

Treatment for Deep Infections After Shoulder Replacement

Shoulder replacements (called shoulder arthroplasty) are not done as often as hip and knee replacements. But more and more older adults are taking advantage of this available surgery. As with any joint replacement, complications and problems can arise. One of those problems is deep joint infection. Treatment for this complication is the subject of a study at Massachusetts General Hospital in Boston.

The authors (three highly experienced fellowship-trained orthopedic surgeons) took a look back at their records and found 28 patients who developed a deep infection. Results of treatment with a special implant made of antibiotic powder and cement were reported. The patients were between the ages of 31 and 82. Everyone was followed for at least one year. Some patients were followed for as long as five years.

Deep joint infection can crop up any time after the initial shoulder arthroplasty. In their group of 28 patients, one person developed an infection within two weeks of the first surgery. Others did not become symptomatic for almost three years (30 months).

Before we discuss the results, let's take a closer look at the treatment itself. The implant referred to as a Prosthesis of Antibiotic-Loaded Acrylic Cement or PROSTALAC was used to replace the first (infected) prosthesis. Prosthesis is another word for the implant used to replace the joint. The authors think this may be the largest series of its kind reporting on the results of the PROSTALAC.

The PROSTALAC is made by the surgeon for each individual patient. It is shaped just like the stem and round head at the top of the natural femur (thigh bone). There are different ways to create the mold for the PROSTALAC implant.

In most cases, the surgeon used a tubular-shaped plate or flat dynamic compression plate and the formed the PROSTALAC implant around the tube or plate. Either of these approaches gives the spacer more support. In a smaller number of patients, no internal support beam or scaffold was used.

The infected implant is removed and the PROSTALAC implant put in place instead. In some patients, this device is considered a spacer -- in other words, it holds the place of the femoral side of the joint until the infection is cleared up and a new prosthesis can replace it. Other patients elect to keep the PROSTALAC spacer as their permanent implant. Keeping the PROSTALAC spacer as the permanent implant avoids another (revision) surgery.

Previous studies have shown that deep joint infections do not always respond well to debridement and irrigation procedures (cutting out the infection and cleansing the joint with fluid). Just cutting out the infected implant isn't a very good option either because that leaves the patient with loss of hip motion and difficulty weight-bearing.

That's why this idea of a spacer was introduced. But how well does it work? That's the focus of this study. The surgeons followed patients to see if the infection was truly gone or if there were other complications that developed later. Pain, motion, and function (e.g., walking, climbing stairs, recreational activities) were also measured.

They found that infection was eliminated by using the PROSTALAC implant for 82 per cent of the group (that was 23 of the 28 patients). Twelve of those patients kept the PROSTALAC and did not have another surgery. Pain was decreased but not gone for everyone. Thirteen patients still had moderate-to-severe pain.

Based on their results, the authors suggest the use of a spacer like the PROSTALAC can be very helpful in treating deep joint infections after shoulder replacement. The implant can stabilize the joint, provide pain relief, and restore some shoulder function. But it's not without its problems. For example, complications such as a second (recurrent) infection, dislocation, or fracture of the PROSTALAC affected nine patients (about one-third of the group).

Prevention of deep joint infections is the key to avoiding these additional surgeries. But the cause of infection isn't always obvious. Some of the patients had other comorbidities (other health problems) such as diabetes, alcohol abuse, and rheumatoid arthritis. A previous history of knee infection following a knee replacement was also reported by one patient. More research is needed in this area to reduce the incidence of infections and determine the ideal treatment approach.

Reference: Andrew Jawa, MD, et al. Prosthesis of Antibiotic-Loaded Acrylic Cement (PROSTALAC) Use for the Treatment of Infection After Shoulder Arthroplasty. In *The Journal of Bone and Joint Surgery*. November 2, 2011. Vol. 93-A. No. 21. Pp. 2001-2009.