B. Thomas Mazahery, M.D

Cervical Surgery Information Packet

As you prepare for surgery it is common to have many questions. This packet is provided to help answer some of the most commonly asked questions, and to help you prepare for a smooth and successful operative experience. Please feel free to contact Dr. Mazahery and his staff for any additional questions you may have.

Included in this Packet:

Important Contact Information

• Dr. Mazahery's Surgical Scheduler- Tiphiny **(703) 810-5202 Ext. 1422**

• Dr. Mazahery's Physician Assistant- Sarah Hilton, PA-C **(703) 810-5202**

• Reston Hospital Pre-Operative Interview **(703) 689-9005 Option#1**

• Fairfax Hospital Pre-Operative Interview **(703) 970-6565**

Preparing For Surgery

There are important steps to follow prior to your surgery to ensure you are prepared for your surgical procedure. Below is a list of things which need to be completed before your surgery date.

1. Pre-Operative Labwork
    a. You will be given a prescription for labwork to be completed within 1 month prior to your surgery date
    b. We recommend that you complete your pre operative labwork at the hospital as certain labs can only be performed at the hospital
    c. Please ensure the results of this labwork are faxed to Dr. Mazahery's office at **703-810-5420**

2. Medical Clearance
    a. You may need medical clearance from your primary care physician within 1 month prior to your surgery date
    b. Please ensure your medical clearance is faxed to Dr. Mazahery's office at **703-810-5420**

3. Pre-Operative Hospital Interview
    a. You will need an appointment at the pre-operative department at the hospital to review your medical history in preparation for anesthesia.
    b. This pre-operative interview should be completed before your appointment for medical clearance with your primary care physician. This will ensure your labs are completed and available for your primary care physician to review. Call the hospital to schedule this appointment. Call Reston Hospital at **703-689-9005 Option #1** or Fairfax Hospital at **(703) 970-6565**.

4. Surgical Specialty Center of Mid Atlantic
    a. If you are having your surgery as an outpatient procedure at Surgical Specialty Center of Mid Atlantic, you will not need to do a pre-operative interview at the hospital. The surgery center will contact you for your pre-operative interview.

During this time it is also important to consider the amount of time you will need off work after your procedure and discuss this with your employer. It is also important to plan ahead for what help you may need at home after surgery and discuss this with family and friends. Arranging this prior to surgery will help you be able to focus on your recovery post-operatively.

Preparing For Surgery

As your surgery date is approaching, review this checklist to ensure all the steps are completed.

2 Weeks Before Surgery:

- Pre-Operative Interview with Hospital Scheduled and pre-operative labwork completed. _____
  You will need to have a nasal swab pre-operatively to screen for MRSA/MSSA. This will be arranged through the pre-operative department at the hospital
- Pre-Operative Medical Clearance Completed/Scheduled _____

1 Week Before Surgery:

- Stop taking Aspirin and antiplatelet medications, such as Plavix. Stop taking anti-inflammatories (such as Advil, Ibuprofen, Aleve, Motrin, Voltaren, etc.) _____
- If Aspirin or antiplatelet medication is prescribed by your doctor, please consult this physician prior to stopping to make sure this is appropriate. _____

2 Days Before Surgery:

- Check with the hospital for arrival time day of surgery _____

Night Before Surgery:

- Do not eat or drink anything past midnight unless otherwise instructed by the anesthesiologist _____
- You will shower with a soap called Hibiclens the night before your surgery. This will be given to you by the hospital.

What to Expect During Your Hospital Stay

Day of Surgery:

1. Remember to **bring your MRI** if you did not leave it at the office prior to surgery

2. **Registration** at the hospital
    a. The hospital will direct you where to go for registration

3. **Pre-Op Holding**
    a. In pre-op holding you will be given a gown to change in to and given a bag for your personal belongings. You will meet your holding nurse who will review your chart and start your IV. You will be given pre operative medications. You will also meet with your surgical team including the anesthesiologist, nurse anesthetist, and surgical nurse. You will see Dr. Mazahery prior to your surgery. Your family member can stay with you until you are transferred to the operating room.

4. **Operating Room**
    a. You will be taken to the operating room. Your family will be directed to the waiting room. Dr. Mazahery will meet them there when your surgery is complete.

5. **Recovery Room**
    a. When your surgery is complete you will be transferred to the recovery room to be monitored. You are typically here for 1 to 2 hours. If you are having a same day surgery, you will then be transferred to secondary recovery, and your family will be notified when they can see you. If you are being admitted to the hospital, you will be transferred to your room and your family will see you at that time.

