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# ANTERIOR CERVICAL DISKECTOMY AND FUSION

**Please read this entire document before and after surgery.**

**CERVICAL SPINE CONDITIONS:**

You have been diagnosed with a condition in your cervical spine. Some of the most common cervical conditions are:

* Cervical herniated (ruptured or slipped) disk. This is a condition where the disk material between two vertebrae has ballooned out of its normal position, causing compression or pressure on the nerve. This condition may cause pain and/or numbness/tingling in your neck and/or arm(s) as well as weakness of the arms.
* Cervical osteophyte (bone spur). This is a condition in which calcium built up on the bony structure of the cervical spine. This is a normal aging process. However, in some instances, the calcium build-up, or bone-spur, may impinge upon a nerve or nerve root causing pain and discomfort. This can be manifested as weakness or numbness in the arm(s) as well.
* Cervical stenosis/spondylosis. This is a condition in which calcium builds up around the canal, which houses the spinal cord (or main nerve). This too is normal aging or arthritis in the cervical spine; however, if pressure is on the spinal cord, numbness and weakness in the legs can occur. This condition, if left untreated, can cause paralysis.

**WHAT IS THE PROCEDURE?**

* Briefly, the surgery involves putting you to sleep under general anesthesia.
* A small incision will be made in a crease in your neck just above your collar bone. Your provider will remove the involved disc or discs and fill in the space with a piece of cadaver bone or with a synthetic structural spacer filled with a graft extender. If there are bone spurs on the front of your spine, these will be removed and used as well.

* The goal is to fuse the vertebrae above and below, causing stabilization of the spine
* Incisions are usually closed with absorbable sutures and a skin glue will be placed on the skin. There are no dressings to be removed. If staples or skin sutures are used, you will have a dressing that will need to be removed.
* Your surgery will be scheduled in the morning and should last between 1 – 1 ½ hours for each level.
* After surgery, you will go to the recovery room until you are stable. If your insurance allows, you will be discharged home after you have recovered from anesthesia. If multiple levels are done or your insurance requires an overnight stay you will be transferred to your room. Most patients spend one night in the hospital and are discharged the following morning as long as there are no medical complications.

**PRE-OPERATIVE INSTRUCTIONS:**

* Your admission will be registered with the hospital by our office. We will contact your insurance company for pre-certification requirements. **You will be responsible for inquiring whether a second surgical opinion is required by your insurance**. If you have any questions regarding insurance pre-certification, please contact our office.
* You will be given Hibiclens solution to use to wash the skin where we plan to make your incision. For your particular surgery this will be:
	+ The front surface of the neck.
	+ Use the Hibiclens solution on a washrag or scrubby and wash the area gently for about 10 minutes. Then rinse thoroughly.
	+ If you are not given this at the preadmission testing area, it can be purchased at most any pharmacy.
* The evening before your surgery, **DO NOT EAT OR DRINK ANYTHING AFTER MIDNIGHT**. This includes **gum, mints and your morning coffee**. The anesthesiologist will not administer anesthesia if you have had anything by mouth after midnight, and your surgery will have to be postponed.
* If you are on any medications, please check with the anesthesiologist to see whether or not you should take them on the morning of surgery.
* In general, you will be able to take all medications **except** **diabetes medicines, blood pressure medicines and blood thinners.**
* If you are on any blood thinners or steroids, please contact our office. Unless otherwise instructed, you should stop using any anti-inflammatory medications such as NSAIDS (ibuprofen, Motrin, Advil, Naprosyn, Celebrex, Meloxicam, Diclofenac, etc.), any product containing aspirin, and any herbal supplements (such as St. John's Wort), 7-10 days before your surgery.  These substances can cause bleeding problems and serious anesthetic reactions. Steroids must be discontinued in tapering doses. If your cardiologist or neurologist requires you to take aspirin this can, in most cases, be resumed immediately after surgery.
* You should consider stocking up on groceries, including easy-to-prepare meals before you are admitted, so that your return home will be as smooth as possible.
* **PLEASE REMEMBER**: It is important for you to be prepared for your discharge so that non-medical issues (like a ride home or someone at home to care for you) do not delay your discharge from the hospital. You will be discharged when the doctor feels you are stable, not when it may be convenient. Plan ahead to avoid any problems!

**THE DAY OF SURGERY:**

Please bring the following items with you to the hospital:

* your insurance card or information
* a list of your medications and dosages
* a list of allergies
* any paperwork given to you by the hospital
* a living will, if you have one prepared (you may prepare one at the hospital if you wish)
* Photo ID
* Comfortable clothes to wear home
* Any X-rays, CT’s, or MRI’s that you have not turned over to Dr. Khajavi

Upon admission, you will be given a hospital gown to change into. Do not wear or bring jewelry. Do not wear make-up. Do not wear dark finger nail polish. You will be asked to remove dentures and contact lenses before surgery. You will be discharged from the hospital when you are medically stable to go home or to a rehabilitation facility. It is important for you to be prepared for your discharge so that non-medical issues (like a ride home or someone at home to care for you) do not delay your discharge from the hospital.

