



SOUTHEASTERN NEUROSURGICAL SPECIALISTS

SOUTHEASTERN NEUROSURGICAL SPECIALISTS: Pre & Post op Instructions for ANTERIOR CERVICAL DISCECTOMY AND FUSION (ACDF)

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 and sides of your neck, from your chin down to your clavicle.

Use the Hibiclens solution on a washrag or scrubby and wash the area gently for about 5 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, some 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, fish oil or other sources of Omega -3 fats, Vitamin E, etc.), 7 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. You will have some trouble swallowing after surgery, so be sure to have food that is easy to swallow, with a consistency like runny eggs, yogurt, etc. Smoothies work best and can be made very nutritious by using fruits and vegetables and adding protein powder.

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!

Canton / Marietta

Tariq Javed, MD, FACS | Steven M Spitz, MD
631 Campbell Hill Street, Suite 100, Marietta, GA 30060
P: 770-422-0444 F: 770-422-4412

SANDY SPRINGS

Kaveh Khajavi, MD, FACS | Jim Robinson, MD | Kumar Vesudevan, MD
980 Johnson Ferry Road, Suite 490, Atlanta, GA 30342
P: 404-254-3160 F: 404-254-3270

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 discs containing X-rays, CT's, or MRI's that you have not turned into the office

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 fingernail polish. You will be asked to remove dentures and contact lenses before surgery. If you were given a cervical collar before surgery, do not bring it to surgery, leave it with your family member to be given to you right after 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. Please note during the Covid-19 pandemic, family members will be allowed to be with you before surgery and can see you briefly right after surgery (in the recovery room), but they will NOT be allowed to visit you once you are admitted to 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, canes and bedside commodes. They will also make recommendations on rehabilitation requirements if needed such as inpatient rehabilitation, home rehabilitation or outpatient rehabilitation.

POST-OPERATIVE INSTRUCTIONS:

You will likely receive general discharge instructions from the hospital when you are discharged. If there is any discrepancy between those instructions and our instructions below, please default to our instructions.

After you are discharged from the hospital you will need to call our office to set up your first post-op appointment, if this was not already done pre-op. This will typically be 10-14 days after surgery.

MEDICATIONS:

You will be given a prescription for a narcotic pain medication (like Norco or Percocet). You may also receive a muscle relaxer (like Robaxin or Tizanidine), and a nerve pain medication like Neurontin (gabapentin) or Lyrica (pregabalin), prior to discharge. If you are taking medications other than those prescribed by Dr. Khajavi, you should discuss possible drug interactions with your pharmacist or primary care physician.

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Pain medication and muscle relaxers should only be taken when you have pain. Nerve pain medication should be taken exactly as directed (usually 2 or 3x/day), and should never be abruptly stopped, but rather should be weaned off slowly based on Dr. Khajavi's recommendations.

You may call your pharmacy for refills on these medications and the pharmacy will call our office for an okay. Prescriptions are called in and refilled during office hours only.

You should begin tapering off these medications within 1- 2 weeks of your discharge. As soon as you are comfortable, take a nonprescription pain medication (i.e. Tylenol) for pain relief. Do not take any anti-inflammatories (such as Ibuprofen, Motrin, Advil, Naprosyn, Meloxicam, Diclofenac, Celebrex, etc.) for 6 months, as these can interfere with the fusion process. Resume medications you were taking for other pre-existing medical conditions before you came into the hospital, unless otherwise advised by Dr. Khajavi. Do not resume blood thinners until cleared by Dr. Khajavi, usually 7-14 days after surgery.

Constipation is a side effect of narcotic pain medication and iron supplements. You should use an over-the-counter stool softener like Colace or Senokot to avoid this problem. If you do become constipated, you should try Milk of Magnesia or an enema, or magnesium citrate, all are over the counter. Please notify the office if this problem becomes severe.

DRESSING/WOUND CARE:

Your incision may or may not be covered by a dressing. We often use a liquid surgical adhesive to seal the wound after closure instead of sutures or staples. If your incision(s) were closed with a liquid surgical adhesive you may shower immediately after surgery. If there is a dressing over this you may remove it after 1 day.

