Renal cell adenocarcinoma is a collection of abnormal cells within the kidney. A malignant renal mass is an abnormal growth of cells that have the potential to spread throughout the body. Cancerous cells often continue to grow unless they are destroyed surgically or by medications. There is a decreased likelihood of metastasis (spreading of cancerous cells to other parts of the body) when cancerous cells are treated early. CT scans, MRIs, plain X-rays, and bone scans can determine metastasis. Historically, the only surgical option for removal of a renal mass was through a large incision in the abdomen. Recently, many urologists have adopted new innovations in the removal of renal masses including laparoscopic radical nephrectomy. The laparoscopic approach to radical nephrectomy has been associated with improved patient outcomes including decreased pain, shorter hospital stay, rapid recovery, and improved aesthetic cosmetic appearance. Laparoscopic radical nephrectomy may be performed in three different types of surgical procedures including laparoscopic hand-assisted radical nephrectomy, transperitoneal radical nephrectomy, and retroperitoneal radical nephrectomy. Understanding the procedure, preoperative instructions, and recovery will assist nurses in counseling patients considering laparoscopic radical nephrectomy.

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Note: CE Objectives and Evaluation Form appear on page 87.
Laparoscopic radical nephrectomy has been successfully performed on patients as young as 6 months and as old as 90 years of age.

Laparoscopic radical nephrectomy may be performed via conventional or hand-assisted techniques. The decision for which type of surgery that is best for each patient depends on the size and location of the tumor, co-morbid conditions, prior abdominal surgeries, and the experience and preference of the surgeon with the various surgical techniques.

**Hand-Assisted Laparoscopic Radical Nephrectomy**

Hand-assisted laparoscopic radical nephrectomy (HALN) was developed by urologists to combine the benefits of open surgery with minimally invasive surgery. Hand-assisted surgery provides many advantages for both the surgeon and the patient. It overcomes the limitations of laparoscopy, such as lack of ergonomic instruments, lack of tactile sensation, and two-dimensional endoscopic view within a three dimensional field (Fox, 2000). Actual operative time is shorter than pure laparoscopic procedures. Recovery time and length of hospital stay are similar. It allows for intact specimen removal, more rapid control of bleeding, and a more rapid path to surgical proficiency with laparoscopic equipment (Quallich, 2002). Hand-assisted radical nephrectomy allows the surgeon to use the hand to assist in the surgery by placing it through a hand-access device in the lower abdomen. The use of the hand within the abdomen enables the surgeon to have an increased sense of tactile sensation which helps to dissect and manipulate tissues within the abdomen. This approach provides increased hand mobility and ease in identifying anatomical landmarks.

*Figure 1. Gel Seal Cap Device Is an Example of a Commonly Used Hand-Access Device*

*Figure 2. Trocar Figuration and Hand-Access Device Placement for Placement for Hand-Assisted Laparoscopic Right Renal Surgery for Right-Handed Surgeon*

*Figure 3. Trocar Figuration and Incision for Conventional Laparoscopic Right Renal Surgery for Right-Handed Surgeon*
the same time, the surgeon uses the dominant hand to use traditional laparoscopic instruments that are introduced through the trocar. The trocar (a tube extending from outside the abdomen to the inside which allows passage of a laparoscope or instruments) incisions are less than one-half inch in length and the hand incision is approximately three inches in length, dependent upon the size of the surgeon’s hand (see Figure 1).

There are a total of four or five small incisions with a hand-assisted laparoscopic nephrectomy depending on the side of the nephrectomy and surgeon preference. A three inch incision in the lower abdomen is where the hand is placed during surgery and where the kidney is removed during the surgery. Two smaller incisions that are less than one-half inch each are made for the camera and the surgical instruments. An additional incision may be necessary for the purpose of retracting tissues or organs such as the liver or the spleen (see Figure 2). Prior to the removal of the kidney, the abdominal cavity, surgical site, and instrument position are all inspected.

Transperitoneal and Retroperitoneal Laparoscopic Radical Nephrectomy

Conventional laparoscopic surgery is completed by a transperitional or retroperitoneal approach. The transperitoneal procedure is the more common approach between these two techniques. Transperitoneal radical nephrectomy involves making an initial one-half inch incision in the abdomen through which a laparoscope is placed. This approach provides the surgeon with a greater working area and easier accessibility to anatomical landmarks. The retroperitoneal approach is a more challenging procedure due to the limited space and more anatomical landmarks. Retroperitoneal radical nephrectomy may be preferred for patients who have abdominal adhesions. Adhesions are fibrous bands of muscle tissue that are often present following abdominal surgery. Fewer port sites are needed for the retroperitoneal approach, as retraction can be done from one trocar only, since bowel retraction is not required. However, there is less working space available for dissection and therefore more difficulty in dissecting large hydronephrotic kidneys and large renal tumors. There are a total of four to five half inch incisions with a transperitoneal or retroperitoneal approach. The first incision is for the camera, the next two incisions are for the surgical instruments, and an additional incision in the lower abdomen through which the kidney is removed. Removal of the tumor intact rather than morcellation better facilitates pathological evaluation. Patients with right renal masses may require an additional incision to retract the liver during the procedure. The trocar incisions are less than one-half inch and the incision for the kidney removal is approximately three inches (see Figure 2).

