



CASE STUDY SHOULDER

## Open Reduction and Internal Fixation for Non-Union of the Proximal Humerus

*Richard DiVerniero, MD*

### History

A 75 year old female presented for treatment of left shoulder pain. X-rays revealed the patient had developed pseudarthrosis and non-union of the left humerus. Patient initially fractured her proximal humerus 4 years prior.

### The Surgical Procedure

An incision was made anterolaterally to the acromion process, and dissection was carried out down to the neck of the humerus. The non-union was opened and all of the fibrous tissue was excised. After preparing the distal shaft and humeral head, a humeral nail was inserted into the shaft. Bacterin's OsteoSelect® DBM Putty was then placed at the non-union site. Once grafting was complete, locking screws were placed.

### Post-Operative Course

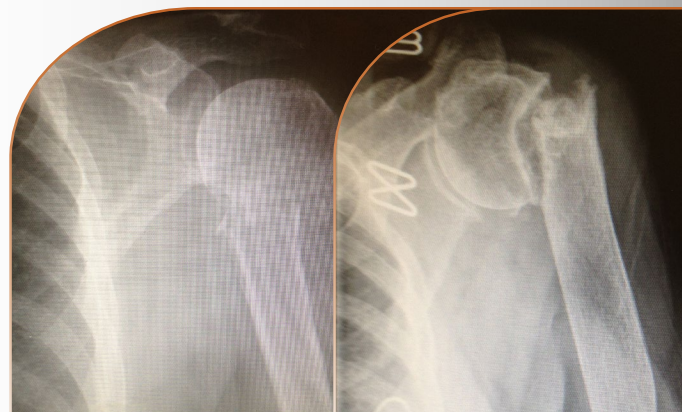
The patient recovered uneventfully and quickly from surgery. The patient was permitted gentle range of motion for the first 2 weeks. At 6 weeks the patient began physical therapy and was allowed to work with full range of motion. At the 6 month follow-up, the patient had full range of motion and was pain free.

### Discussion/Results/Conclusion

The use of Bacterin's OsteoSelect® DBM Putty exhibits unique handling characteristics by having the ability to withstand dissipation in a vascular environment. This allowed for proper placement of the graft without migrating from the non-union site. The successful fusion prevented the necessity of having to perform a hemiarthroplasty on the patient.

*A surgeon must always rely on his or her own professional clinical judgement when deciding whether to use a particular product when treating a particular patient. Bacterin does not dispense medical advice and recommends that surgeons be trained in the use of any product before using it in surgery. A surgeon must always refer to the package insert, product label and/or instructions for use before using a Bacterin product. Please contact your Bacterin sales representative or distributor if you have questions about the use or availability of Bacterin's products. Bacterin owns, uses or has applied for the following trademarks or service marks: OsteoSponge, OsteoWrap, OsteoSelect, OsteoLock, BacFast, hMatrix, Elutia. All other trademarks are trademarks of their respective owners or holders.*

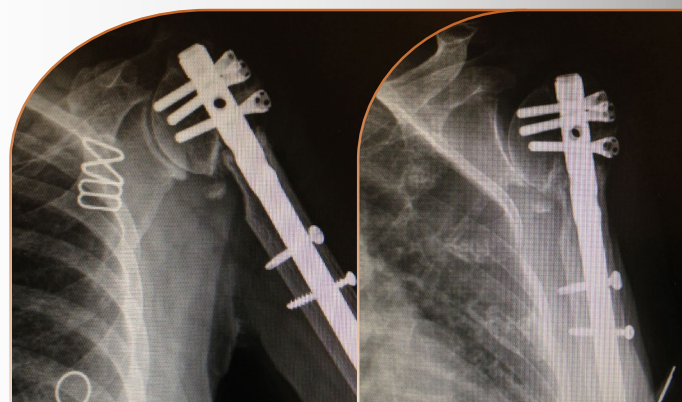
5296A 02/2013 ©2013 Bacterin International, Inc. All Rights Reserved.  
OsteoSponge and OsteoSelect are registered trademarks of Bacterin International, Inc.



**Figure 1** Pre-operative x-rays demonstrate initial fracture and developed non-union.



**Figure 2** Surgical x-ray of shoulder shows intra-operative fluoroscopy.



**Figure 3** Post-operative x-ray at 2 months (left) and 6 months (right) shows successful bone union and bridging at the fracture site.