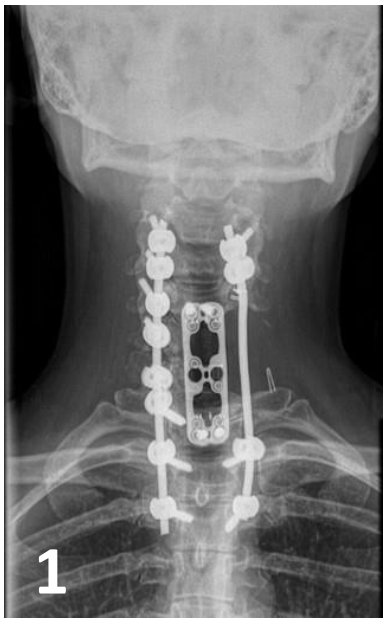
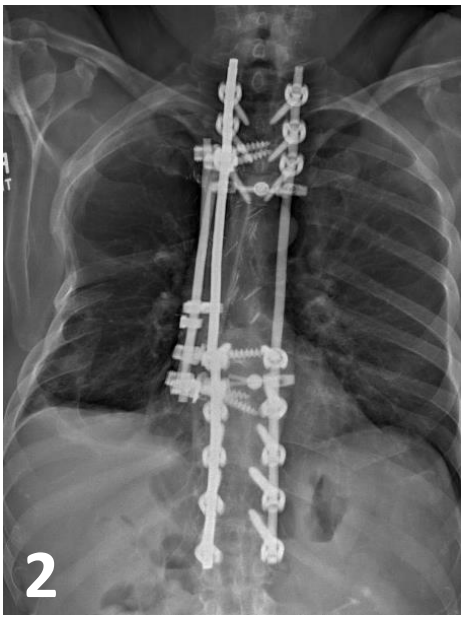
Discharge Guidelines

Resection of Malignant Bone Tumor with Spinal/Pelvic Instrumentation
Cervical/Thoracic/Lumbar/Pelvis/Sacrum

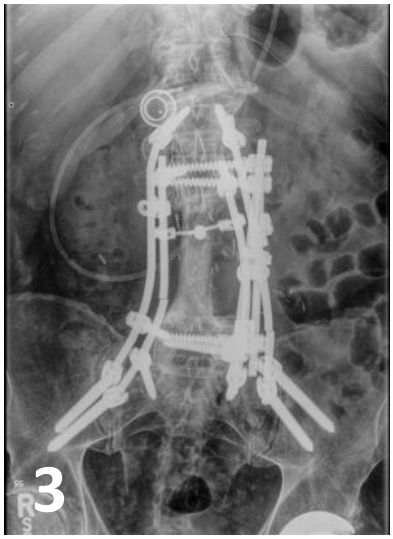
Please note: These are general guidelines to help answer the most common questions after surgery. The photos in these guidelines WILL NOT necessarily match your exact surgical site. Your surgeon/team may ADAPT these guidelines depending on YOUR SPECIFIC NEEDS and/or current research.

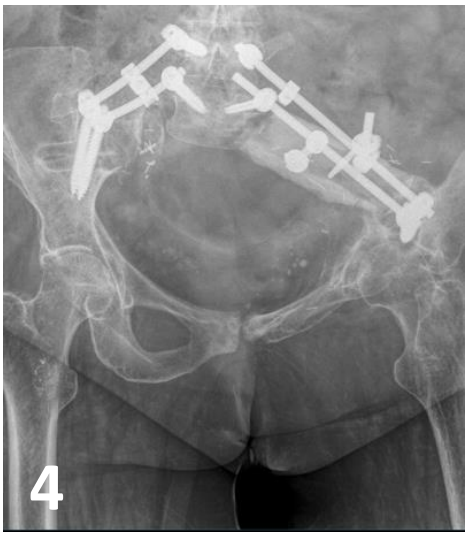




1. **Cervical spine** reconstruction using a metal cage and instrumentation.

2. **Thoracic spine** reconstruction using a vascularized fibula (patient's own fibula).





3. **Lumbar spine** reconstructions using a vascularized fibula with lumbopelvic instrumentation.

4. **Pelvis** reconstruction using an allograft (donor bone) with lumbopelvic instrumentation.