What to Expect During Your Hospital Stay

Hospital Post Operative Day #1:

If you are admitted to the hospital overnight you will be discharged home the day after surgery

Pain Management- We employ a multi-modal pain management approach. We give you medications in the pre operative holding area prior to your surgery to help reduce post operative pain. You will also be given pain medications during surgery. You will be given oral narcotic medications post operatively as needed. We also utilize anti-inflammatories as needed for breakthrough pain.

Drain- You will have a drain in your incision post-operatively to help prevent fluid from collecting at the surgical site. Your dressing will be changed, and the drain removed the morning after your surgery.

Discharge Home- You will be evaluated the morning after surgery. You will be given a prescription for pain medications to take at home. After your dressing is changed and you are tolerating oral pain medications, you will be discharged home. Most patients are discharge by early afternoon the day after surgery.

Post Operative Care

The post operative instructions are included below for your review:

HOME CARE AFTER CERVICAL SPINAL FUSION

ACTIVITY

You need to give your body time to heal after this operation; however, you should not stay completely inactive. You should be out of bed and ambulating to promote healing and reduce the risk of secondary medical issues such as blood clots. Below is a list of activities you should follow.

1. Most often you do not need a neck brace after surgery. In rare instances and depending on the extent of your surgery, you may be given a neck brace after surgery. You will be given the brace prior to leaving the hospital if it is needed. Dr. Mazahery will direct you on when you must wear the brace. If given a brace, most commonly you will wear the brace for the majority of the day and when sleeping for the first two weeks after surgery. You may remove the brace for short periods of time when resting and you may remove the brace to shower. There are **rare instances** when the brace must be **worn at all times**, even when showering, and your surgeon will advise you of this. You cannot drive while wearing this brace.

2. No **sports activity** except for walking for the first two weeks after surgery. Try to **avoid sweating** in the area of the incision to reduce risk of infection. (Note: There are no limits on stair climbing or sitting. Use your comfort level as an indicator of the length of time you are able to sit or climb stairs. Generally a person is comfortable **sitting** about 1 hour before a change in position or activity is needed).

3. It is important to stay mobile after surgery. Below is a general **walking program** that is recommended.
   Day 1 (at home): Walk 1 block in the morning and 1 block in the afternoon/evening.
   After Day 1: Increase your distance 1 block per day as long as it is comfortable. You should be walking 1-2 miles per day when you return for your next visit.

4. **Sleep** in any position as comfortable (including side, back, or stomach).

LIMITATIONS

- No **driving** while wearing brace or while on narcotics.
- No **lifting** more than 5 pounds (about a gallon of milk) for the first 2 weeks after surgery. No lifting more than 25 pounds for an additional 4 weeks (six weeks total).
- No sexual activity for the first week after surgery, after that as comfortable.

INCISION CARE

Caring for your incision at home is important to prevent infection. Please follow the steps below on incision care:

- If you have a dressing over your incision, **you may remove it when you are home.**
- When you are home, it is preferred that you leave the incision open to air. You may cover the incision with a bandage if this is more comfortable, however you need to change the dressing once a day.
- Your incision has been closed with suture material under the skin and covered with steri-strips (small pieces of surgical tape) on the skin. The steri-strips will gradually peel off as they get wet when you take a shower. This is normal and expected.
- You may **shower** 3 days after surgery**.** No direct water pressure on the incision, but water can roll over the incision. Pat incision dry with a clean towel.

PAIN MANAGEMENT AT HOME

It is normal after surgery to have occasional pain, numbness, or tingling in your neck or arms. To reduce the pain, there are several approaches to try:

- Take the pain medicine as directed by your doctor.
- You can utilize Tylenol (as long as Tylenol/acetaminophen is not a component of your narcotic medication) to supplement your pain control if needed. You can also utilize non-steroidal anti-inflammatories, such as Advil/Aleve/Ibuprofen, to help reduce inflammation and assist with pain control. Do not exceed the recommended daily dosage of these medications.

PAIN MANAGEMENT AT HOME

Narcotic pain medications cause constipation. Eat plenty of foods with roughage (bran, oat, fruit, applesauce) and drink a lot of fluids, especially prune juice to prevent constipation. You can also take over the counter stool softeners such as Colace as needed.

You will be given a prescription for pain medication after your surgery. We anticipate you will no longer require narcotic pain medications 1-2 weeks post operatively.