Table 1.

<table>
<thead>
<tr>
<th>Instructions for Surgery – Department of Urology – HUMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery Date: ___________  Day: ___________  Time to Report: ___________</td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>Three Weeks Prior to Surgery</td>
</tr>
<tr>
<td>• You are required to complete pre-admission testing (PATS) prior to surgery</td>
</tr>
<tr>
<td>• You are required to complete medical clearance. You must make an appointment with you internist or cardiologist prior to surgery.</td>
</tr>
<tr>
<td>One Week Prior to Surgery</td>
</tr>
<tr>
<td>• Very important: You must stop taking aspirin, vitamin E, Plavix®, Ticlid®, Coumadin®, ibuprofen, or any aspirin-like products 7 days prior to surgery.</td>
</tr>
<tr>
<td>Three Days Prior to Surgery</td>
</tr>
<tr>
<td>• You should start increase of fluids 3 days prior to surgery.</td>
</tr>
<tr>
<td>Day Before Surgery</td>
</tr>
<tr>
<td>• Drink 8 oz glasses of fluids every 2 hours starting in the am.</td>
</tr>
<tr>
<td>• No solid foods after 12 noon.</td>
</tr>
<tr>
<td>• Clear liquids including cranberry juice, water, broth, Jell-O® till midnight.</td>
</tr>
<tr>
<td>• Drink 12 ounces of magnesium citrate at 6 pm.</td>
</tr>
<tr>
<td>Day of Surgery</td>
</tr>
<tr>
<td>• If you take high blood pressure or heart medication, you can take it with a small sip of water the morning of surgery.</td>
</tr>
<tr>
<td>• Do not take diabetic medication the morning of surgery.</td>
</tr>
<tr>
<td>• You must report to the hospital 2 hours prior to surgery.</td>
</tr>
</tbody>
</table>

Intra-Operative Risk and Conversion to Open Surgery

Laparoscopic radical nephrectomy is not without its unique risks. Every trocar and instrument introduction into the abdominal cavity presents an important risk of vascular injury or visceral perforation. Risk increases with the number of trocars introduced. Injury can potentially damage every intra or retroperitoneal organ. The major-
ity of these types of laparoscopic injuries will require immediate or delayed open surgery, due to hematoma, postoperative bleeding, abscess, or peritonitis (Miura et al., 2002). Occasionally, the surgeon may need to convert to an open radical nephrectomy due to excessive operative time or intraoperative bleeding, and injury to the arteries, veins, and surrounding structures in the abdomen. Moreover, as with any surgical procedure, anesthetic problems may also occur.

Preparing for Surgery

It is medically necessary for all patients to have blood testing, urinalysis, radiologic examinations (including a CT scan or MRI), chest x-ray, electrocardiogram, and medical clearance from their internist or cardiologist prior to surgery. The day before laparoscopic surgery, it is necessary for patients to begin a clear liquid diet and fast for a minimum of 8 hours prior to the surgery. Patients are instructed to perform a mild laxative regimen to cleanse the bowel. This may be taken from mid afternoon to early evening. Patients are advised to arrive at the hospital 2 hours prior to surgery at which time they will meet with the anesthesiologist. Patients are also required to bring their radiology films with them on the day of surgery so that the urologist can delineate the kidney’s anatomy (see Table 1).

Postoperative Recovery

The average hospital stay after a laparoscopic nephrectomy is 2 to 4 days. After surgery, patients are monitored closely in the recovery area. From the recovery area, patients are transferred to a surgical floor. Patients will have an intravenous catheter in their arm so that fluids can be administered in order to prevent dehydration. Additionally, patients have a catheter in the bladder which drains urine. A sequential compression device (SCD) may be placed on the legs to prevent inflammation (phlebitis) and the formation of blood clots (thrombus) in the legs while confined to bed. The Foley catheter will typically be removed the day after surgery. For pain management, patients will usually have a patient-controlled analgesia pump.

