

Current Concepts in Rotator Cuff Disease and Treatment

Editorial Comment

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Problems with the rotator cuff are pervasive and treatment continues to evolve. It is well known that rotator cuff tear prevalence increases with advancing age. The rotator cuff is central to any discussion focusing on the shoulder and the glenohumeral joint, and therefore it is no surprise that we have devoted a full symposium to this topic. The rotator cuff is a unique musculoskeletal structure. It is the only periarticular structure whose integrity can be repaired in so many different ways (both arthroscopic and open) and whose deficiency can result in such disability and dysfunction that arthroplasty may be subsequently required.

For centuries now the shoulder community has been working on gaining a deeper understanding of rotator cuff anatomy, biomechanics, modes of failure and repair techniques. J.G. Smith first described rotator cuff ruptures in 1834 (see this month's Classic) while Codman is given credit for the first rotator cuff repair in 1909. Since then we have seen treatment evolve to include the incorporation of acromioplasty and the utilization of various surgical approaches. With the advent of the arthroscope the management of rotator cuff tears has evolved from open to mini open to arthroscopic. With that evolution there has been an explosion in arthroscopic techniques available to allow for optimal repair and fixation strength. The ideal rotator cuff repair technique remains up for debate. However, advances in all-arthroscopic methods appear to match peer-reviewed historical cohorts of open repair outcomes. In addition, over the past 20 years we have seen the introduction of the reverse shoulder arthroplasty to deal with end stage rotator cuff disease (i.e. cuff tear arthropathy).

Our goal with this symposium was to provide our readership an understanding of ongoing basic science research and clinical studies as well as an overview of some of the current treatment recommendations and ongoing controversies. We need not travel far from our own clinical communities to appreciate the variety of treatment approaches and study topics being explored to combat rotator cuff disease. The evolution of treatment has been based on the collaborative work of scientists and clinicians in the laboratory, office, and operating room. Researchers in the shoulder community continue to ask questions and seek answers about such varied topics as the natural history of rotator cuff disease, genetic predisposition, approaches to disease prevention, intrinsic and extrinsic causes, mechanisms of injury, modes of treatment, efficacy of approaches, repair techniques, use of biologics and role of arthroplasty. You will find in this



Fig. 1 Joseph A. Abboud, MD is shown.

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symposium an ongoing emphasis on the use of biologics in clinical and basic science applications. It is believed by many that the biology is the weakest link in the treatment of rotator cuff tears as opposed to the fixation methods (i.e. double row versus single row, suture material, anchor material, repair configurations etc.) which many feel have been optimized over the past several years. A thorough understanding of the process of tendon degeneration and healing is needed to allow us to improve the healing process at the bone tendon interface. By utilizing gene therapy

and tissue engineering, growth factors with clear roles in tendon healing can be chosen to improve upon our rate of tendon to bone healing. While in theory this sounds wonderful, the application of such bench top technology in the clinical setting remains challenging.

I would like to thank Drs. Richard Brand and Paul Lotke for providing me with the opportunity to be a guest editor for *Clinical Orthopaedics and Related Research* on such an important topic. Their efforts have allowed this symposium to evolve from an idea to an actuality.