CALL YOUR DOCTOR IF YOU HAVE ANY OF THE FOLLOWING

1. A temperature of 101 F (38.3 C) or greater on 2 readings taken 4 hours apart
2. An increase in pain, redness or swelling around your incision.
3. Drainage from your incision.
4. Increasing difficulty breathing or swallowing
5. Develop difficulty urinating or controlling your bowel movements.
6. Increased swelling in your ankles or feet.
7. Increasing weakness of your arms or legs.
8. Redness, warmth and tenderness on the back of the calf of your leg(s).

FUTURE FOLLOW-UP VISITS

1st post operative appointment: This usually occurs 1 to 2 weeks after your surgery date. **Call Dr. Mazahery's office to confirm the date and time** of your post operative appointment. **703-810-5202**

RETURN TO WORK

Your return to work will depend on your recovery and the type of work you do. You must discuss this with your doctor before you return to work

IMPORTANT PHONE NUMBERS

Dr. Mazahery's office (703) 810-5202, Monday through Friday 8:30am-5:00pm

For emergencies on nights and weekends, please call (703) 810-5202 and have the on call provider paged. You will need to leave your number and the doctor will call you back shortly.

Additional Information Regarding Spine Surgery

You have discussed your surgical procedure as well as risks and benefits with Dr. Mazahery. For additional information, and to review pictures and animations of surgical procedures please refer to Dr. Mazahery's website at:

www.thomasmazaherymd.com

Surgical procedures reviewed on Dr. Mazahery's website include:

Anterior Cervical Discectomy and Fusion (ACDF)
Anterior Cervical Disc Replacement

Additional Information Regarding Spine Surgery

Anatomy

Understanding your spine and how it works can help you understand why you have low back pain. Functions of the spine include protecting the spinal cord and nerves, providing flexibility and motion, and providing structural support for an upright posture.

Vertebae- Your spine is made up of bones, called vertebrae, which are stacked on top of one another.

Intervertebral discs- The intervertebral discs are made of cartilaginous material and are located between the vertebrae to provide motion and cushioning between the vertebrae. The discs are made up of an outer layer called the annulus, and an inner material called the nucleus pulposus.

Spinal Cord and Nerves- Sophisticated networks of nerves travel through the spinal canal carrying messages between your brain and muscles. Nerves branch out from the spinal cord through openings in the vertebrae.

Additional Information Regarding Spine Surgery

Muscle and Ligaments- There are a number of muscle and ligaments that provide support and stability for your spine and upper body. Strong ligaments connect your vertebrae and help keep the spinal column in position.

Facet Joints- The facet joints work in conjunction with the intervertebral discs to allow motion in the spine.

Causes of Neck Pain

There are many causes of neck pain. Neck pain can occur after a specific movement, activity, or inactivity. Sometimes there is no specific injury, but just getting older can cause degenerative changes in your spine that play a role in many spine conditions.

Over-activity/Muscle spasms

One of the more common causes of neck pain is muscle soreness from over-activity. Muscles and ligament fibers can be overstretched or injured and can cause pain and stiffness. Muscle spasms can develop that cause neck pain.

Disk Issues

There are a few different issues that can happen with the intervertebral discs that can cause back pain.

Annular Tear- There is an outer layer of the disc called the annulus which can develop a crack or tear. When this occurs it can cause inflammation and back pain. Annular tears typically improve over time as your body heals, and symptoms can be managed with anti-inflammatories, physical therapy, or cortisone injections.

Disc Herniation- Sometimes referred to as a "slipped" or "bulging" disc. This occurs if the central portion of the intervertebral disc, the nucleus pulposus, "leaks" outside the outer layer of the disc. A herniated disc can be caused by a trauma, but most commonly occurs without any specific injury. If the piece of disc that has leaked out causes compression on a nerve, you can have pain or numbness and tingling that radiates down your arm. A pinched nerve can sometimes cause weakness of your arm. If you have a disc herniation that is causing compression of your spinal cord, you can have symptoms or worsening balance and dexterity.

Causes of Neck Pain

Disc Degeneration- As we age, the intervertebral discs can "wear out" and have decreased hydration. This can affect the ability of the disc to provide cushioning between the vertebrae. This can cause the vertebrae and facet joints to rub together and cause pain and stiffness. It is important to realize however, that disc degeneration does not always cause pain.