Daily Incision Care

- Look at your incision and check for openings, drainage, swelling, redness, changes in color, or bleeding. If you detect any of the above problems, contact the surgeon's office.
- Sometimes patients are discharged with a drain at the incision site. You will be instructed on how to care for the drain until your post-operative visit. Drains will be removed when the output is less than 30 mLs per day.
- Change your dry dressing every day or leave uncovered if the staples do not stick to your clothing.
- You will sponge bathe most of hospital and rehab stay; once home, you may shower.
- Staples will be removed 2-3 weeks from the date of surgery. They are left in longer if you had radiation or chemotherapy.

- Once the staples are removed, you can use vitamin E lotion, aloe cream or any moisturizer to massage your incision.
- Once you leave the rehabilitation facility, a visiting nurse may come to your house for a few visits to assist you with your incision care.

Activity

These tips are simply guidelines. Your activity level will vary depending on a number of factors including the size and location of your incision, whether you have had chemotherapy or radiation, and whether you have had a muscle flap or skin graft.

- Use supports (crutches, walker, cane) as directed. You may progress to a cane when your muscle strength and range of motion returns.
- Use braces (cervical, thoracolumbar, pelvic/hip abduction) as directed.
- Pace yourself. Avoid excessive walking, standing and stair climbing for the first month. Too much daily activity and exercise will cause pain, swelling and stiffness.
- No jumping or running.
- Avoid any heavy lifting.
- Avoid sitting for long periods of time (greater than 1 hour at a time). Prolonged sitting causes swelling due to the dependent position of your leg.
- Take precautions to avoid falling. Wear low, non-skid sole shoes. Watch out for electrical cords, wet or uneven floors, floor mats/rugs that may slide. Use night-lights to keep rooms lit, especially if you get up during the night to use the bathroom.
- Upper body exercises can begin immediately after surgery, as tolerated, unless restricted due to cervical spine surgery.
- Do not become discouraged if your mobility is slow to progress. Most patients take one year to build up strength and endurance.
- Return to driving varies by patient. You MUST be off narcotics. It is always best to resume driving after discussion with your surgeon.

Diet

- Your appetite may be less than normal after surgery.
- Incorporate proteins and plenty of fluids into your diet, both of which will help in the healing process.
- If you are taking narcotics, you should take some type of laxative to prevent opioid-induced constipation.
- It is very important to maintain a normal body weight after surgery. Excess weight will only stress your area of reconstruction. On the other hand, if you have lost weight due to chemotherapy or radiation, you may need to consume additional calories to get back to your normal weight. In this case, incorporating supplemental drinks (e.g. Ensure, Boost, and Carnation Instant Breakfast) into your diet may be helpful.
- Chemotherapy compounded by the effects of surgery may cause some stomach irritation during your recovery period. Take anti-nausea medications as directed by your surgeon or nurse practitioner. Replacing large meals with several smaller meals spread throughout the day may also be helpful.

Medications

- Continue to take your regular medications.
- DO NOT drink alcohol or drive while taking narcotic pain medication.
- You most likely will be discharged on a blood thinner to prevent clots, usually Lovenox (subcutaneous injection) for 2-4 weeks (no blood tests are necessary). Newer, direct oral anti-coagulation medications may be prescribed, or continued if you came to the hospital already taking these types of medications (Eliquis, Plavix, Pradaxa, Xarelto).
- Previously Coumadin was given. If you are on Coumadin, you will resume this for your anti-coagulation regimen. Blood tests are necessary for Coumadin; the INR range needs to be between 1.5 and 2.0.
- If you are discharged on a blood thinner administered via daily injection, no blood tests are necessary.
- You may be advised to take just an aspirin daily to prevent blood clots.

Pain

- Your surgical team understands that you will experience different levels and types of pain following your surgery. You will be prescribed a narcotic, if you wish. Some patients decline a narcotic due to the current opioid crisis and request milder pain medications (tramadol), and/or just take Tylenol alternating with anti-inflammatory medications (Advil, Motrin, Aleve), if tolerated. When we prescribe narcotics, we must do so per current state and federal regulations, which includes a narcotic contract.
- Because of the current focus on opioid addiction, we recommend a multitude of cognitive behavioral techniques, such as imagery, mindfulness, psychotherapy, deep breathing exercises, virtual reality for distraction, journaling, video games, TENS unit (muscle stimulators that can be used at home) and all other integrative care therapies (physical therapy, acupuncture, massage, lymphedema treatment, reiki).