**Therapy/Rehab:**

While in the hospital you will be evaluated by physical therapy and/or occupational therapy. They will make recommendations on assistive devices such as walkers or canes. They will also make recommendations on rehabilitation requirements such as inpatient rehabilitation, home rehabilitation or outpatient rehabilitation.

**POST-OPERATIVE INSTRUCTIONS:**

After you are discharged from the hospital you will need to call our office to set up your first post-op appointment. This will typically be 10-14 days after surgery.

**MEDICATIONS:**

You will be given a printed prescription for narcotic pain medication prior to discharge. Other medications including muscle relaxers and nerve pain medication will be transmitted to your pharmacy and will be available for you to pick on your way home.

If you are taking medications other than those prescribed by one of our providers, you should discuss possible drug interactions with your pharmacist or primary care physician. Pain medication should only be taken when you have pain.

We typically use the following narcotics for post-surgical pain:

* Hydrocodone – for procedures that are less extensive. These include:
	+ Lumbar laminectomies
	+ Neck surgeries performed from the front of the neck (ACDF or artificial discs)
	+ Peripheral nerve surgeries (carpal tunnel or ulnar nerve decompression/transpositions)
	+ Cranial (brain) surgeries
* Oxycodone – For more extensive procedures. These include:
	+ Lumbar Laminectomy with Fusions (with or without spacers), PLF, PLIF
	+ Neck surgery where we make incision in the back of the neck (Cervical Laminoplasty, posterior cervical fusion)

**IMPROTANT** *All narcotics can cause nausea and itching. These are* ***not*** *allergic reactions and can be treated with medications to lessen unpleasant side effects. If you have a true allergy (swelling in the throat, hives or rash) to a specific narcotic please let one of our providers know.*

Narcotic pain medication cannot be called in to your pharmacy. Our providers will try to ensure that you have enough pain medication to last until your next appointment but occasionally you may need a refill prior to that. If you run out of narcotic pain medication, call the office and a prescription will be printed. You may choose to have someone pick up the prescription or we can mail it to you. Keep track of how much medication you have and don’t wait too long to call for refills.

**Constipation** is a side effect of narcotic pain medication and iron supplements. Drinking plenty of fluids and walking frequently will help ease symptoms of constipation but occasionally medications are required. The following medications can help with constipation:

* Stool softeners such as Colace, Senecot or Miralax should be used twice daily to help reduce constipation
* Bulk forming laxatives such as Metamucil are sometimes effective at preventing constipation
* Stronger laxatives such as Milk of Magnesia or Magnesium Sulfate can be used if you have not been able to have a bowel movement in several days. Care must be taken when using these laxatives (especially mag citrate) because they can cause dehydration or electrolyte imbalances. If you need to use these, make sure you drink plenty of water or other non-carbonated fluids.

Please notify the office if this problem becomes severe.

Depending on your surgery, we may also give you a muscle relaxer to use after surgery.

These are a few commonly used muscle relaxers:

* Tizanidine (Zanafelx) or Cyclobenzaprine (Flexeril) – Used for most cervical and lumbar procedures. These are usually 4 mg tablets and are scored in the shape of a +. You can use the whole tablet at bedtime to help you sleep or you can use ¼, ½ or ¾ of a tablet during the day to avoid sedating affects common to all muscle relaxers.
* Carisoprodol (Soma) – This is a strong muscle relaxer and is usually reserved for patients who have more extensive surgical procedures. This is primarily prescribed for use at night to help with pain that is keeping you from sleeping well.

Occasionally we may prescribe nerve pain medication. Below are the 2 commonly used nerve pain medications:

* Gabapentin (Neurontin) – This is the oldest of the 2 nerve pain medication. If started prior to surgery we will slowly increase your daily dose to reach a dose that will be effective for nerve pain. If started in the hospital after surgery, we will usually start this at the therapeutic dose. The most commonly used dose for this drug is 300 mg three times a day.
* Pregabalin (Lyrica) – The newer of the 2, Lyrica is 7 times more effective in most people. Since it is a relatively new drug and there is not a generic form, it is still expensive, and many insurance companies do not cover it. We use this on a case specific basis.

Medications for nausea or other issues may also be prescribed. One of our providers will discuss other medications with you prior to discharge.