If you have staples and a gauze dressing(s) instead of a liquid surgical adhesive, the dressing(s) may be removed 2 days after surgery. There is no need to reapply another dressing(s) or use any special ointment. If you are wearing a collar, you may want to apply a loose 4x4 gauze dressing with 1-2 pieces of tape, just to keep the brace from irritating the incision. Wait another 2 days before you get the wound wet in the shower. Staples will be removed in about 10-15 days post op at your first postoperative appointment.

When showering, you can use whatever products you normally use. There are no special requirements.

PREVENTION OF PNEUMONIA AND BLOOD CLOTS IN THE LEGS:

Pneumonia can occur after surgery when patients do not take big, deep breaths, and from inactivity (sitting too long or even worse, laying down too much). Blood clots can also occur after surgery and inactivity plays a big role in their formation. A blood clot in your leg can cause one leg to swell, be painful, and if its breaks off, can travel to your lungs and be fatal. Using the incentive spirometer you received in the hospital frequently helps prevent pneumonia but walking as much as possible helps prevent both.

WHAT TO EXPECT AFTER SURGERY:

It is normal for your incision to be sensitive for a few days and for a little redness to occur. If you notice any excessive redness, swelling, drainage, warmth or discharge from the incision call the office.

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It is normal to run a low grade fever after surgery and is usually due to atelectasis. This is when very small areas of the lung are not fully inflated, which causes the temperature. Reasons for atelectasis include not taking enough deep breaths and not walking enough. This can be prevented by performing the deep breathing exercises using the incentive spirometer you were given in the hospital and increasing your activity. You should use the incentive spirometer 15-20 times/hour while you are awake. Several (4-6) short walks a day are encouraged. If you have a fever over 102 or chills, please call the office.

Neck pain is expected after this type of procedure. It can extend across the shoulders. Treat your pain with pain medication and muscle relaxers. You can also use ice or heat (do not place directly on the incision) for 10 minutes four times a day. **DO NOT SLEEP ON A HEATING PAD.** In general, most of your pain should improve over a period of 4-6 weeks

Use normal range of motion, but do not stretch your neck side to side, and do not flex or extend too much. Basically, move your head as much as you would if nodding yes (up/down) or no (side to side). If you have a brace, then you cannot move your head and must wear the brace at all times (see below).

Swallowing will be difficult after surgery. The swelling in your throat will peak after 2-3 days. You may have difficulty with hard or tough foods (toast, cracker, steak) and thin liquids (water, etc.). It is often easier to swallow thicker liquids such as milkshakes or smoothies. If your swallowing difficulties become severe, i.e. cannot swallow any liquids, call the office. Someone is available 24 hours a day to talk with you. Do not go to the emergency room unless you are told to do so by a care provider.

Although the spinal cord (and sometimes nerve) compression has been corrected with surgery, it will take time for the spinal cord and nerves to heal, and the muscle and tissues around the area of the incision will go through a healing process. Therefore, you may experience symptoms very similar to your pre-operative conditions. These symptoms can sometimes worsen temporarily and occasionally symptoms do not improve at all due to permanent damage to the spinal cord or spinal nerves.

As discussed prior to surgery, the purpose of the operation is often to prevent worsening of neurologic symptoms. If you had arm pain before surgery, this generally improves after surgery, but not always. Arm pain may persist after surgery due to the nerve damage done to the previously compressed nerve roots. If your upper extremity pain improves after surgery, it is not uncommon to occasionally feel a little reminder of the pain from time to time. This too is nothing to be too worried about, as this also often occurs without serious clinical meaning. Again, if symptoms persist, call the office and we will make an appointment to see you prior to your scheduled follow up visit.

If you had myelopathy (symptoms caused by damage to the spinal cord), these symptoms may worsen after surgery. This is usually temporary but in some cases may be permanent.