Common Problems (General)

- It is normal to feel tired after you are discharged.
- If you experience pain and/or swelling, try elevating the site for relief or apply ice – use caution not to leave on more than 20 minutes to prevent frost burn.
- If you develop a firm lump in the incisional area, and your overlying skin looks black and blue, you may have developed a postoperative hematoma (blood collection at the operative site where the mass was removed). Notify your surgeon's office.
- Your torso may feel heavy after surgery. This is due to your muscle weakness. Your strength and ability to control your abdominal and back muscles will increase over time.
- If you have had chemotherapy and are experiencing anything unusual that could be a sign of infection such as a high temperature, cough, sore throat, mouth sores, skin rashes, chills or sweating, call your oncologist or nurse practitioner IMMEDIATELY. Chemotherapy can weaken your immune system for a period of time, so any of these symptoms could become dangerous if they are not treated quickly.
- If you have had radiation therapy, the area of skin treated (radiation field) may feel dry, hard and itchy. The skin in this area may also darken and/or peel. These symptoms should lessen within a few weeks of stopping radiation treatments. Do not scrub or use soap on the affected area. Avoid exposing the treated area to direct sunlight. When going outdoors, be sure to use a sunscreen with the highest UV protection. These precautions will help your skin heal more quickly.
- Lymphedema is chronic swelling caused by a build-up of fluid that occurs when the lymphatic system is faulty or damaged. Tumor resection, especially following radiation, can cause lymphedema. Please refer to our patient guide: *Lymphedema – What you Need to Know* (www.massgeneral.org/ortho-oncology/lymphedma).
- For constipation (not being able to move your bowels), drink plenty of water and non-carbonated fluids, and eat foods that are high in fiber (e.g. bran, prunes, fruit, whole wheat breads). There are numerous over-the-counter medications available to help relieve constipation such as Dulcolax, Magnesium Citrate, or Miralax. Ask your local pharmacist to assist you in finding one that is right for you.
- If you smoked cigarettes before the surgery, DO NOT START SMOKING AGAIN! Smoking (the nicotine) causes constriction of blood vessels preventing adequate blood flow to the operative area and can delay healing. If you need assistance with this, please contact the MGH Quit Smoking Service at 617-726-7443.

Common Problems (Cervical)

- Risk of aspiration (choking on one's secretions) is high.
- Risk of neck swelling (edema) causing an inability to breath is also high.
- Inability to swallow (food, secretions) is common after cervical surgery. Most patients require a Speech + Swallow consult to determine if the swallowing mechanisms are normal.
- Sometimes a gastrostomy tube (G-tube) is placed so that patients can receive adequate calories to heal. This tube is temporary until swallowing returns to normal.

- Neuropathic pain is a frequent side effect. This type of pain radiates from the neck and follows the nerve roots (***dermatomes, see photo***), usually down your arms. Patients have many ways to describe neuropathic pain such as burning, tingling, electric shock-like, stabbing or even a sense of dribbling warm water. Gabapentin (Neurontin) or Lyrica are the most common medications to treat this condition.
- Muscle spasms are common. Low doses of valium or other muscle relaxants are frequently prescribed.
- Upper extremity weakness or tingly sensations (paresthesias) may resolve or may continue for months. Sometimes these side effects are permanent.
- Occupational therapy is key in the recovery process for all spine patients.

