

THE PREOPERATIVE DISCUSSION OF COMPLICATIONS IN HALLUX VALGUS SURGERY

John A. Ruch, D.P.M.

The topic of complications following hallux valgus surgery can certainly fill volumes. Unfortunately, we will all experience many and most of these problems if we practice long enough. In today's climate of medical malpractice, it becomes more and more important to discuss these potential complications with our patients, preoperatively. This type of discussion may be viewed by some as an attempt to talk the patient out of surgery, but in reality it is actually an opportunity to educate and inform the patient about the experience that they are preparing to encounter.

Another way to look at the discussion of complications is as a very important part of the total picture of "informed consent". The process includes a number of critical aspects, one of which is the discussion of potential risks and complications. Again, the discussion of complications provides an opportunity for the surgeon to educate his patient about the process that is about to happen. This communication can engender a very important relationship of trust and rapport between the two parties. The physician can prepare the patient for the normal course of the surgery at the same time. It is extremely important for the surgeon to instill within the patient the confidence that he is genuinely interested in their individual care and that he, the surgeon, will identify any complications, and most importantly, be able to deal with that problem should it occur.

In general, the more the patient knows about what is going to happen and what problems might occur, the more he is willing to "stick with the captain of the ship." This doctor-patient relationship is based upon confidence and trust which will serve as the key bond to guide both parties through the course of the surgical experience. It can be a rewarding relationship and one of security and gratification if based upon genuine concern and caring. Problems and complications can occur in any surgical case, but once the bond of confidence and trust begins to crumble, it becomes more difficult to handle and cope with the situation. This is true for both the patient and the surgeon.

The preoperative discussion of surgical complications can be a rather generic list of common problems that can be

grouped into several categories. This can be applied to almost any reconstructive surgery in the lower extremity. When focusing on a specific surgical procedure or condition, the unique and specific complications of that area must be integrated into the discussion. A list of general topics or areas might include:

1. Delay in healing (skin or bone)
2. Infection
3. Nerve damage
4. Recurrence of deformity
5. Other deformity
6. Stiff joint
7. Loss of part
8. Bodily injury or death.

Each of these areas can be expanded and specific complications related to hallux valgus surgery can be included. Keep in mind that the discussion of complications is an opportunity to create a positive attitude. Instead of dwelling on the problems, the surgeon can create a sense of security by dealing with the solutions to a problem or, even more importantly, discussing the measures that will be taken to avoid the potential complication.

DELAY IN HEALING (SKIN)

Ideally, a surgical wound should heal cleanly with a fine scar and "normal" function of the part involved. However, surgery is a controlled injury and truly normal recovery without some objective and subjective sequelae is unrealistic. One of the first things that the patient sees is the surgical wound. An uncomplicated surgical wound will appear cleanly apposed with minimal erythema, edema, and ecchymosis. However, this is not always the condition found upon removal of the initial surgical dressing. The wound may appear slightly gaped with visible hemorrhage remaining, or there may be surrounding erythema and ecchymosis at the incision margins. At times, there may even be evidence of devitalized tissue indicating a less than optimal status of the healing wound. This complication may be relatively minor

and pass quickly, or it may be a precursor of more serious wound healing problems to follow.

Delay in healing of the skin and related soft tissues can occur for a variety of reasons, but the primary determination that must be made at this point is whether or not there is a surgical wound infection. The parameters of treatment will be significantly altered should the delay in healing be attributed to sepsis of the surgical wound. Appropriate cultures must be taken from the site of any wound dehiscence or drainage where the circumstances suggest the possibility of infection.

Some of the more common causes of simple wound dehiscence will include damage to skin and other soft tissue from instrumentation or retraction. In many instances, these pressures are unavoidable, however, the surgeon and his team must always take great care to minimize injury to the surrounding soft tissues. Hematoma is another factor which may lead to a surgical wound dehiscence. Hematoma can separate tissue layers, force a surgical incision apart and even create pressure that can devitalize the overlying soft tissues and skin. The immediate postoperative appearance of a significant hematoma may be difficult to differentiate from that of a surgical wound infection. There may be erythema, edema, and heat. The wound and surrounding tissues will appear tense and the patient may experience pain above and beyond that of the normal postoperative course. Medications will be less effective at controlling the postoperative symptoms as well. The clinical picture will need to be monitored closely, as time and compression are the two most important factors for appreciating the difference between resolution of hematoma and the clinical progression of an actual wound infection. Occasionally, the hematoma may be severe enough to require aspiration or even surgical evacuation, but once resolved, the wound healing will progressively improve and follow a more normal surgical course.

The non-infected wound may even deteriorate to actual necrosis or slough of skin and other overlying soft tissue. In these instances, surgical debridement, delayed wound closure, skin plasty, and even skin grafting may become necessary for successful repair of the surgical site.

