

## DISC SURGERY

*Laminectomy* is the excision of a vertebral posterior arch and is commonly performed for injury to the spinal column or to relieve pressure/pain in the presence of a herniated disc. The procedure may be done with or without fusion of vertebrae. Minimally invasive procedures are taking precedence over laminectomy in many areas of the country. These include endoscopic lumbar and cervical discectomy and intradiscal electrothermal therapy (IDET) also known as thermal discoplasty. These procedures cause no damage to muscles, no bone is removed, and no large incisions are made, so they can be performed in an outpatient setting.

(Also, in the early stages of testing there is a genetically designed version of a natural body chemical called OP-1. This “gene putty” acts as a bone spackle that fuses diseased vertebrae.)

### CARE SETTING

Inpatient surgical or orthopedic unit.

### RELATED CONCERNS

Psychosocial aspects of care  
Surgical intervention

## Patient Assessment Database

**Refer to CP: Herniated Nucleus Pulposus (Ruptured Intervertebral Disc).**

### TEACHING/LEARNING

**Discharge plan considerations:** **DRG projected mean length of inpatient stay: 4.9–6.5 days**  
May require assistance with ADLs, transportation, homemaker/maintenance tasks, vocational counseling, possible changes in layout of home  
**Refer to section at end of plan for postdischarge considerations.**

### DIAGNOSTIC STUDIES

**Refer to CP: Herniated Nucleus Pulposus (Ruptured Intervertebral Disc).**

### NURSING PRIORITIES

1. Maintain tissue perfusion/neurological function.
2. Promote comfort and healing.
3. Prevent/minimize complications.
4. Assist with return to normal mobility.
5. Provide information about condition/prognosis, treatment needs, and limitations.

### DISCHARGE GOALS

1. Neurological function maintained/improved.
2. Complications prevented.
3. Limited mobility achieved with potential for increasing mobility.
4. Condition/prognosis, therapeutic regimen, and behavior/lifestyle changes are understood.
5. Plan in place to meet needs after discharge.

**NURSING DIAGNOSIS: Tissue Perfusion, ineffective (specify)**

**May be related to**

Diminished/interrupted blood flow (e.g., edema of operative site, hematoma formation)  
Hypovolemia

**Possibly evidenced by**

Paresthesia; numbness  
Decreased ROM, muscle strength

**DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:**

**Neurological Status (NOC)**

Report/demonstrate normal sensations and movement as appropriate.

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Surveillance (NIC)</b></p> <p><b>Independent</b></p> <p>Check neurological signs periodically and compare with baseline. Assess movement/sensation of lower extremities and feet (lumbar) and hands/arms (cervical).</p> <p>Keep patient flat on back for several hours.</p> <p>Monitor vital signs. Note color, warmth, capillary refill.</p> <p>Monitor I&amp;O and Hemovac drainage (if used).</p> <p>Palpate operative site for swelling. Inspect dressing for excess drainage and test for glucose if indicated.</p>	<p>Although some degree of sensory impairment is usually present, deterioration/changes may reflect development/resolution of spinal cord edema and/or inflammation of the tissues secondary to damage to motor nerve roots from surgical manipulation; or tissue hemorrhage compressing the spinal cord, requiring prompt medical evaluation intervention.</p> <p>Pressure to operative site reduces risk of hematoma.</p> <p>Hypotension (especially postural) with corresponding changes in pulse rate may reflect hypovolemia from blood loss, restriction of oral intake, nausea/vomiting.</p> <p>Provides information about circulatory status and replacement needs. Excessive/prolonged blood loss requires further evaluation to determine appropriate intervention.</p> <p>Change in contour of operative site suggests hematoma/edema formation. Inspection may reveal frank bleeding or dura leak of CSF (will test glucose-positive), requiring prompt intervention.</p>
<p><b>Collaborative</b></p> <p>Administer IV fluids/blood as indicated.</p> <p>Monitor blood counts, e.g., hemoglobin (Hb), hematocrit (Hct), and red blood cells (RBCs).</p>	<p>Fluid replacement depends on the degree of hypovolemia and duration of oozing/bleeding/CSF leaking.</p> <p>Aids in establishing replacement needs, and monitors effectiveness of therapy.</p>

**NURSING DIAGNOSIS: Trauma, risk for (spinal)**

**Risk factors may include**

Temporary weakness of vertebral column  
Balancing difficulties, changes in muscle coordination

**Possibly evidenced by**

[Not applicable; presence of signs and symptoms establishes an *actual* diagnosis.]

**DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:**

**Risk Control (NOC)**

Maintain proper alignment of spine.  
Recognize need for/seek assistance with activity as appropriate.

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Positioning: Neurological (NIC)</b></p> <p><b>Independent</b></p> <p>Post sign at bedside regarding prescribed position.</p> <p>Provide bedboard/firm mattress.</p> <p>Maintain cervical collar postoperatively with cervical laminectomy procedure.</p> <p>Limit activities when patient has had a spinal fusion.</p> <p>Logroll patient from side to side. Have patient fold arms across chest, tighten long back muscles, keeping shoulders and pelvis straight. Use pillows between knees during position change and when on side. Use turning sheet and sufficient personnel when turning, especially on the first postoperative day.</p> <p>Assist out of bed: logroll to side of bed, splint back, and raise to sitting position. Avoid prolonged sitting. Move to standing position in single smooth motion.</p> <p>Avoid sudden stretching, twisting, flexing, or jarring or spine.</p> <p>Check BP; note reports of dizziness or weakness. Recommend patient change position slowly.</p> <p>Have patient wear firm/flat walking shoes when ambulating.</p>	<p>Reduces risk of inadvertent strain/flexion of operative area.</p> <p>Aids in stabilizing back.</p> <p>Decreases muscle spasm and supports the surrounding structures, allowing normal sensory stimulation to occur.</p> <p>Following surgery, spinal movement is restricted to promote healing of fusion, requiring a longer recuperation time.</p> <p>Maintains body alignment while turning, preventing twisting motion, which may interfere with healing process.</p> <p>Avoids twisting and flexing of back while arising from bed/chair, protecting surgical area.</p> <p>May cause vertebral collapse, shifting of bone graft, delayed hematoma formation, or subcutaneous wound dehiscence.</p> <p>Presence of postural hypotension may result in fainting/falling and possible injury to surgical site.</p> <p>Reduces risk of falls.</p>



**NURSING DIAGNOSIS: Pain, acute**

**May be related to**

Physical agent: surgical manipulation, edema, inflammation, harvesting of bone graft

**Possibly evidenced by**

Reports of pain

Autonomic responses: diaphoresis, changes in vital signs, pallor

Alteration in muscle tone

Guarding, distraction behaviors/restlessness

**DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:**

**Pain Control (NOC)**

Report pain is relieved/controlled.

Verbalize methods that provide relief.

Demonstrate use of relaxation skills and diversional activities.

ACTIONS/INTERVENTIONS	RATIONALE
<b>Pain Management (NIC)</b>	
<b>Independent</b>	
Assess intensity, description, and location/radiation of pain, changes in sensation. Instruct in use of rating scale(e.g., 0–10).	May be mild to severe with radiation to shoulders/occipital area (cervical) or hips/buttocks (lumbar). If bone graft has been taken from the iliac crest, pain may be more severe at the donor site. Numbness/tingling discomfort may reflect return of sensation after nerve root decompression or result from developing edema causing nerve compression.
Review expected manifestations/changes in intensity of pain.	Development/resolution of edema and inflammation in the immediate postoperative phase can affect pressure on various nerves and cause changes in degree of pain (especially 3 days after procedure, when muscle spasms/improved nerve root sensation intensify pain).
Encourage patient to assume position of comfort if indicated. Use logroll for position change.	Positioning is dictated by physical preference, type of operation (e.g., head of bed may be slightly elevated after cervical laminectomy). Readjustment of position aids in relieving muscle fatigue and discomfort. Logrolling avoids tension in the operative areas, maintains straight spinal alignment, and reduces risk of displacing epidural patient-controlled analgesia (PCA) when used.
Provide back rub/massage, avoiding operative site.	Relieves/reduces pain by alteration of sensory neurons, muscle relaxation.
Demonstrate/encourage use of relaxation skills, e.g., deep breathing, visualization.	Refocuses attention, reduces muscle tension, promotes sense of well-being, and controls/decreases discomfort.