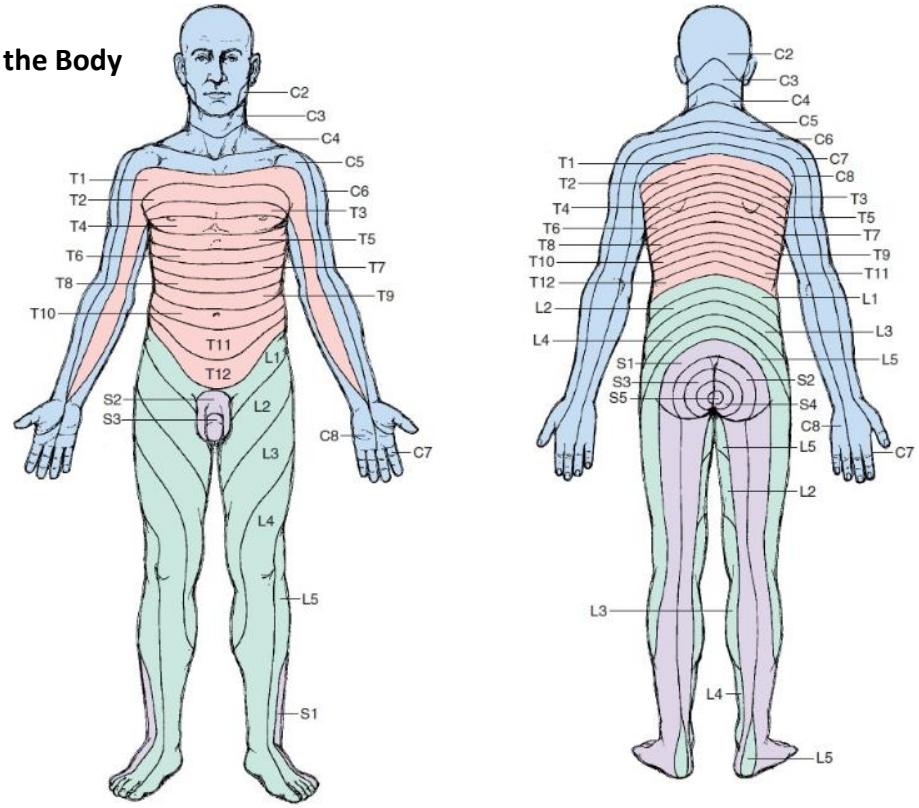
Common Problems (Thoracic & Lumbar)

- Neuropathic pain is a frequent side effect. This type of pain radiates from the back and follows the nerve roots (***dermatomes, see photo***). Pain after thoracic surgery can radiate from the back around your side to the front of the rib cage. Pain after lumbar surgery radiates down the leg to the foot. Patients have many ways to describe neuropathic pain such as burning, tingling, electric shock-like, stabbing or even a sense of dribbling warm water. Gabapentin (Neurontin) or Lyrica are the most common medications to treat this condition.
- Some patients experience a chronic pain after these complex surgeries. Some require low-dose narcotics, while others adjust to the discomfort and use Tylenol or anti-inflammatory medications (Motrin, Advil Aleve).
- Given the current opioid crisis, we recommend cognitive behavioral techniques such as imagery, mindfulness, deep breathing exercises, virtual reality for distraction, TENS unit (muscle stimulators that can be used at home) and all other integrative care (acupuncture, massage, reiki).

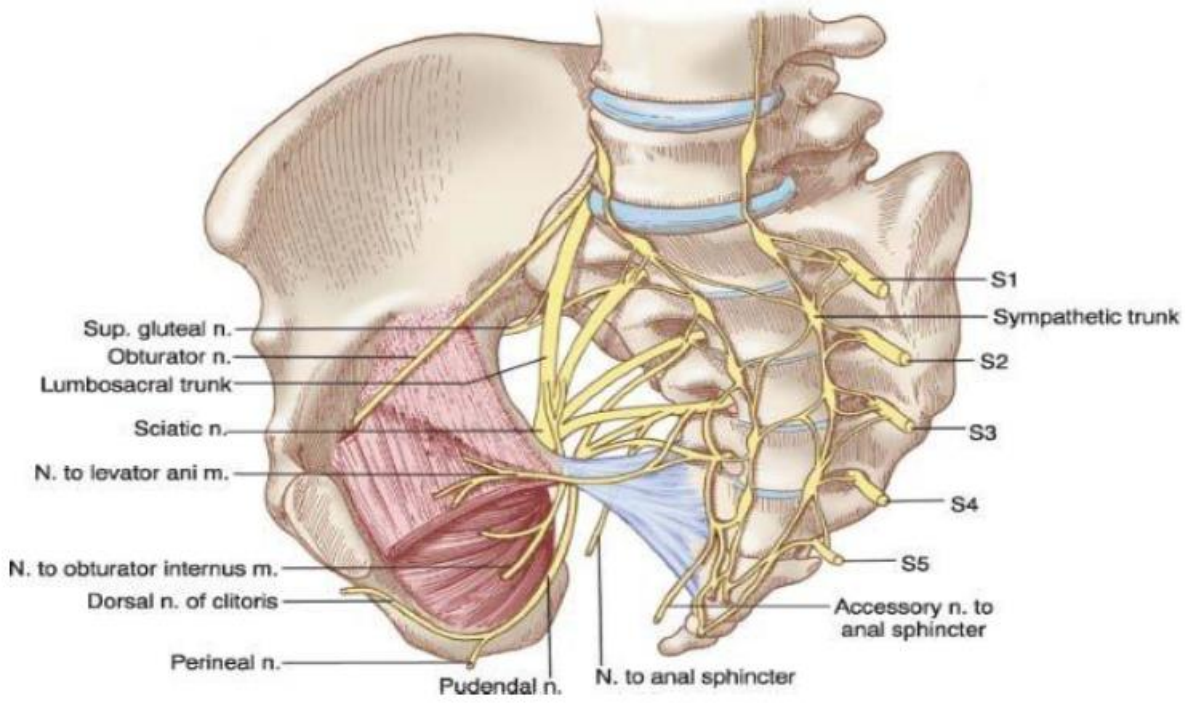
Common Problems (Pelvis or Sacrum)

