

## Plasma Rich Plasma in Arthroscopic Rotator Cuff Repair: A Randomized, Double-Blind, Controlled Clinical Trial With Histologic Analysis

Francisco S. Arcuri, MD, ARGENTINA  
**Fernando Enrique Barclay, MD, ARGENTINA**  
Andrea L Paparatto, MD, ARGENTINA

Clinica Bessone  
San Miguel, Buenos Aires , ARGENTINA

### Summary:

The aim was to determine whether addition of plasma rich plasma (PRGF) improves the histologic appearance after arthroscopic repair of full-thickness rotator cuff tears. 20 patients were randomized in two groups, a biopsy intra op was obtained and one after three months and compared. the PRGF group showed a significant increase in vascular proliferation and a decrease in chondroid metaplasia.

### Abstract:

**Purpose:** The aim of this study was to determine whether addition of plasma rich plasma in growth factors (PRGF) improves functional outcomes and histologic appearance after arthroscopic repair of full-thickness rotator cuff tears. **Methods:** The study design was a randomized, double-blind, controlled clinical trial. twenty seven patients with rotator cuff tears were included. Subsequently, seven patients in whom a suboptimal biopsy was performed were excluded. Before arthroscopic repair, patients were randomly assigned to receive PRGF at the end of arthroscopy (injected first in the repaired area and then spread over the tendon suture) or only conventional surgery. A full thickness tendon biopsy was performed 2 cm posterior to the biceps tendon at the time of the surgery and repeated at the three months post op follow up guided with ultrasound (US), using the biceps tendon as parameter, taking a biopsy 2 cm posterior to it. A blinded soft tissue pathologist evaluated the synovial thickening, edema, vascular proliferation, presence of polymorphs and of chondroid metaplasia. Functional outcomes using Constant score (CS), Visual analog pain Scale (VAS) and WOSI were evaluated at the preoperative, and at the 3, 6 12 and 24 months post op.

**Results:** No patients suffered postoperative or post US guided biopsy complications. 17 of the twenty intraoperative biopsies presented a thickened sinoviotelium, but it was present in only 3 post op biopsies of the PRGF group and in all of the control group ( $p < 0.005$ ). The PRGF group presented a significant increase in vascular proliferation and a marked absence of chondroid metaplasia. The other parameters, edema and presence of polymorphs were not significant. No differences were observed in functional scores, no tendon ruptures were observed with US.

**Conclusions:** The present clinical trial does support the use of plasma rich in growth factors in the arthroscopic repair of rotator cuff tears because improves vascular proliferation and decreases presence of chondroid metaplasia on the repaired tendon.

**Level of Evidence:** Level I, randomized, double-blind, controlled clinical trial.