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Shedding New Light on the Treatment of Broken Ribs

Patients who have broken ribs are usually forced to live with their pain until their ribs heal, but new advances in implants are allowing surgeons to help stabilize these bones.

Patients suffering from broken or fractured ribs must usually endure the pain while waiting for the bones to heal. However, John Mayberry, MD, says that there appears to be a viable alternative for these patients. "The standard of care is to not do anything to treat broken ribs, but this means many patients will be subjected to extended periods of pain until the fracture heals," he says. "Patients will also require high doses of narcotics as the healing process progresses. To improve these circumstances, efforts are now underway to surgically treat fractured ribs in select patients."

Surgical Options Are Available

Because treating broken ribs with surgery is relatively uncommon, there are not many options available for patients. "When I first started performing surgery on patients with broken ribs, we used plates and wires to fix the ends of the ribs together," explains Dr. Mayberry. "Since then, we've been able to use different devices to help this patient group. For example, we have also used mandibular plates and screws as well as absorbable plates to benefit our patients."

A new option for the surgical treatment of broken ribs that has had promising results is the FDA-approved U-plate (Acute Innovations, Inc.). Dr. Mayberry has just begun using the U-plate (Figure 1) and has implanted the device in 10 patients. "The availability of the new U-plate device is improving quality of life for many patients. It can be placed through a minimally invasive procedure and has been successful in improving pain and reducing recovery time. Unlike other surgical interventions, the U-plate is unique in that it's designed to grab the bone in order to keep it better aligned than using just a plate. Previous techniques such as the use of plates and wires failed to provide a very stable solution. The U-plate is made of titanium, and actually wraps around the superior surface of the rib to improve the stability of the fixation in this otherwise soft bone."

Know When to Choose Surgery

While performing surgery to treat rib injuries does have its advantages, Dr. Mayberry concedes that it is important for physicians to be aware of the appropriate candidates for such procedures (Table 1). "Patients with the most severely displaced rib injuries—those displaced more than 2 cm—should be considered for surgery. If the displacement is less than 1 cm, the fracture is usually able to heal, but this is not the case if it exceeds 2 cm. In instances where the individual suffers from flail chest—which is when the rib is broken in two places and causes a disconnected segment in the middle—surgery is a viable option. Performing a surgical procedure in these patients can reduce the amount of time they spend on a ventilator. In addition, this practice can prevent pneumonia and reduce the length of hospital stays."

Using the U-plate to treat broken ribs is a good option for patients who continue to suffer from an unhealed and mobile rib fracture after 10 to 14 days of standard therapy, according to Dr. Mayberry. "Surgery with the U-plate is also an option for patients who are still suffering from the effects of a fracture as far back as two years. Patients with fibrous non-unions, as this condition is referred to, may also be candidates for surgical repair."

Patients who are not ideal candidates for surgical intervention of rib fractures include children under the age of 15 as well as the elderly. "This procedure is not generally recommended for children less than 15 or 16 years old," explains Dr. Mayberry, "because their bones are softer and cartilaginous. Pediatric patients may be better served by healing on their own. In addition, patients over the age of 80 may not benefit from repair; the bones in these patients are more brittle and susceptible to breaks caused by inserting a screw into the bone."

Training for the Future

Even though the majority of patients will not require surgery to treat their broken ribs, Dr. Mayberry says that physicians should be prepared to offer this type of surgery to select patients in the future. "Surgeons will need to undergo training sessions that include lectures and cadaver procedures in order to become educated on the benefits of procedures like those involving the U-plate. This is especially true for surgeons who work in areas where many people partake in high-risk recreational activities, such as skiing. The number of rib injuries in these areas tends to be higher than in other regions.

"Fortunately," continues Dr. Mayberry, "we now have more options for patients with fractured ribs. Ultimately, clinicians and surgeons will

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find even more ways to manage rib fractures in the future. The hope is that advances in surgical techniques and the emergence of new devices will continue. As these advances become reality, physicians will need to learn about the ideal candidates for these procedures and be knowledgeable on each of the different available methods in order to ensure the best care possible.”

Dr. Mayberry has indicated to Physician's Weekly that he has or has had the following financial interests: Acute Innovations, Inc.

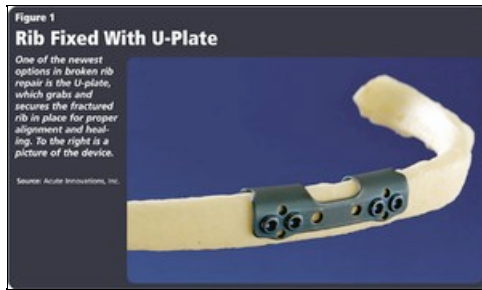


Table 1
Key Criteria for Using Surgery to Treat Broken Ribs

Treating broken ribs with surgery is not ideal for all patients. The following criteria demonstrate who should undergo surgery and who should be allowed to heal on their own.

Characteristic	Treat With Surgery?
Severe fracture displacement (>2 cm)	Yes
Persistent pain and fracture movement 10 days–14 days following injury	Yes
Fibrous non-unions	Yes
Flail Chest	Yes
Children (<15 years)	No
Elderly (>80 years)	Maybe

Source: John Mayberry, MD.

“ Fortunately, we now have more options for patients with fractured ribs. ”
— John Mayberry, MD

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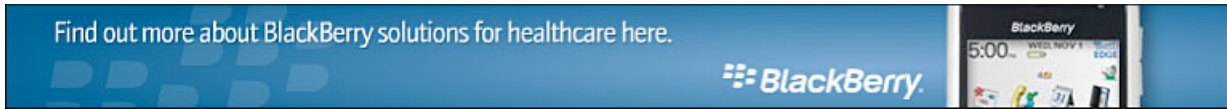
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