The day after surgery, the SCD boots are discontinued, patients are assisted out of bed at least three times daily for ambulation, allowed sips of water, and the Foley catheter is removed. With active bowel sounds and flatus, fluids are increased, and the diet is advanced to regular food. All patients are recommended to use an incentive spirometer ten times per hour, and complete coughing and deep breathing exercises every 2 hours to prevent pneumonia. Patients are changed to oral pain medication once they are tolerating food and fluids.

The most common complaints after laparoscopic nephrectomy surgery are shoulder pain and abdominal bloating for a few days after surgery. This is due to the gas that is used to inflate the abdominal cavity during the procedure to aid in visualization and provide operative space. Pain medication is ordered to help relieve any discomfort. Additionally, walking helps to aid in relieving bloating and discomfort caused by the gas infused during surgery.

Every patient recovers at a different rate after surgery. Patients should note that it is important to gradually build strength after surgery. Patients should start with short walks and simple exercises. Patients should not push, pull, or lift heavy objects over ten pounds for 1 month following surgery.

Followup

Patients are seen in the office 1 to 2 weeks after surgery to evaluate recovery. At this time, the surgeon will discuss the pathology report. Surgical skin staples are removed from the abdomen. Most patients are able to return to work 2 to 6 weeks after surgery. Lifting is restricted for 2 to 4 weeks based on postoperative evaluation. Monitoring postoperatively for renal cell carcinoma is the same for laparoscopic nephrectomy and open nephrectomy. Patients are recommended to have blood testing, an abdominal CT scan, and a chest x-ray every 6 months for 5 years to monitor for any cancer reoccurrence.

Conclusion

When deciding to have a laparoscopic nephrectomy, it is essential to choose a surgeon that has been adequately trained in laparoscopic surgery or is a fellowship-trained endourologist. Laparoscopic radical nephrectomy is an excellent surgical option for patients diagnosed with a renal mass. Research has shown many advantages to this approach, including minimal blood loss, decreased postoperative pain, more rapid convalescence, and improved cosmetic appearance. As endoscopic instruments improve, and become more ergonomic in their use, this procedure will become more common in the urologic armamentarium.

References


 continuo on page 133
are necessary for trust, respect, and commitment in an organizational or social setting.

But how do we help others to acquire these skills? Just as we help nurses progress through skill training, we must also provide the same learning opportunities for leadership development. This must include both the technical competencies and knowledge associated with the work of leadership as well as the self-awareness and self-knowledge needed for personal growth and maturity. Formal didactic opportunities are usually available within the health care organization, or can be found outside. Multi-rater feedback and personal style inventories help leaders to better understand their self and provide a pathway for developmental activities. Personal development, awareness, and renewal programs provide the support and learning for the “softer side” of leadership of self.

So What Do We Do?

Kegan and Lahey (2001) caution that development is not about solving the individual’s problems, but about supporting and accompanying individuals on their problem-solving journey. If we provide solutions we tend to hold individuals in their current state. Individuals learn by solving problems not by being given solutions. Shared leadership is probably the most important mechanism for providing staff the opportunity to solve problems.

Kegan (1982) identified three approaches to development. The first is that of provocation where leadership potential that Tichy (2002) says is in everyone. By translating leadership development into real experiences that grow “disciples” of the committed, inspirational model of leadership, you know you are doing the right thing for future generations of patients, families, and staff. They will keep the eternal flame of inspirational leadership alive.

Providing opportunities for challenge and stretch (project assignments, stretch goals and expectations, job rotation).

Providing mechanisms for periodic summary and reinforcement (leadership practices review, public testimony and reports, documentation of exemplars, article writing).

Creating communities for reflection and learning (shared leadership structures, journal clubs, self-directed learning groups).

One of the most rewarding experiences as a leader is to watch someone progress to become an exemplar leader who excels because you took the time to develop the untapped leadership potential that Tichy (2002) says is in everyone. By translating leadership development into real experiences that grow “disciples” of the committed, inspirational model of leadership, you know you are doing the right thing for future generations of patients, families, and staff. They will keep the eternal flame of inspirational leadership alive.

Summary

The world of health care has changed. We can’t operate on 17th century models and be successful. We don’t have to argue for the movement to committed, inspired leadership models, and the death of compliance leadership. There is abundant research to document this is the way we must go. In reality, we have a moral obligation to provide the kind of work environment that provides the meaningful work that Maslow (1998) tells us makes life meaningful. No one has the right to make people miserable at work because we have failed to create the cultures that create commitment, inspiration, and transformation for our patients, their families, and our staff. It is unfortunate that in times of staff shortages, this message is heard louder. We should be equally committed no matter what the situation, because it is the right thing to do. We do not have the right to be abusive to others in any context.$

References


Renal Cell Carcinoma continued from page 86


Additional Reading