PREOPERATIVE TEACHING

- Demonstrate and ask the client to practice logrolling; explain that it will be done by the nurses for the first day or two, and then the client can do it alone. To ensure healing, the spinal column must remain in alignment when turning and moving.
- Explain the importance of taking pain medications regularly and of asking for them before the pain is severe. Include information about the possibility of the pain being much the same after surgery. Pain is easier to control if medications are taken before the pain is severe. Pain may be the same following surgery for a herniated intervertebral disk because edema due to surgery irritates and compresses the nerve roots.
- Demonstrate the use of a fracture bedpan and ask the client to practice its use. The client usually must remain flat in bed for a period of time following surgery. A fracture bedpan is more comfortable for clients who must lie flat.
- Explain that the client may need to eat while lying flat. This position prevents flexion of the spine.
- Demonstrate and ask the client to demonstrate deep breathing, the use of the incentive spirometer, and leg exercises. These measures prevent respiratory and circulatory complications.

POSTOPERATIVE CARE

- Maintain the client in a position that minimizes stress on the surgical wound. For clients with cervical laminectomy:
  a. Elevate the head of the bed slightly.
  b. Position a small pillow under the neck.
  c. Place a small pillow under the cervical collar.
- For clients with lumbar laminectomy:
  a. Keep the bed flat or elevate the head of the bed slightly.
  b. Place a small pillow under the head.
  c. Place a small pillow under the knees, or use a pillow to support the upper leg when the client lies on one side. These positions minimize stress on the surgical wound and suture line. A cervical collar provides stability and prevents flexion or twisting the neck.
- Turn the client every 2 hours, using the logrolling technique. Teach the client not to use the side rails to change position. Maintain proper body alignment in all positions. The client’s body is turned as a single unit (usually with a turning sheet) to avoid movement of the operative area. Pulling on the side rails puts stress on the operative area and may also cause misalignment of the vertebral column.
- Monitor the client for signs of nerve root compression.
  a. Cervical laminectomy: Assess hand grips and arm strength, ability to move the fingers, and ability to detect touch.
  b. Lumbar laminectomy: Assess leg strength, ability to wiggle the toes, and ability to detect touch. Compare bilateral findings. Report muscle weakness or sensory impairment to the physician immediately. Loss of motor and sensory function may indicate nerve root compression.
- Assess for hematoma formation as manifested by severe incisonal pain that is not relieved by analgesics and decreased motor function. Report these findings immediately. A hematoma may form at the surgical site. If untreated, it may cause irreversible neurologic deficits including paraplegia and bowel/bladder dysfunctions (Hickey, 2003).
- Assess for leakage of cerebrospinal fluid. Assess the dressing for increased moisture. Check the sheets for wetness when the client is lying supine; check for clear liquid running down the back when the client is sitting or standing. Gently palpate the sides of the wound to detect a bulge. Use a Dextrostix strip to assess any leakage for the presence of glucose, a positive indicator of cerebrospinal fluid. Although uncommon, leakage of cerebrospinal fluid greatly increases the risk for infection of the wound and of the meninges.
- Assess for nerve root injury. Assess the client’s ability to dorsiflex the foot (lumbar laminectomy) and the client’s grip strength (cervical laminectomy). Assess the client who has had a cervical laminectomy for hoarseness. Report hoarseness and further assess the client’s ability to swallow. Nerve root compression may cause permanent damage, resulting in footdrop (in lumbar laminectomy clients) and hand weakness (in cervical laminectomy clients). Damage to the laryngeal nerve may cause permanent hoarseness. Impaired ability to swallow puts the client at risk for aspiration.
- Assess for urinary retention. The client should void within 8 hours after surgery. If the physician allows, let males stand to void. Compare intake and output for each 8-hour period. All clients who have received a general anesthetic are at risk for urinary retention. The client who has had a lumbar laminectomy may have even more difficulty voiding as a result of stimulation of sympathetic nerves during surgery.
- Assess for pain using a scale from 0 (no pain) to 10 (severe pain). Administer prescribed analgesics on a regular basis, or teach the client to use patient-controlled analgesia (PCA), if prescribed. Discuss client concerns about pain that is unrelied by surgery. Compression of the nerve root over time results in edema and inflammation. Because of surgery-induced edema, the client is likely to experience either the same pain or perhaps more severe pain in the period immediately after surgery. This pain usually persists for several weeks after surgery. In addition, many clients who have had a lumbar laminectomy have muscle spasms in the lower back, abdomen, and thighs for the first few days after surgery.
- Assess for infection by taking and recording vital signs at least every 4 hours; report increased body temperature. Assess the wound and dressing for signs of infection: increased redness, drainage, pain, and pus. Use sterile technique to change dressings. The surgical client is always at risk for infection; the client with a laminectomy is also at risk for arachnoiditis. This inflammation of the arachnoid layer of the spinal meninges results from wound infection or contamination during surgery and may cause the formation of painful adhesions.
- Encourage deep breathing and the use of the incentive spirometer every 2 hours; coughing may be discouraged. Anesthesia and immobility depress respiratory function. Coughing may be discouraged because it can disrupt healing tissues, especially in clients having a cervical laminectomy.
- Increase mobility as prescribed. (The time frame for ambulation is prescribed by the physician; the routine here is...
appropirate for all clients requiring a spinal fusion, this does facilitate a short hospital stay and convalescence.