You may be given a soft collar to wear for about a week as needed for comfort. The soft collar serves as a reminder to you not to move your neck excessively. After a week stop wearing the collar as this can lead to neck muscle deconditioning and weakness and may make it difficult later to regain neck motion.

In some cases, you may be given a hard collar and instructed to wear it for anywhere from a few days to 3 months or more after surgery. The hard collar helps the surgical area fuse. The hard collar should be worn at all times, including when showering. When temporarily removing the hard collar, remember to avoid moving your neck as much as possible. Try to turn with your body, not with your neck. You must also wear the hard collar when sleeping. The nurses or therapists will review putting on and off your hard collar before discharge so that you are comfortable doing it and to assure that the fit is comfortable. The fit should be snug to prevent movement of your head. If a rash develops under the collar, dry the area and

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place a cloth between the collar and the skin). If you have any concerns with the fit of the hard collar, or if irritation of the skin develops, call our office.

RETURN TO DAILY ACTIVITIES:

For about the first week following surgery, you will need to rest and do as little activity as possible, other than walking as much as possible. As previously mentioned you may feel sore and stiff. By the second week, however, you should begin to feel less pain and stiffness. During your second post op week, you should be able to take more walks, go out to eat, or go shopping. Do not do any strenuous activities including lifting, stretching, bending your neck, pushing or pulling. Your swallowing difficulty will begin to improve 1-3 weeks after surgery, depending on the number of levels done and the thickness of your neck. Gradually, over the next couple of weeks you will be able to progressively increase your activities. Use the following as a guideline:

1. **Driving.** You should not drive for 1-2 weeks after surgery, but this may vary. You may drive sooner if you are not taking narcotic pain medication. You should not plan to travel for long distances for at least a month after surgery. You may NOT drive with a hard collar at any time!
2. **Working.** If you have a manual labor type job, you should not plan to return to work for 12 weeks or more following surgery. If you have a predominantly sedentary job, you can plan to return to work in a part-time capacity after 2-4 weeks. At your one month return office visit, Dr. Khajavi will assess you and determine at what point you may return to work. Caution and common sense should be used to determine whether or not you should engage in any activity.
3. **Activity.** No lifting, pulling, or pushing objects over than 15 pounds. (Examples: infants, grocery bags, vacuum cleaners, lawn mowers, etc.). Avoid neck-strengthening exercises during this 12 week recovery period. The worst position for your neck is extension (looking up to the sky) and flexion (chin on chest). You may climb stairs at any time but use the handrails. It may be advisable to have someone with you the first few times. 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. You should abstain from sexual activity for at least 2-4 weeks following surgery. Sexual relations are permissible after this period but should not be too vigorous. Use your judgment. Remember: the above lengths of time for sitting and walking will vary with each patient.
4. **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. 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. Formal physical therapy will not begin until 12 weeks after surgery.
5. **Your first follow up appointment is generally the only appointment you will have without x-rays.** All subsequent follow up appointments will require x-rays: 4-6 weeks, 12 weeks, 6 months (for some), and 1 year post op. Please make sure your x-rays have been ordered PRIOR to your follow up appointment.

Do not smoke! Remember, smoking is the enemy of fusion!

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Recovery Phase: First 3 months post op

By the time the first month has passed, the surgical or incisional pain for most patients has diminished significantly. Since the majority of the fusion is taking place during these first few months, it's imperative to avoid bending or twisting the neck, or doing strenuous activity, which are activities that can cause the hardware to come loose or break. During this time you might have been wearing a neck brace. Lack of normal activity and wearing the brace can all lead to some stiffness, neck muscle tightness, and weakness or deconditioning of the neck muscles. This is why patients often complain that although their pre-op arm and neck pain are getting better, they have a different kind of neck pain, which they describe as "achy", "sore", and "tired". Patients often say they are stiff when they first get up in the morning, get better after an hour or so, but by the end of the day, or after too much activity, their necks are sore and they need to lay down. This is quite typical for patients who have been wearing a neck brace, and much less common for those that were not prescribed a brace.