- Neuropathic pain is a frequent side effect. This type of pain radiates from the low back/buttocks and follows the nerve roots (***dermatomes, see photo*)** and can also radiate down one or both legs. Patients have many ways to describe neuropathic pain such as burning, tingling, electric shock-like, stabbing or even a sense of dribbling warm water. Gabapentin (Neurontin) or Lyrica are the most common medications to treat this condition.

Dermatome Map of the Body



- The most common problems with pelvic and sacral tumor surgeries are bowel, bladder and sexual dysfunction, depending on the level of your tumor and the nerve roots involved (see picture below). We have many specialists at Mass General who can help you regarding these problems.



Returning to Work/School

- The length of disability following these complex surgeries varies depending on the type of work you do. You may return to school or a sedentary type job much earlier than you would return to a job requiring physical labor.
- Most patients require at least one year to recover before thinking about going back to work/school. Everyone responds differently, but most require this time for extensive physical therapy. Then, if you follow the activity guidelines given by your surgeon, you can return to work/school when you feel ready.
- In general, we recommend patients refrain from contact sports, lifting or pushing heavy objects, and no excessive bending and prolonged sitting, standing, walking, and climbing until healed and strength has returned.
- Disability forms will be completed at your preoperative visit or as soon as they arrive at our office. All patient portions of the form MUST BE completed and signed by you the patient.
- Handicap placard applications will be completed if necessary. Forms can be obtained by the Registry of Motor Vehicles and then mailed to our office.

Preventing Infection

- Prior to any dental work, surgery or invasive medical test, you must take an antibiotic to protect against infection. We will give you a letter, which you can give to other doctors specifying which antibiotics are needed.
- Call your primary care physician if you think you have an infection (sinus, urinary tract, respiratory, cellulitis of the skin) so that he/she can determine whether or not you need antibiotic treatment. If you have had chemotherapy and suspect an infection, call your oncologist.

Metal Detectors

- Your spinal and pelvic instrumentation will trigger airport security alarms. Due to current airport security regulations, we no longer provide a letter verifying your internal fixation.
- Many patients question whether MRI scans are safe with internal fixation. The answer is yes; an MRI is safe.

Follow-up

- If you are discharged with a drain, your follow-up appointment is one week after discharge to check drain output and most often remove the drain.
- Schedule an appointment with your surgeon for 2-3 weeks from the date of surgery or sooner if instructed.
- If you are discharged to a rehabilitation facility, make an appointment to see your surgeon before you are discharged from that facility.
- If chemotherapy or radiation is planned after surgery, you can resume those treatments once we inspect your incision and give clearance.
- Once you complete the initial post-operative visits to check your incision, you will progress to routine oncologic surveillance visits, which are as follows: every 3 months (x2 years); every six months (x3 years); followed by annual visits (x5 years) for a total of 10 years of surveillance.

Questions/Concerns

- For any questions, call your surgeon/nurse practitioner.
- Drs. Kevin Raskin, Joseph Schwab, Santiago Lozano-Calderon: 617-724-3700
- Doctor of Nursing Practice (DNP) Anne Fiore: 617-724-7630

These instructions are basic post-procedure guidelines. Your surgeon/nurse practitioner may give you more specific instructions. Refer to our website for more information: http://www.massgeneral.org/ortho-oncology/education

A Fiore, DNP (07/2018)