Spinal Stenosis

Spinal stenosis is a narrowing of the spinal canal that causes compression on the nerves and spinal cord. This can result from degenerative changes in your spine causing bone spurs and thickened ligaments and from disc herniations. Symptoms of cervical stenosis can include worsening balance, worsening dexterity of hands, dropping this with your hands, and weakness of your upper extremities.

Scoliosis/ Kyphosis

Scoliosis is an abnormal curve of the spine that may develop in children, most often during their teenage years. It also may develop in older patients who have arthritis. Scoliosis often times does not cause symptoms. Some people can develop a curvature in your spine, including kyphosis, that can lead to nerve or spinal cord compression.

Possible Complications of Spine Surgery

As with any surgery, you need to consider the risks and benefits of the procedure before proceeding with surgery. Complications vary depending on the extent of your surgery, and your overall health prior to surgery. Below is a list of the possible complications to consider prior to surgery.

Anesthesia

You will require general anesthesia for your procedure. General anesthesia is typically safe for healthy individuals. Underlying medical conditions can increase your risks with general anesthesia. These risks include, but are not limited to, heart and lung issues, harm to your vocal cords or teeth, mental confusion, stroke, and death. You can discuss these risks further with the anesthesiologist prior to your surgery.

Possible Complications of Spine Surgery

Blood Clots

There is a risk of developing deep venous thrombosis (DVT), or blood clots, during or after surgery. These blood clots typically develop in the legs or lungs (pulmonary embolism). Blood thinners are typically not used after spine surgery due to the risk of post-operative bleeding. It is important to minimize the risk of blood clots by early mobilization after surgery, as well as placing sequential compressive devices on your legs while immobile. Symptoms of a blood clot include pain, redness, warmth, and swelling, commonly around the calf. Also monitor for increased shortness of breath or fever.

Lung Problems

It is important to keep you lungs expanded after surgery. General anesthesia and immobility can decrease your lung function, which can predispose you to developing lung infections. Early mobilization and use of a breathing device called an incentive spirometer will help decrease this risk.

Dural Tear

The thecal sac (the area that encloses the nerves and spinal fluid) is covered by a thin tissue called the dura. Although rare in cervical spine surgery, the dura can tear during surgery causing spinal fluid leakage. Symptoms include headache, sensitivity to light, and clear fluid leaking from the incision. A dural tear can be repaired during surgery. Occassionally, additional surgery is needed to reinforce the repair of the dura.

Nerve Injury/Spinal Cord Injury

Although rare, there is a risk of nerve and spinal cord injury when operating around these structures. Nerve injury can result in weakness, pain, numbness, and tingling of the muscles controlled by the nerves affected. In rare cases you can develop a C5 nerve palsy after surgery which causes weakness of your arm and shoulder. This most commonly resolves with time, but can take up to months to fully resolve. Spinal cord injury can result in paralysis, but this is extremely rare and if there is a pre-operative concern your doctor will discuss this with you.

Vessel injury

Although very rare, there is a risk of injury to the vessels within the surgical field including the vertebral and carotid arteries. Injury to the vessels can cause increased risk of stroke.

Hoarseness and Difficulty Swallowing

Possible Complications of Spine Surgery

Hoarseness and Difficulty Swallowing

It is very common to experience hoarseness and difficulty with swallowing after an anterior cervical surgery. The degree of hoarseness and swallowing difficulty is variable. Most commonly hoarseness improves in 1-2 weeks post operatively. Rarely you can experience persistent hoarseness lasting months. Swallowing difficulty also typically resolves in 1-2 weeks post operatively. Longer recovery is usually associated with more extensive surgery.

Infection and Delayed Wound Healing

As with any surgery, there is a risk of developing post-operative infection. Symptoms of infection at the surgical site include increased pain, redness, swelling, drainage, wound dehiscence, fever, and chills. Antibiotics as well as additional surgery may be needed to treat an infection. You may also have delayed wound healing due to seroma formation. A seroma is not an infection, but can cause increased drainage and delayed wound healing. Wound complications are increased if patients have risk factors such as obesity, diabetes, and vascular compromise. Wound healing issues are more common in posterior cervical surgeries.

Bleeding

It is very rare to require a blood transfusion after a cervical surgery. You can develop bleeding at the operative site called a hematoma. If a hematoma causes compression on the nerves, spinal cord, or causes difficulty with breathing, then additional surgery to evacuate the hematoma may be necessary.

Persistent Pain

Surgery is not a guarantee of resolution of your symptoms, and in rare cases pain can worsen after surgery. You can also have residual nerve pain after surgery due to inflammation, which may take time to resolve. It is important to discuss expected surgical outcomes prior to surgery.

