

COMPLICATIONS IN RHEUMATOID FOOT SURGERY

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Since rheumatoid arthritis is a chronic systemic disease affecting multiple organs, individuals undergoing reconstructive surgery are theoretically at a greater risk for complications. Fortunately, major complications in rheumatoid patients at our institution have been rare, although minor problems have arisen with greater frequency. Good preoperative planning is one of the best ways to reduce the major risks in these patients. Discussions with anesthesia, internal medicine, or rheumatology specialists will help to identify potential problem areas so that all precautions may be taken.

GENERAL CONSIDERATIONS

Reginster¹ discusses specific concerns of the anesthesiologist in dealing with the rheumatoid patient. The disease may affect the thoracic cage and limit the ability to ventilate the patient. In particular, the hyperextension of the neck required for intubation may result in subluxation within the cervical spine. Therefore, preoperative radiographs of the cervical spine in flexion and extension may be desirable to determine the integrity of these articulations.

Rheumatoid arthritis may also affect the visceral organs. Valvular disorders of the heart, pulmonary fibrosis, and altered renal function are a few of the problems that may be seen. The arteritis which can affect the kidney may result in a proteinuria, which in turn may impair the healing capacity of a surgical wound. Many patients possess a chronic anemia as well.

Specific risks are also associated with many of the drugs used to treat the rheumatoid condition. Clinicians are acutely aware of the reduction

in hemostasis derived from the use of aspirin, and to a lesser degree, the anti-inflammatory agents. Corticosteroids may impair wound healing or increase the risk of infection. The anesthesiologist needs to be informed whether the patient has used or is currently using steroids. Perioperative coverage with corticosteroids may be required to avert an acute adrenal crisis. Other immunosuppressive drugs may also act to impede wound healing, although the specific effects of these agents in this regard has yet to be determined.

LOCAL COMPLICATIONS

Specific local complications in the foot can be divided into four categories: surgical problems, vascular problems, healing complications, and infection.

Surgical Problems

Complications may arise following foot surgery due to failure of the procedure, poor procedural selection, or poor technical execution. In some patients the rheumatoid process may still be active, while in others the disease may have remitted, but the deforming influences remain. In either instance one may note recurrence of deformity, particularly when dealing with hallux abducto valgus or dislocation of the lesser metatarsophalangeal joints. Although it is possible for patients to have a completely successful result following one set of procedures, other patients will require additional measures to fully address their problems.

Implant arthroplasty of the lesser metatarsophalangeal joints was generally abandoned by Podiatry Institute members for rheumatoid

conditions a number of years ago. Kirschner wire stabilization tends to provide more predictable maintenance of correction, is less technically demanding, and more cost effective. When a pan metatarsal head resection is performed without the benefit of Kirschner wire stabilization, then drifting and instability of the lesser digits is more likely to occur.

Vascular Problems

Vasculitis is also a component of rheumatoid disease, and may result in small vessel fragility. Theoretically, this increases the risk of dysvascular episodes following surgical repair. In most instances, complications of this nature are due to other factors. Severely contracted toes with an associated metatarsophalangeal joint contracture appear more susceptible to vascular embarrassment. This is really more a function of the degree of tension which may be placed on the vessels as the toe is relocated to a more rectus position.

When a postoperative blue toe develops, one needs to attempt to determine whether this is due to venous congestion, dissecting hematoma, or arterial insufficiency. In the latter circumstance removal of the wire will probably be needed to restore circulation. Removing the wire in a digit affected by a dissecting hematoma may not have any specific long-term benefit. Most patients with venous congestion will respond with supportive measures while leaving the wire in position. Removal of the Kirschner wire from the toe and metatarsophalangeal space may alleviate the vascular compromise by relieving tension on the vessels, yet sacrifice the stabilizing influence at the metatarsophalangeal joint.

Patients can lose a toe following a forefoot reconstruction and they need to be informed of this potential hazard preoperatively. The most important factor is to attempt to maintain the integrity of the metatarsal parabola to ensure asymptomatic weightbearing function. Despite the loss of a digit, most of these patients are pleased, even to the degree that they undergo the same procedures on the contralateral foot. This is a tes-

tament to the success of forefoot reconstruction in alleviating pain in this group of patients.

In addition to aspirin or other medications, rheumatoid vasculitis may increase the amount of bleeding postoperatively and encourage the formation of a hematoma. Anatomic dissection will reduce the likelihood of this complication to some degree. A good compression bandage and strict elevation are the best measures for prevention postoperatively.

Healing Complications

Despite a number of factors which may create problems with wound healing in this patient population (immunosuppressive drugs, anemia, vasculitis), relatively few individuals suffer wound problems which result in long term adverse sequelae. Wound dehiscence is uncommon. However, when they do occur osseous tissue may be exposed, resulting in long term antibiotic treatment until wound closure is ensured.

Studies have indicated a correlation between healing of amputation stumps in diabetics with the serum albumin. This is felt to reflect the nutritional status of the patient. A low albumin can also be representative of renal compromise in a rheumatoid patient. In either instance, hypoalbuminemia may need to be addressed before proceeding with surgery.

Infection

Theoretically, patients with rheumatoid arthritis are more susceptible to infections. This is a factor of the disease process itself in addition to the use of immunosuppressive drugs. However, most studies of forefoot reconstructions in patients with rheumatoid arthritis indicate a relatively low incidence of infection. Fortunately this potentially disastrous complication has occurred infrequently at our institution. Meticulous surgical technique, frequent lavage, and perioperative antibiotics appear to be the best measures for prevention of infection.

REFERENCES

1. Reginster JY, Damas P, Franchimont P. Specific risks of anesthesia in patients with osteoarticular disease. *Acta Anesth Belg* 2:105-121, 1984.