- Foraminotomy is an enlargement of the opening between the disk and the facet joint to remove bony overgrowth compressing the nerve. The location and size of the incision vary according to the surgeon’s preference and the location and size of the ruptured disk. The posterior approach is taken for lumbar surgery. Either the posterior or the anterior approach may be taken for cervical disks.

- Intradiscal electrothermal therapy (IDET) uses thermal energy to treat pain from a bulging spinal disk. A special needle is inserted into the disk and heated to a high temperature. The heat thickens and seals the disk wall and decreases bulging of the disk.

- A microdiscectomy, in which microsurgical techniques are used, is performed through a very small incision. This type of surgery decreases the possibility of trauma to surrounding structures during surgery and allows early postoperative mobility and a short hospital stay.

**NURSING CARE**

Nursing care for the client with a ruptured intervertebral disk may be provided through information in community and work settings, during conservative treatment, and during pre- and postoperative treatment. The pain of the ruptured disk is often discouraging and debilitating, and may well affect the client’s ability to work.

**Health Promotion**

Proper body mechanics may help prevent the occurrence of a ruptured intervertebral disk. Teaching the proper method of lifting and moving heavy objects should begin when children enter school. This information should also be given to all workers (including nurses) who have lifting as part of their responsibilities. The guidelines for proper body mechanics are as follows:

- Begin activities by spreading the feet apart to broaden the base of support.
- Use large muscles of the arms to lift and the legs to push when lifting.
- Work as closely as possible to the object that is to be lifted or moved.
- Slide, roll, push, or pull an object rather than lift it.
- When lifting, bend the knees and lift up over your center of gravity.
- When lifting, use a back support belt.

**Posterior Laminectomy (continued)**

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**Assessment**

The following data are collected through the health history and physical examination (see Chapter 43).

- Health history: Type of employment, risk factors, pain (location, duration, intensity).
- Physical assessment: Muscle strength and coordination, sensation, reflexes.

**Nursing Diagnosis and Interventions**

Nursing care for clients with a herniated intervertebral disk focuses largely on pain management, both during conservative management and after surgery.

**Acute Pain**

Clients with a ruptured intervertebral disk experience acute back and leg pain. Acute pain may be related to preoperative muscle spasms or nerve root compression. After surgery, the client may have pain at the site of the incision and in the surgical area.

- Assess the degree of pain on a 0 to 10 scale (10 being greatest pain) and identify contributing and relieving factors. Pain is a subjective experience. The nurse needs to assess it thoroughly before initiating interventions.
- Use a firm mattress or place a board under the mattress. A firm bed supports the spinal column and muscles.
- Teach the client to avoid turning or twisting the spinal column and to assume positions that decrease stress on the vertebral column (e.g., when in the supine position, flex the hips slightly). A small pillow may be placed under the knees (for clients with a herniated lumbar disk) or under the neck (for clients with a herniated cervical disk). Correct body positions can decrease intradisk pressure.
- Provide analgesic medications around the clock. Intense pain can increase muscle spasms; maintaining serum levels of analgesics often prevents severe pain.

**PRACTICE ALERT**

It is important to maintain a constant level of pain relief. Healthcare providers have the responsibility of relieving pain with adequate medications.

**Chronic Pain**

The client with a ruptured intervertebral disk often has pain for an extended period of time. Despite conservative treatment or previous surgery, pain may be ongoing or intermittent. If previous surgery has not relieved the pain, the client may be de-