To some extent this is the price to pay to keep the spine immobile and promote fusion, and post op physical therapy prescribed at the end of 3-4 month will help rehabilitate those muscles. To reduce the amount of pain, stiffness, and soreness during this time, periodically remove the brace when you are sitting still in a good chair. Remember the brace is meant to keep you from twisting or bending your neck, but if you're sitting still, then you don't really need the brace. Doing this will allow your neck muscles to be activated. But remember you must be still during these times.

Rehabilitation Phase: 3-6 months post op

At the end of the first 3 months, we will get some x-rays to confirm that you are fused. You will continue to fuse (lay down more bone) for 2 years, but more than half the fusion is completed by now, so the brace is no longer needed, nor are all the restrictions you had during those first 3 months. But you can't go from lots of restrictions to doing any activity you want in one day. This is what the next 3 months is for, the rehabilitation phase. At this time we will ask you to:

1. Wean the brace off gradually over about 7-10 days if you were given one. Given there is some muscle deconditioning, taking the brace off too fast may result in some neck pain or spasm. By wearing it less and less each day, you give your muscles some time to accommodate.
2. We will get you started in post op physical therapy. This is extremely important and is very different from the therapy you may have had before surgery. They will work with you to get the nerves sliding or gliding (reduce risk of scar formation on the nerves), work to reduce your stiffness, strengthen your neck muscles, teach you about proper body mechanics and posture, and much more. During the initial 2-3 weeks of rehab you may experience a slight increase in the achiness or soreness of your neck, but as your muscles get stronger, that should subside. When you are done with physical therapy, you must make sure to get a home exercise program for your neck, to do every day. This will help reduce the risk of needed additional spine surgery in the future.
3. After a month of therapy, you can begin to gradually return to the activities you enjoy, but go slowly, using pain as your guide, and seeking the advice of your physical therapist.

Your next follow up with us is usually at the 1 year anniversary of your surgery, with a final set of x-rays, although for some patients with more complex surgeries, a visit 6 months post op is recommended.

****PLEASE NOTE**:** CONDITIONS WILL VARY BETWEEN INDIVIDUAL PATIENTS. IT IS VERY IMPORTANT TO DISCUSS YOUR PARTICULAR SYMPTOMS WITH DR KHAJAVI OR HIS MEDICAL STAFF. THIS INFORMATION SHOULD BE USED AS A GENERAL

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INFORMATION SHEET ONLY AND SHOULD NOT BE USED IN LIEU OF MEDICAL TREATMENT. THE POST-OPERATIVE INSTRUCTIONS LISTED ABOVE ARE GUIDELINES. DR. KHAJAVI MAY HAVE SPECIFIC DO'S AND DON'TS IN YOUR CASE.

Disclosure / Conflict of Interest Statement:

Collaboration between surgeons and medical device industry has contributed to important advances in spinal surgery. However, some of the collaborations can create situations in which the care of the patient is affected. Dr. Khajavi has served as a consultant for NuVasive, a spinal instrumentation company, since 2004. As one of the earliest surgeons to perform minimally invasive lateral lumbar fusion surgery, Dr. Khajavi receives compensation for activities directly related to teaching and sharing of his experience / results, including reimbursement for travel expenses, meeting registration fees, and a fair honorarium if applicable. Dr. Khajavi also receives payment and/or royalties for product development activities. Dr. Khajavi also occasionally receives compensation for certain prospective multicenter clinical research projects (but the majority of his clinical research activities receive no compensation or funding). All compensation or funding is at fair market value, and accurately reflects Dr. Khajavi's time, effort, and expertise committed to the activity. Dr. Khajavi also is a consultant for Spinal Simplicity, which makes only one device that is used rarely, and has a minimal ownership interest (given in exchange for intellectual property).

Dr. Khajavi staunchly believes that the patient's interests always come first, and his recommendation regarding surgery is never influenced by his relationship with medical industry. Dr. Khajavi feels patients need to understand a surgeon's exact relationship with medical industry, and to determine whether any conflict of interest exists. Dr. Khajavi welcomes any questions or conversations regarding your specific surgery and the instrumentation utilized.

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