Obviously, there are a considerable number of problems that may occur with healing of the surgical wound. The complexity of therapies and methods of evaluation and treatment present a formidable concern for the prospective surgical patient. It is necessary for the surgeon to discuss this area of complication in a manner that will give the patient an idea of the type of problem that can occur and more importantly the knowledge that he will be able to handle this complication should it occur. The chances of this type of a problem may be slim, but prior knowledge prevents the

factor of surprise that may be unsettling or disrupt the doctor-patient relationship and subsequent course of the surgical case.

DELAY IN HEALING (BONE)

This is another broad area of postoperative complications or conditions that may be seen in many types of reconstructive surgery in the lower extremity. The spectrum of problems may range from a simple regeneration of bone or exostosis to the need for removal of an internal fixation device. The scope can include many other and more significant conditions. A general list might include:

1. Bone regeneration or exostosis
2. Delayed union
3. Non-union
4. Malalignment
5. Aseptic necrosis or death of bone
6. Bone infection or osteomyelitis
7. Need for removal of internal fixation devices

Healing bone is subject to a variety of influences and may present a varied pattern or course prior to eventual repair or union. A thorough knowledge of bone healing, sound surgical technique, and a well controlled postoperative regimen are essential to minimizing complications following a surgical procedure which involves osteotomy or ostectomy.

Delayed union and non-union are potential complications of any osteotomy. The factors which may predispose the surgical site to these problems must be soundly presented to the patient. This is a situation where the patient's cooperation and activities are as important as the surgeon's skills and management. Each case and procedure will require different guidelines and restrictions and these factors must be clearly understood by both parties.

Even though the bone may heal, malalignment, or malposition may occur. This complication may result in a functional problem that may require additional surgery or therapies. More serious complications in bone surgery involve loss of actual bone substance. This may result from infection, loss of blood supply, or other degenerative factors. This potential should be discussed and appropriate measures of management described.

INFECTION

Infection is a possible complication in any surgical procedure or case. In most instances, the cause of the infection is difficult or impossible to identify. The incidence of infection in an institution or in the individual physician's experience

may be very low, but should infection occur, the incidence is an impacting one hundred percent for that patient. Certainly, there is a sense of security in discussing the low incidence of infection, but it is equally important to discuss the measures that are going to be taken to avoid infection and the actions that will be required should an infection occur. This type of dialogue will demonstrate to the patient the complex process that constitutes the preparation and execution of the surgical procedure. It also provides the patient with a sense that his surgeon is knowledgeable and prepared to handle this type of complication should it develop.

The initial precautions taken to avoid infection will include strict sterile procedures in the prep and surgery. Atraumatic surgical technique, layered wound closure, drains, compression dressings, and prophylactic antibiotic therapy are all factors that may be used to help reduce the incidence of infection for the individual patient. When the patient has a question or a more involved discussion is necessary, additional time should be taken to explain the process effectively.

The patient's postoperative course will be monitored closely. Physical signs and symptoms will be observed and early wound inspection within the first few days following surgery may be helpful in identifying impending problems or initial signs of a surgical wound infection. Simple observation and therapeutic dressing changes may be all that is necessary to handle the situation. Antibiotic therapy may become necessary, and if a significant wound infection should occur, surgical incision and drainage may be required to open the wound. This measure may sound drastic and devastating to the apprehensive patient, but emphasis should be placed on the fact that evacuation of the wound and thorough cleansing will enhance resolution of the infection and help speed the recovery. The wound may be managed in an "open" fashion where daily dressing changes, debridement, or cleansing is used to freshen tissues and remove any debris or drainage that impedes wound healing. All of these measures are used to speed the recovery. While the process may entail a delay in the overall recovery, once the infection has resolved, delayed wound closure may be used and the surgical course can progress as anticipated. The patient should be left with a sense of security that should a complication such as infection occur, his surgeon is prepared and able to handle the problem.

NERVE DAMAGE

This is an area of surgical complication that is easy to delete because of its rare occurrence. However, it is certainly easier to handle the problem if a preliminary discussion of the possibility of nerve damage is held before surgery rather than trying to explain why this complication exists after the fact.

Any time a surgical incision is made, there is the possibility of transecting or cutting a sensory nerve. There may be a normal feeling of postoperative numbness or "tingling" around a healing wound or scar as microscopic nerve fibers recover and heal. There will gradually be re-innervation and restoration of sensation to the area. This normal process may take several weeks to months to occur.

It is possible that larger nerve fibers may be cut during surgery and leave certain areas of skin numb or anesthetic. This is usually not a problem and great care is taken during the surgical procedure to identify and avoid any visible nerve branches. Occasionally, a sensory nerve may lie directly within the path of surgical dissection and may need to be sacrificed in order to continue the procedure. In these instances, an area of anesthesia or numbness may result and may be permanent. This is usually not a problem as surrounding nerve fibers may invade the area and re-establish sensory function.