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Pain Management (NIC)</b></p> <p><b>Independent</b></p> <p>Provide soft diet, room humidifier; encourage voice rest following anterior cervical laminectomy.</p> <p>Investigate patient reports of return of radicular pain.</p> <p><b>Collaborative</b></p> <p>Administer analgesics, as indicated: Narcotics, e.g., morphine, codeine, meperidine (Demerol), oxycodone (Tylox), hydrocodone (Vicodin), acetaminophen (Tylenol) with codeine;</p> <p>Muscle relaxants, e.g., cyclobenzaprine (Flexeril), diazepam (Valium).</p> <p>Instruct patient/assist with PCA.</p> <p>Provide throat sprays/lozenges, viscous Xylocaine.</p> <p>Apply TENS unit as needed.</p>	<p>Reduces discomfort associated with sore throat and difficulty swallowing.</p> <p>Suggests complications (e.g., collapsing of disc space, shifting of bone graft) requiring further medical evaluation and intervention. <i>Note:</i> Sciatica and muscle spasms often recur after laminectomy but should resolve within several days or weeks.</p> <p>Narcotics are used during the first few postoperative days, then nonnarcotic agents are incorporated as intensity of pain diminishes. <i>Note:</i> Narcotics may be administered via epidural catheter.</p> <p>May be used to relieve muscle spasms resulting from intraoperative nerve irritation.</p> <p>Gives patient control of medication administration (usually narcotics) to achieve a more constant level of comfort, which may enhance healing and sense of well-being.</p> <p>Sore throat may be a major complaint following cervical laminectomy.</p> <p>May be used for incisional pain or when nerve involvement continues after discharge. Decreases level of pain by blocking nerve transmission of pain.</p>

<p><b>NURSING DIAGNOSIS: Mobility, impaired physical</b></p> <p><b>May be related to</b> Neuromuscular impairment Limitations imposed by condition; pain</p> <p><b>Possibly evidenced by</b> Impaired coordination, limited ROM Reluctance to attempt movement Decreased muscle strength/control</p> <p><b>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</b></p> <p><b>Knowledge: Personal Safety (NOC)</b> Demonstrate techniques/behaviors that enable resumption of activities.</p> <p><b>Mobility Level (NOC)</b> Maintain or increase strength and function of affected body part.</p>
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ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Body Mechanics Promotion (NIC)</b></p> <p><b>Independent</b></p> <p>Schedule activity/procedures with rest periods. Encourage participation in ADLs within individual limitations.</p> <p>Provide/assist with passive and active ROM exercises depending on surgical procedure.</p> <p>Assist with activity/progressive ambulation.</p> <p>Review proper body mechanics/techniques for participation in activities.</p>	<p>Enhances healing and builds muscle strength and endurance. Patient participation promotes independence and sense of control.</p> <p>Strengthens abdominal muscles and flexors of spine; promotes good body mechanics.</p> <p>Until healing occurs, activity is limited and advanced slowly according to individual tolerance.</p> <p>Reduces risk of muscle strain/injury/pain and increases likelihood of patient involvement in progressive activity.</p>

**(Refer to CP: Herniated Nucleus Pulposus (Ruptured Intervertebral Disc), ND: Mobility, impaired physical, for further considerations.)**

<p><b>NURSING DIAGNOSIS: Constipation</b></p> <p><b>May be related to</b></p> <p>Pain and swelling in surgical area  Immobilization, decreased physical activity  Altered nerve stimulation, ileus  Emotional stress, lack of privacy  Changes/restriction of dietary intake</p> <p><b>Possibly evidenced by</b></p> <p>Decreased bowel sounds  Increased abdominal girth  Abdominal pain/rectal fullness, nausea  Change in frequency, consistency, and amount of stool</p> <p><b>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</b></p> <p><b>Bowel Elimination (NOC)</b></p> <p>Reestablish normal patterns of bowel functioning.  Pass stool of soft/semiformed consistency without straining.</p>
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ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Constipation/Impaction Management (NIC)</b></p> <p><b>Independent</b></p> <p>Note abdominal distension and auscultate bowel sounds.</p>	<p>Distension and absence of bowel sounds indicate that bowel is not functioning, possibly because of sudden loss of parasympathetic enervation of the bowel.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Constipation/Impaction Management (NIC)</b></p> <p><b>Independent</b></p> <p>Use fraction or child-size bedpan until allowed out of bed.</p> <p>Provide privacy.</p> <p>Encourage early ambulation.</p> <p><b>Collaborative</b></p> <p>Begin progressive diet as tolerated.</p> <p>Provide rectal tube, suppositories, and enemas as needed.</p> <p>Administer laxatives, stool softeners as indicated.</p>	<p>Promotes comfort, reduces muscle tension.</p> <p>Promotes psychological comfort.</p> <p>Stimulates peristalsis, facilitating passage of flatus.</p> <p>Solid foods are not started until bowel sounds have returned/flatus has been passed and danger of ileus formation has abated.</p> <p>May be necessary to relieve abdominal distension, promote resumption of normal bowel habits.</p> <p>Softens stools, promotes normal bowel habits, decreases straining.</p>

