Orthopedic Surgery Department

Orthopedic Surgery Patients Care

NAME :

DAEJEON EULJI MEDICAL CENTER,
EULJI UNIVERSITY

(_____) 's operation schedule

is ( )th.

Professor in charge is (_____).

Attending Doctor is (_____).

Attending Nurse is (_____).

Table of content

1. Care Protocol for Spinal Surgery Patient During Hospitalization

Index	Day before surgery (day of admission)	Day of surgery	
		Before surgery	After surgery
Care and treatment	• Measure height/weight • Secure intravenous injection • Remove hair from surgical area • Fit brace	• Remove jewelry • Remove dentures • Remove underwear • Remove makeup • Remove nail polish • Remove hearing aids	• Measure vital signs • Observe surgical wounds • Measure/observe total drainage amount • Mediate pain intervention
Examination	• Check whether blood test and x-ray were done at an outpatient clinic	• Blood test	• Move to the ward after x-rays
Diet	• Regular diet • Fast after midnight and do not drink water	• Fasting	• 8 hours after surgery (after checking whether diet is possible) water/thin rice gruel are okay
Medication	• Taking self-medication according to directions	• Taking self-medication according to directions	• Inject antibiotic medication • Inject cough and phlegm medication • Inject stomach-protectant medication
Activity	• Daily activity	• Daily activity and relaxation	• Bed rest
Education and explanation	• Care information survey • Instructions during hospitalization • Various consent (e.g. surgery, anesthesia, etc.) • Pulmonary function test (if needed), other additional examinations, etc.	• Fasting education • Instructions about moving to the operating room	• Breathing and coughing methods • Expelling phlegm • Preventing getting hurt from falling • Self-control methods of pain • Managing various drainage tubes • Diet education • Preventing bedsores
Date of completion/ signature			

1–2 days after surgery	3–5 days after surgery	6-7 days after surgery	8 days after surgery-discharge
• Possible to remove urine tube • Possible to remove drainage tube depending on amount of bleeding • Simple dressing	• Possible to remove drainage tube depending on amount of bleeding • Simple dressing	• Simple dressing	• Simple dressing • Remove the stitches
	• Blood test (Monday, Thursday) • Take x-rays (7 days and 14 days after surgery)	• Blood test (Monday, Thursday) • Take x-rays (7 days and 14 days after surgery)	
• Regular diet	• Regular diet	• Regular diet	• Regular diet
• Take oral medication	• Inject antibiotic medication • Take oral medication	• Inject antibiotic medication • Take oral medication	• Take oral medication
• Bed rest • Walking	• Walking	• Walking	• Walking
• How to wear brace • How to use brace and how to walk	• How to wear brace • How to use brace and how to walk		• Precautions after discharge • Instructions about making appointments for follow-up visits • Issue certificates as needed • Explanation on discharge medication • Education about managing affected areas

2. Structure and function of spine

Vertebra refers to the bone that maintains the major skeletal frame of a person, extending from the neck, back, lower back, hips, to the tail bone. Humans have 7 cervical, 12 thoracic, 5 lumbar, 5 sacral, and 4 coccygeal vertebrae. The spinal cord, consisting of nerve bundles extending from the brain, is present inside the spine and this plays a role in connecting the brain (central nervous system) and the peripheral organs (peripheral nervous system).

The spinal cord is a very important nerve pathway and because various types of paralysis may occur when the spinal cord is injured, it is protected by the vertebrae, which are strong bones.

It can bend or fold easily and is responsible for approximately 70% of upper body flexion or extension. Nerves responsible for sensation and movement of the lower body are distributed here.

Image source: Google image

3. Spinal disorders

▪ Herniated lumbar disc

1) Definition

The lumbar region comprises 5 vertebrae. If the nucleus pulposi inside the discs leak out through the gap between the fibrous rings on the outer layer due to degenerative change or trauma, compression of surrounding nerves occur and inflammatory response in nearby areas cause irritation of the nerves. This condition is referred to as a herniated lumbar disc.

2) Causes

Herniated lumbar disc may be caused by aging, physical overload, weak lumbar muscles or poor posture, smoking, and strong external force.

3) Symptoms

As long as the herniated disc does not compress the nerves, specific symptoms may not be felt. However, if the herniated disc compresses a nerve, pain, tingling, or sensory paralysis may occur. In cases involving compression of a motor nerve, muscle weakening may occur, while in severe cases, paralysis may occur.

4) Surgical intervention – Discectomy

The most common surgical intervention is discectomy. After incision (2-4 cm) of the skin located on the disc, a small piece of bone (0.5-1 cc) is removed for a better view of the compressed nerve. The nerve is decompressed by removing the herniated disc fragments.

▪ Spinal stenosis

1) Definition

A disorder characterized by nerve compression due to narrowing of the spinal canal. In contrast to the lumbar disc causing nerve compression by jelly-like disc material, spinal stenosis involves nerve compression due to narrowing of the spinal canal caused by hypertrophy or growth of ligament, bones, and joints.

2) Causes

❶ Congenital and developmental stenosis

There are some people who appear normal on the outside but were born with a narrow spinal canal.

❷ Acquired and degenerative stenosis

This refers to compression of the spinal canal due to unnecessary bone growth and hypertrophy of joint or ligament due to aging. Most cases of spinal stenosis belong to this category.

3) Symptoms

The symptoms are very similar to those found in the herniated lumbar disc, such as lumbar pain and tingling sensation in the legs. However, unlike herniated lumbar disc, this disorder characterized by no pain when sitting, but gait impairment of having to rest due to pain in the legs after walking for just a little bit.