**Prescriptions are called in and refilled during office hours only.** You should begin tapering off these medications within 2 weeks of your discharge unless you are under the care of a pain management specialist who will decide on medication use. As soon as you are comfortable, take a nonprescription pain medication (i.e. Tylenol) for pain relief. You should resume medications you were taking for other pre-existing medical conditions before you came in to the hospital, unless otherwise advised by one of our providers.

**IMPORTANT** – Do NOT use NSAID’s (ibuprofen, Motrin, Advil, Naprosyn, Celebrex, Meloxicam, Diclofenac, etc.) for the first 3 months following fusion procedures. These drugs may slow bone growth resulting in failed fusion and chronic back or leg pain. If you are not having a fusion procedure, you may resume these after about 1 week.

**Therapy/Rehab:**

While in the hospital you will be evaluated by physical therapy and/or occupational therapy. They will make recommendations on assistive devices such as walkers or canes. They will also make recommendations on rehabilitation requirements such as inpatient rehabilitation, home rehabilitation or outpatient rehabilitation.

**DRESSING / WOUND CARE:**

We try to use absorbable sutures and skin glue whenever possible. If we use skin glue, you may shower immediately following surgery. You will not have dressings to change unless there is drainage present. Then you can use a loose dressing to avoid getting drainage on your clothing. Do not submerge the wound in a bath tub, swimming pool, hot tub, etc. for 3-4 weeks or until one of our providers says it is ok. When this method is used there will be no stitches to remove at you first visit after surgery.

If your incision is closed with sutures, staples or steri-strips you will have a dressing on the wound. This may be changed after the first 24 hours. You may re-apply a dressing to your wound as long as there is drainage in order to protect your clothes. As soon as the wound stops draining leave the dressings off. This will allow the wound to dry. Allowing the wound to be open to air helps prevent wound infection.

If sutures or staples are used, these will need to be removed about 10-14 days after surgery. If you have steri-strips on your incision, let these fall off by themselves. You may trim the edges of the steri-strips with scissors as they curl up. Do not peel these off!

If you have dressings after surgery these should be removed 2 days after surgery. Leave the incision open to air, and do not apply creams, ointments, or powders to the incision. On the third day following surgery you may shower. It is OK to let water run over the incision, but do not wash or scrub the incision. When drying off, gently pat dry the incision. Do not take a bath for four weeks, as you do not want to soak the incision. It is normal for your incision to be sensitive for a few days and for a little redness to occur right around the sutures. If you notice any excessive redness, swelling, drainage, warmth or discharge from the incision please call the office.

**FEVER:**

A low-grade temperature is common after surgery and is usually due to not doing your deep breathing exercises. With general anesthesia the anesthetist breathes for you using a ventilator. In order to prevent lung injury, they do not breath as deeply as you do and the small air sacs in your lungs collapse. This is called atelectasis, and it can lead to pneumonia. Staying out of bed, walking as much as you can, and taking deep breaths should bring down the temperature. You should receive an incentive spirometer at your pre-op visit and on admission. This can be used to show how deeply you are breathing. **You should use this at least 20 times an hour beginning immediately after surgery.** If the temperature persists, is over 101.5, or is associated with wound problems (see below) or any other problems, please call us immediately.

**POST OPERATIVE VISITS:**

* After you leave the hospital you will need to call our office for an appointment about 2 weeks following surgery. We will examine your wound(s), remove any staples or stitches and refill prescriptions at this appointment.
* The first postop X-Rays will be performed around 4 weeks after surgery. We will compare these to the X-Rays you had before leaving the hospital to make sure there have not been any complications.
* We will get bending X-Rays at 12 weeks post op and if these look good and you have minimal neck pain we will discuss ending restrictions.

**Postop Therapy/Rehab:**

We typically start physical therapy at 3 months post op. The goals of post op therapy are as follows:

* Cervical range of motion
* Improvement of residual muscle pain
* Other personal goals: discuss specific goals you wish to attain i.e. return to certain activities like golf, walking, hiking, biking, etc.

**HEALING PROCESS:**

It will take time for the muscles and tissues around the area of the incision to go through a healing process. If you experience pain or muscle spasms that are not relieved with the medication, you may use a heating pad (not placed directly on the incision) for 10 minutes four times a day. **DO NOT SLEEP ON A HEATING PAD**.

**It is normal to have pain in various areas including:**

* Neck
* Shoulders
* Upper Back

Muscle relaxers work best for pain in the upper back and shoulders.