<p><b>NURSING DIAGNOSIS: Urinary Retention, risk for</b></p> <p><b>Risk factors may include</b></p> <p>Pain and swelling in operative area</p> <p>Need for remaining flat in bed</p> <p><b>Possibly evidenced by</b></p> <p>[Not applicable; presence of signs and symptoms establishes an <i>actual</i> diagnosis.]</p> <p><b>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</b></p> <p><b>Urinary Continence (NOC)</b></p> <p>Empty bladder in sufficient amounts.</p> <p>Be free of bladder distension, with postvoid residuals within normal limits (WNL).</p>
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ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Urinary Retention Care (NIC)</b></p> <p><b>Independent</b></p> <p>Observe and record amount/time of voiding.</p> <p>Palpate for bladder distension.</p> <p>Force fluids.</p>	<p>Determines whether bladder is being emptied and when interventions may be necessary.</p> <p>May indicate urine retention.</p> <p>Maintains kidney function.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Urinary Retention Care (NIC)</b></p> <p><b>Independent</b></p> <p>Stimulate bladder emptying by running water, pouring warm water over peritoneal area, or having patient put hand in warm water as needed.</p> <p><b>Collaborative</b></p> <p>Catheterize for bladder residual after voiding, when indicated. Insert/maintain indwelling catheter as needed.</p>	<p>Promotes urination by relaxing urinary sphincter.</p> <p>Intermittent or continuous catheterization may be necessary for several days postoperatively until swelling is decreased.</p>