Adjacent Level Degeneration

There is a risk that when you fuse one segment of your spine, the segments above and below the fused area will see more stress. This increased stress may cause the areas surrounding the fusion site to breakdown. Studies have shown that there up to a 25% chance of requiring additional surgery within 10 years to address adjacent level degeneration.

Possible Complications of Spine Surgery

Incomplete fusion of bone graft

There is a risk that the bone graft and fusion does not fully heal. This is called pseudoarthrosis. If the fusion does not fully heal and is causing pain or instability, there may be a need for additional surgery. Although there is a risk of pseudoarthrosis with any fusion, the risk increases with more extensive surgeries requiring multiple levels of fusion. **Smoking, smokeless tobacco, and nicotine patches greatly increases the risk of pseudoarthrosis.**

Implant/Harware Failure

Screws, rods, cages, and plates may be implanted during a fusion operation. There is a risk that these implants may loosen, shift, break, or cause nerve irritation or damage and need to be removed or replaced.

Frequently Asked Questions

What are the different types of bone graft?

There are various types of bone graft that can be used in a spinal fusion procedure. Discuss with Dr. Mazahery which is the best choice for you.

Autograft Harvest- This involves taking bone from one part of your body (commonly your iliac crest) and using it to help fuse another part of your body (a section of your spine). This technique has good fusion rates, but also has some disadvantages. The most common complication of this technique is persistent pain at the site the bone was taken from. This occurs in 25% of cases. There is also a risk of causing weakness and fracture at the harvest site. Due to these risks, harvested autograft is typically reserved for patients deemed to have decreased fusion potential.

Local Bone Autograft- In some fusion procedures, such as a cervical corpectomy, the bone that was removed from your spine while decompressing the nerves can be saved and used for bone graft. This depends on the amount of bone that is harvested, and may need to be supplemented with additional graft material.

Cadaver/Allograft Bone- This is bone that was donated from a cadaver. This type of bone graft is commonly used in spine surgery. The cadaver bone is an acellular bone matrix used as a scaffold to allow your own bone to grow through. Your bone will eventually completely replace

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Cadaver/Allograft Bone- This is bone that was donated from a cadaver. This type of bone graft is commonly used in spine surgery. The cadaver bone is an acellular bone matrix used as a scaffold to allow your own bone to grow through. Your bone will eventually completely replace this bone. There is no risk of rejection of the bone graft and risk of disease transmission from the cadaver bone is extremely low (less then 0.01%)

Synthetic Bone- These grafts are made from calcium materials and are available in a variety of sizes. These are often called "ceramics" and can be used to augment your own bone.

Bone Marrow- Bone marrow is located inside of your long bones and pelvis and contains stem cells. Bone marrow can be harvested during surgery with a needle and then combined with other graft material to increase healing potential.

Biologics or Proteins- There are proteins in our bodies that cause new bone to form. A common type is called bone morphogenic protein (BMP). BMP has been shown to promote fusions, but the side effects of BMP is still under investigation. A discussion of the risks and benefits of this graft material is important before surgery.

What affects bone fusion?

There are multiple factors that can affect healing and bone fusion including general health, diabetes, vascular disease, and biomechanics. **Smoking** is the major modifiable risk factor that reduces bone healing.

Smoking- Smoking has been shown to **decrease** fusion rates by up to **500%**. Smoking **cessation** can help reverse this trend. It is highly encouraged to stop smoking, stop using smokeless tobacco, and even nicotine patches prior to your surgery to decrease your risk of healing complications. It is extremely important to tell Dr. Mazahery your history and current smoking, nicotine, and tobacco usage as it may affect the type of bone graft used during surgery.

What are the alternatives to spine surgery?

Many spine conditions can be managed with non-operative treatment options such as **medications**, **physical therapy**, and pain management including **epidural steroid injections**. Discuss with Dr. Mazahery the benefits of surgical versus non-surgical treatment options.

What are my activity limitations after surgery?

You will have some activity modifications and limitations immediately after spine surgery to allow for proper healing and recovery. Early mobilization and walking is encouraged after surgery. Specific limitations for immediate post operative recovery will be outlined in your discharge packet for your procedure.

The long term goal of spine surgery is for you to return to all your normal activities. After you have healed from your surgery, we encourage you to return to all the activities you enjoy including running, skiing, horseback riding, weightlifting, and many other sports!