**Swallowing:**

* Difficulty swallowing (dysphagia) is the most common problem after this surgery. This is because during surgery we have to move the esophagus to one side in order to gain access to the front of the spine. This stretches the esophagus and causes inflammation and swelling.
* The severity of dysphagia is in part proportional to the number of levels that are worked on. It will increase for the first 2-3 days after surgery and then will start getting better.
* Improvement of dysphagia is a slow process. Sometimes improvement can take weeks or months.
* The severity of swallowing difficulty can be lessened by doing the following:
	+ Use an ice pack on the front of the throat for the first 2-3 days. Small packs of frozen peas actually work very well for this. Use Cold 20 minutes on and 20 minutes off. After 3 days Ice on the front of the neck doesn’t help anymore and should be discontinued.
	+ Drink a lot of cold smoothies. Use ice, juice, fruit and/or protein powder to make a thick slushy. Sipping this slowly throughout the day will help limit the amount of swelling in the esophagus.

**RETURN TO DAILY ACTIVITIES:**

For about the first week following surgery, you will need to rest and do as little activity as possible. As already mentioned, you will probably feel sore and stiff. By the second week, however, you should begin to feel less pain and stiffness. Do not do any strenuous activities including lifting, stretching, bending, pushing or pulling. Gradually, over the next couple of weeks you will be able to progressively increase your activities. Use the following as a guideline:

* **Driving**. You should not drive for about a week after surgery or if you are taking narcotic pain medications. This time frame is highly variable. A general rule of thumb is how frequently you are taking your narcotic pain medication. If you can go 6-8 hours in between doses of pain medicine, you can drive safely after about 4 hours. If you feel any lasting effects of the pain medication, i.e. sleepiness, dizziness, avoid driving. You might also consider not driving if you are taking muscle relaxer. These can also make you sleepy and impair your ability to safely operate a motor vehicle.

You may ride in a car as tolerated. If you must ride over 30-45 minutes, get out and walk every thirty minutes. Riding in a car for long distance, while not advisable, is safe. Use common sense; lay the seat back and make frequent stops to walk.

* **Working:** If you have a job that require strenuous activity, bending, twisting or heavy lifting, you should not plan to return to work for 4 – 6 weeks following surgery. At your one month return office visit, one of our providers will assess you and determine at what point you may return to work. If you have a predominantly sedentary job, you can plan to return to work in a part-time capacity after 2 weeks. Your low back may still be stiff and turning from side to side may cause pain. Caution and common sense should be used to determine whether or not you should engage in any activity.
* **Activity:** No lifting, pulling, or pushing objects over 15 pounds. (Examples: infants, grocery bags, vacuum cleaners, lawn mowers.) Avoid bending at the waist; rather bend with the hips and knees. Avoid twisting motions. Avoid abdominal or back strengthening exercises during this recovery period.
* **Stairs**: You may climb stairs at any time, but use the handrails. It may be advisable to have someone with you the first few times. Avoid sitting for more than 20 minutes at a time. Remember to maintain good posture. Rest between activities, as you may find that you tire more easily after surgery. This is to be expected, and it may take some time before your energy level returns to normal.
* **Sexual Activity:** You should abstain from sexual activity for at least 2 weeks following surgery. Sexual relations are permissible after this period but should not be too vigorous. Use your own good judgment.
* **Exercising**:
	+ Resuming exercise should be done carefully. Walking is one of the best exercises to improve your overall fitness and endurance level. Start with a few small trips a day and gradually increase the distance according to your tolerance.
		- “Shoulder Circles” can be started right away. Hold your arms out to your sides. Start by rotating your arms in small circles and work up to big circles extending your arms all the way over your head. After you are done rotating one direction, switch direction and repeat the shoulder circles.
		- “Wall Crawls” can also be started immediately after surgery. Walk up to the wall with your ram outstretched to the side. Slowly get closer to the wall and walk your hand up. Keep moving in until your side is flat up against the wall. Repeat for the other side
	+ Don’t try to do too much too soon! Do not participate in any aerobic type activity (including tennis and golf) or contact sports for three months following surgery.
	+ When you return for your follow up appointment, an exercise program and/or physical therapy for your back can be recommended if needed. Normally, after 4-6 weeks, you are encouraged to resume your daily back exercises. We will let you know if and when physical therapy can be resumed.

**Questions?**

Please read the above thour

PLEASE NOTE: CONDITIONS WILL VARY BETWEEN INDIVIDUAL PATIENTS. IT IS VERY IMPORTANT TO DISCUSS YOUR PARTICULAR SYMPTOMS WITH ONE OF OUR PROVIDERS. THIS INFORMATION SHOULD BE USED AS A GENERAL INFORMATION SHEET ONLY AND SHOULD NOT BE USED IN LIEU OF MEDICAL TREATMENT. THE POST-OPERATIVE INSTRUCTIONS LISTED ABOVE ARE GUIDELINES. YOUR PROVIDER MAY HAVE SPECIFIC DO’S AND DON’TS IN YOUR CASE. ALL RESTRICTIONS APPLY FOR 6-12 WEEKS.