Especially when walking, severe tingling, tightness, and pain may appear in the legs and hips, causing the person to limp, while some people indicate that their legs do not feel like their own and feel sore. When this happens, walking again after squatting for a little bit can alleviate the pain, but the

distance that the patients can walk become shorter and such patients visit a hospital due to impairment in their activities of daily living, such as going for a stroll or going to the market.

4) Surgical intervention

The surgical goal for spinal stenosis is to widen the narrowed spinal canal to release the nerve that had been compressed for a long period inside the narrow spinal canal. This procedure is called nerve decompression. Nerve decompression is the most important aspect of spinal stenosis surgery and there are many patients, for whom, nerve decompression alone is enough. However, patients with severe nerve compression over a wide area require removal of large amount of bone or joint during nerve decompression, which may cause spinal instability. If left untreated, spinal instability can cause various problems, and thus, spinal fusion is needed for each unstable segment.

▪ Spine fracture

1) Definition

A fracture may occur anywhere on the spine, but 5-10% of fractures occur in the cervical region (neck), while most occur in the thoraco lumbar region (lower back). The most common type of fracture is spinal compression fracture. Compression fracture refers to a fracture that occurs in the front of the spine due to compression force.

2) Causes

The main cause of spinal fracture is trauma due to traffic accident, falls, and sports injury. In addition, diseases, such as osteoporosis and spinal tumor, can also affect spinal fracture. Approximately 80% of the patients are aged 18-25 years, while 4 times as many males than females experience a traumatic spinal fracture.

3) Symptoms

Pain in the site of fracture is the most basic and common symptom, but the symptoms may vary depending on the location and severity of the injury. The patients may experience neck or back pain, while nerve compression may cause tingling or no sensation in the tips of the hands and feet. Moreover, muscle spasm or weakening, as well as changes in and paralysis of voiding function may also occur. Paralysis involves loss of movement in the arms and/or legs, which is indicative of spinal cord injury. However, the spinal fracture does not always mean damage to the spinal cord.

4) Surgical intervention – Vertebroplasty

This varies depending on the type and severity of the fracture. The treatment begins with pain management and rest is required to prevent further damage. Use of an assistive device or surgical intervention may be chosen depending on the type of fracture and stability.

▪ Lumbar degenerative kyphosis

1) Definition

When looking at normal spine from the side, the thoracic and sacral regions show backward curvature. However, the degree of backward curvature may become increased due to abnormalities in the vertebrae, discs, and surrounding muscles. This condition is called spinal kyphosis.

2) Causes

The most common cause is gradual bone deformation caused by weakening of the vertebrae due to osteoporosis. This may cause a compression fracture due to vertebral collapse from even light impact during activities of daily living, in which case, senile kyphosis may appear.

Moreover, weakening of the muscles in the lower back and abdomen due to aging is another cause.

3) Symptoms

Pain may occur in the curved portion of the back or the entire back and the patient may become fatigued and tired easily after walking for just a little bit. Pain may occur suddenly when lifting an object, bending, or walking up the stairs, while in severe cases, pain may appear when simply walking or standing up. Moreover, this may cause the field of vision to be directed downward, causing discomfort when walking.

4) Surgical intervention – Vertebroplasty/Kyphoplasty

When mobility is impaired due to pain caused by osteoporotic compression fracture, the following interventions can be attempted: vertebroplasty, in which, bone cement is injected into the fractured vertebra to strengthen the vertebral body and kyphoplasty, in which, bone cement is injected after restoring the depressed vertebra using a balloon.

▪ Scoliosis

1) Definition

Scoliosis is a disorder characterized by sideways curvature of the spine, sometimes S-shaped curvature. Normal spine forms a straight line when viewed from the front or back.

2) Causes

The exact cause of idiopathic scoliosis has not yet been identified.
Meanwhile, elderly patients aged 60-79 years often show sideways curvature due to senile (degenerative) changes in the spine. This is called degenerative scoliosis.

3) Symptoms

The most common symptom is abnormal outer appearance. Children with scoliosis do not experience major discomfort in their daily life, having no pain and showing no difference in cognitive or motor functions as compared to other children.
If patients with scoliosis experience pain in the curved portion of the spine, scoliosis caused by other diseases should be suspected instead of idiopathic scoliosis. In such cases, precision tests should be performed to identify the disease that is causing the pain.

4) Surgical intervention – Scoliosis correction

For patients with small incurvation (<40 deg), treatment with an assistive device should be used to prevent further incurvation. For patients with large incurvation (≥45-50 deg), surgical intervention should be used to reduce the incurvation.

4. Preoperative care

❶ Surgical consent form

The patient and care giver will sign the surgical consent form after receiving explanation from the physician on the purpose and methods of surgery, possible complications, and postoperative progress.

❷ Anesthesia consent form

The patient and care giver will sign the anesthesia consent form after receiving explanation from the anesthesiologist on the purpose and methods of anesthesia and possible complications.

❸ Transfusion: Consent

The patient and care giver may consent to or refuse transfusion for supplement blood supply in case of heavy blood loss during surgery after receiving explanation from the physician on the purpose of transfusion and possible complications.

❹ Patient-controlled analgesia device: Consent

Analgesia will be administered at a constant rate by intravenous injection

❺ Antibiotic skin test

- Antibiotic skin test must be performed since the use of antibiotics may be necessary during and/or after surgery to prevent infection.
- The patient must notify the physician about any experience of adverse events, such as allergic reactions, from using antibiotics.