-solving. This approach improved nursing students' professional skills during clinical practice.

Surgery represents one of the most common clinical treatments. In recent years, with the emergence of the "perioperative nursing" concept and the prolifera-

tion of new technologies, equipment, and methods, surgical nursing demands higher professional competence. Nursing staff must not only master theoretical knowledge but also possess specialized skills to provide scientific nursing care throughout the perioperative period, ensuring patient safety and recovery [**?**]. Traditional nursing instruction relies primarily on didactic teaching, resulting in passive learning and low participation, making it difficult to deeply understand and apply knowledge [**?**]. In contrast, problem-oriented PBL teaching emphasizes student-centered learning with instructors as facilitators, using questions and cases to engage students actively in analyzing, exploring, and mastering knowledge and skills, thereby comprehensively improving comprehensive abilities. Through ward round learning and PBL teaching methods, students developed deeper understanding of nursing, significantly improving practical and professional abilities. The integration of theory and practice enhances students' professional skills and competence, warranting clinical promotion.

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