However, symptomatic nerve damage may occur in any surgical wound. One of the most common sites for neuropraxia, transient hypesthesia, or permanent anesthesia from nerve injury in hallux valgus surgery is along the dorsal medial aspect of the hallux. This area corresponds to the distribution of the medial branch of the medial dorsal cutaneous nerve. Individual sensory nerves may become entrapped in healing scar tissue or damage may occur to the nerve fiber from surgical instrumentation or retraction. The resultant healing process of damaged nerve fibers may be temporary, transient, and relatively asymptomatic, or lead to the formation of a surgical neuroma. This condition may again be relatively asymptomatic or may produce significant postoperative symptoms. Once identified, symptomatic neuroma is treatable. Therapy may include compression dressings, injections, and physical therapy modalities. Time is also a significant factor in the normal resolution of the problem, as it may take many months for the sensory nerve fibers to re-organize and stabilize. Ultimately, surgical resection of the persistent neuroma may be necessary.

RECURRENCE OF DEFORMITY

One of the goals of the surgical repair of hallux valgus is the straightening of the lateral deviation of the great toe. Obviously, to the surgeon this may not be entirely possible due to circumstances encountered during the surgical procedure. A certain degree of recurrence of deformity may occur at any time following the procedure. Each case presents its own unique findings and challenges. Here again, the surgeon can take this opportunity to discuss the possibility of this problem to avoid another "surprise" that may be disturbing to the patient.

This is an area where patient expectations may not match the result anticipated by the surgeon. Time taken on the "front end" to discuss the variations and possibilities will certainly help avoid differences following the actual surgery. The end result of surgery is dependent upon many factors, some controlled by the surgeon, some by the patient, and some unknown. The result is not entirely a predictable fact in this type of reconstructive surgery. The more time taken to discuss this with the patient, the more time taken to explain the many factors involved, the more aware and understanding the patient will become of the complexity of the surgical process.

OTHER DEFORMITY

This category may more truly describe an actual surgical complication. Some of the other deformities that may occur as a result of hallux valgus surgery include, hallux varus, hallux malleus, metatarsalgia, stress fractures of lesser metatarsals, lesser digit deformities, and many others. Should a complication of the hallux valgus repair occur, the ramifications of the imbalance can affect many different areas besides the hallux itself. The possibility for complication may be small but the surgeon must be aware and prepared to deal with the situation once it is identified. There are measures that can be taken once the problem is identified and the reassurance and security for the patient comes from the knowledge that his surgeon is prepared and able to handle the problem.

STIFF JOINT

Stiff joint is not a complication that is unique to hallux valgus surgery, but its occurrence is a real possibility and a disconcerting and troublesome problem for the surgical patient. The condition may manifest itself in varying degrees from the slightest perceptible decrease in range of motion to ankylosis or frank hallux limitus. Change or loss of motion of a joint following surgical intervention is normal. This occurrence may be temporary, permanent, painful, disabling, troublesome, inconvenient, etc., and may be entirely normal.

Periarticular fibrosis and scarring following arthrotomy of the first metatarsophalangeal joint is a normal part of the healing process. The limitation of motion may be quite noticeable for a significant period of time following the surgery. Restoration of motion is dependent upon many factors and knowledge of these considerations prior to surgery helps manage the recovery process following the surgery.

One of the most important factors for restoring range of motion following surgery is the patient's own participation

in therapy and stretching exercise of the operated joint. The more the patient participates in his own recovery with stretching and range of motion exercises, the quicker he will recover the motion of the joint and the more normal the motion that will be obtained. Knowledge of this relationship makes the patient share in the responsibility of his or her own postoperative result.

LOSS OF PART

Disfigurement and loss of function are potential effects of a postoperative complication where there is loss of tissue. A variety of complications may lead to this problem. Infection and vascular compromise may result in loss of part or all of the hallux, the first ray, part or all of the foot, or even the lower extremity. This cascade may sound catastrophic, and indeed it is should it happen to your patient, but fortunately this is extremely rare. The possibility of catastrophe must not be hidden from your patient. A logical and realistic discussion can be reinforcement for total patient care.

BODILY INJURY OR DEATH

We are all aware of cases of relatively minor surgery that have led to a patient's death. Our patients are aware of this as well. While we hope we never have to deal with this most serious complication, it is indeed a remote possibility. A thorough medical and surgical work-up and a well-executed surgical course are the best protection against any complication. The possibility must not be ignored and the positive aspects of the patient's care must be reinforced.

CONCLUSION

The preoperative discussion of potential complications in hallux valgus surgery is a complex and lengthy topic. There is no one way to accomplish the task, but a sincere and thorough effort will be most beneficial to the patient and his physician. A postoperative complication is much more easily handled when its possibility is recognized before surgery and when the patient and the surgeon share in the resolution of the problem.