<p><b>NURSING DIAGNOSIS: Knowledge, deficient [Learning Need] regarding condition, prognosis, treatment, self-care, and discharge needs</b></p> <p><b>May be related to</b></p> <p>Lack of exposure Information misinterpretation; lack of recall Unfamiliarity with information resources</p> <p><b>Possibly evidenced by</b></p> <p>Request for information; statement of misconception Inaccurate follow-through of instruction</p> <p><b>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</b></p> <p><b>Knowledge: Disease Process (NOC)</b> Verbalize understanding of condition, prognosis, and potential complications. List signs/symptoms requiring medical follow-up.</p> <p><b>Knowledge: Treatment Regimen (NOC)</b> Verbalize understanding of therapeutic regimen. Initiate necessary lifestyle changes.</p>
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ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Teaching: Disease Process (NIC)</b></p> <p><b>Independent</b></p> <p>Review particular condition/prognosis.</p> <p>Discuss possibility of unrelieved/renewed pain.</p>	<p>Individual needs dictate tolerance levels/limitations of activity.</p> <p>Some pain may continue for several months as activity level increases and scar tissue stretches. Pain relief from surgical procedure could be temporary if other discs have similar amount of degeneration.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Teaching: Disease Process (NIC)</b></p>	
<p><b>Independent</b></p>	
<p>Discuss use of heat, e.g., warm packs, heating pad, or showers.</p>	<p>Increased circulation to the back/surgical area transports nutrients for healing to the area and aids in resolution of pathogens/exudates out of the area. Decreases muscle spasms that may result from nerve root irritation during healing process.</p>
<p>Discuss judicious use of cold packs before/after stretching activity, if indicated.</p>	<p>May decrease muscle spasm in some instances more effectively than heat.</p>
<p>Avoid tub baths for 3–4 wk, depending on physician recommendation.</p>	<p>Tub baths increase risk of falls and flexing/twisting of spine.</p>
<p>Review dietary/fluid needs.</p>	<p>Should be tailored to reduce risk of constipation and avoid excess weight gain while meeting nutrient needs to facilitate healing.</p>
<p>Review/reinforce incisional care.</p>	<p>Correct care promotes healing, reduces risk of wound infection. <i>Note:</i> This information is especially critical for the patient’s SO/caregiver in this era of early discharge (sometimes 24 hr after surgery).</p>
<p>Identify signs/symptoms requiring notification of healthcare provider, e.g., fever, increased incisional pain, inflammation, wound drainage, decreased sensation/motor activity in extremities.</p>	<p>Prompt evaluation and intervention may prevent complications/permanent injury.</p>
<p>Discuss necessity of follow-up care.</p>	<p>Long-term medical supervision may be needed to manage problems/complications and to reincorporate individual into desired/altered lifestyle and activities.</p>
<p>Review need for/use of immobilization device, as indicated.</p>	<p>Correct application and wearing time is important to gaining the most benefit from the brace.</p>
<p>Assess current lifestyle/job, finances, activities at home and leisure.</p>	<p>Knowledge of current situation allows nurse to highlight areas for possible intervention, such as referral for occupational/vocational testing and counseling.</p>
<p>Listen/communicate with patient regarding alternatives and lifestyle changes. Be sensitive to patient’s needs.</p>	<p>Low back pain is a frequent cause of chronic disability. Many patients may have to stop/modify work and have long-term/chronic pain creating relationship and financial crises. Often patient is viewed as being a malingerer, which creates further problems in social/work relationships.</p>
<p>Note overt/covert expressions of concern about sexuality.</p>	<p>Although patient may not ask directly, there may be concerns about the effect of this surgery on both the ability to cope with usual role in the family/community and ability to perform sexually.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p><b>Teaching: Disease Process (NIC)</b></p> <p><b>Independent</b></p> <p>Provide written copy of all instructions.</p> <p>Identify community resources as indicated, e.g., social services, rehabilitation/vocational counseling services.</p> <p>Recommend counseling, sex therapy, psychotherapy, as appropriate.</p>	<p>Useful as a reference after discharge.</p> <p>A team effort can be helpful in providing support during recuperative period.</p> <p>Depression is common in conditions for which a lengthy recuperative time (2–9 mo) is expected. Therapy may alleviate anxiety, assist patient to cope effectively, and enhance healing process. Presence of physical limitations, pain, and depression may negatively impact sexual desire/performance and add additional stress to relationship.</p>
<p><b>Teaching: Prescribed Activity/Exercise (NIC)</b></p> <p>Discuss return to activities, stressing importance of increasing as tolerated.</p> <p>Encourage development of regular exercise program, e.g., walking, stretching.</p> <p>Discuss importance of good posture and avoidance of prolonged standing/sitting. Recommend sitting in straight-backed chair with feet on a footstool or flat on the floor.</p> <p>Stress importance of avoiding activities that increase the flexion of the spine, e.g., climbing stairs, automobile driving/riding, bending at the waist with knees straight, lifting more than 5 lb, engaging in strenuous exercise/sports. Discuss limitations on sexual relations/positions.</p> <p>Encourage lying-down rest periods, balanced with activity.</p> <p>Explore limitations/abilities.</p>	<p>Although the recuperative period may be lengthy, following prescribed activity program promotes muscle and tissue circulation, healing, and strengthening.</p> <p>Promotes healing, strengthens abdominal and erector muscles to provide support to the spinal column, and enhances general physical and emotional well-being.</p> <p>Prevents further injuries/stress by maintaining proper alignment of spine.</p> <p>Flexing/twisting of the spine aggravates the healing process and increases risk of injury to spinal cord.</p> <p>Reduces general and spinal fatigue and assists in the healing/recuperative process.</p> <p>Placing limitations into perspective with abilities allows patient to understand own situation and exercise choice.</p>

**POTENTIAL CONSIDERATIONS following acute hospitalization (dependent on patient’s age, physical condition/presence of complications, personal resources, and life responsibilities)**

- Mobility, impaired physical—decreased strength/endurance, pain, immobilizing device.
- Self-Care deficit—decreased strength/endurance, pain, immobilizing device.
- Trauma, risk for—weakness, balancing difficulties, decreased muscle coordination, reduced temperature/tactile sensation.
- Family Coping, ineffective: compromised—temporary family disorganization and role changes.