

## ARTHROSCOPIC PCL AND ASSOCIATED LIGAMENT RECONSTRUCTION IN SPORTS INJURIES

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**Purpose:** The purpose of this study is to analyze our surgical indication and results in the PCL and associated ligament reconstructions in sports injuries.

**Material and Method:** Between November '89 to October '00 we performed a retrospective study in 46 patients operated with PCL reconstruction, excluding: bone avulsions, vascular and neurological lesions. The most frequent sport was rugby 18 cases (39%) followed by soccer 13 cases (28%). Only 4 cases (9%) suffered crash car accident (high energy). 37 patients had multiple ligament lesions (80%). 42 cases were male (91.3%), Average age 25 years (range 18 – 37). All patients were evaluated with standard x-ray, we measure the posterior translation in the lateral stress view performed at 90° of flexion, grade I: 5mm, grade II: 10mm, grade III: more than 10mm. The M.R.I. was useful to confirm the PCL injure and to evaluate associated lesions.

**Surgical indications:**

Active young patients with acute grade III lesions or grade II lesions with associated posterolateral injuries. Symptomatic chronic grade II and III lesions

**Cases:**

Isolated PCL.....	9 (19.5%)
PCL + Posterolateral.....	19 (41.3%)
PCL + ACL.....	12 (26.1%)
PCL + ACL + Posterolateral.....	4 (8.7%)
PCL + ACL + Posteromedial.....	1 (2.2%)
PCL + ACL + Posterolateral + medial.....	1 (2.2%)

**Surgical Technique:** We performed an arthroscopic transtibial reconstruction of the anterolateral bundle with a strong 11 mm. diameter graft. Although we had used the patellar tendon in our first 11 cases, we prefer the cuadripital tendon as a first choice for the PCL reconstruction, because of some intrinsic characteristics (length, thickness, one bone side, etc.). 22 reconstructions were performed with cuadricipital auto graft. In multiple ligament reconstructions, Achilles tendon allo graft is very useful if it's available.

**Results:** We evaluated 46 cases, mean follow up 4 years and 10 months (range 18 month to 12 years and 4 months) using subjective and objective methods.

According to Lisholm score we obtained 42 cases (91.3%) of excellent and good results, 3 cases (6.5%) fair, and only 1 case (2.1%) poor. With the stress x-ray evaluation comparing to the contra lateral side, we found:

Grade 0: posterior translation negative: 6 cases (13%)

Grade 1 ( $\leq 5$  mm.): 30 cases (65.2%)

Grade 2 (6 – 10 mm.): 7 cases (15.2%)

Grade 3 ( $> 10$  mm.): 3 cases (6.5%)

Conclusions: The isolated PCL reconstruction is not very frequent (19%) because of its good healing potential and its good tolerance. Using the arthroscopic transtibial one single bundle technique is difficult to obtain similar objective results comparing with the non injured contralateral side (6 cases -13%- with negative posterior translation). Most of the cases had grade I posterior translation (30 cases -65.2%-). 80% of the cases (37 patients) required multiple ligament reconstruction. The simultaneous repair was possible in our hands with this technique. On the other hand, the Lisholm score showed in 42 cases (91.3%) excellent and good results, with a high percentage of return to sport. We know it is very difficult to restore all the biomechanics of PCL, but with an adequate diagnosis and a correct reconstruction of the PCL and the associated lesions, we obtained satisfactory results.

**SHOULDER ARTHROSCOPIC STABILIZATION IN YOUNG ATHLETES.  
TRANSGLENOID SUTURE VS. SUTURE ANCHOR SYSTEM FIXATION.  
ACUTE VS. CHRONIC INSTABILITY.**

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**Purpose:** The purpose of this study is to compare two different arthroscopic techniques (Transglenoid suture vs. Suture anchor system fixation) for shoulder acute and chronic instability in young athletes evaluating the mechanics of injuries, surgical findings, types of lesions and results.

**Material and Methods:** We perform a prospective study from May '95 to December '97. The inclusion criteria were: Athletes between 15 to 30 years with shoulder instability. 24 cases were operated after the first episode (acute dislocation), 12 of them with transglenoid suture and the other 12 with suture anchor techniques. The same criteria was used for the chronic group (36 cases), 18 using transglenoid suture and 18 with suture anchor techniques. 70% of this population were rugby players. We excluded from this study patients with: previous surgery, multidirectional instability, congenital hyperelasticity, bone defects (Hill-Sachs  $> 1/4$  and glenoid rim fx  $\geq 25\%$  (inverted pear), impingement and rotator cuff tear, hypotrophic varieties of capsulolabral complex, and humeral GHL detachment. 95% of this patients were male; mean age was 21 years.

**Results:** The most frequent initial mechanism was fall in flexion, abduction and external rotation (58 %) followed by tackle in extension, abduction and ext. rotation (33%). In acute instability: capsular tear with complete labrum detachment (type III lesion) was founded in 17 cases (71 %), 4 cases (17%) with bone glenoid rim avulsion. we found capsular tear with partial labrum detachment (type II lesion) in 6 cases (25%) and in only 1 case (4%), capsular tear without labrum detachment (type I lesion), all this cases had associated a 75 % of osteochondral Hill-Sachs lesions. In chronic cases we saw an 86% (30 cases) of labrum and GHL detachment (complete or partial) 15 cases of them as A.L.P.S.A. lesion. All patients had capsular involvement, 5.5% (2 cases) were capsular redundancies (pockets). We found in 20% (7 cases) bone glenoid rim defects  $< 25\%$ . A 95 % of bone hill-Sachs was founded in chronic cases.

### **ROWE SCALE**

<b>Acute instability</b>			<b>Chronic instability</b>		
<b>RESULTS</b>	<b>TG</b>	<b>SA</b>	<b>RESULTS</b>	<b>TG</b>	<b>SA</b>
Excellent	10	11	Excellent	14	16
Good	0	0	Good	0	1
Fair	1	0	Fair	1	0
Poor	1	1	Poor	3	1

Conclusion: In acute anterior shoulder dislocation in young athletes we recommend an arthroscopic evaluation and repair considering the high incidence of good results seen with both techniques. We believe that the best moment to repair the shoulder instability is after the first episode because the advantage of great healing potential, smaller capsular plastic deformity and smaller index of bony alterations which appeared in the acute injuries seemed to explain the differences in results between them. In chronic cases, the suture anchor system technique show a clear tendency to better results than transglenoid suture. Using the suture anchor technique in young athletes, with a correct patient selection, identifying the type and characteristics of the lesion, with an accurate reconstruction surgical technique, we can obtain over 90% of excellent results.

## **5-YEAR MULTICENTER OUTCOME OF AUTOLOGOUS CHONDROCYTE IMPLANTATION OF THE DISTAL FEMUR**

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**INTRODUCTION:** Autologous chondrocyte implantation (ACI) is an articular cartilage restoration procedure that was introduced in the past decade. This prospective, multicenter experience with autologous cultured chondrocyte implantation (ACI) for the repair of focal chondral lesions now extends to more than 5-years. This paper reviews the results for the cohort of the first 100 consecutively treated patients in the United States with femoral defects to reach 5-years of follow-up.

**METHODS:** 100 consecutive patients who were treated in 1995-1996 for at least one full-thickness defect on the condyles or trochlea were prospectively followed and evaluated preoperatively and at annual intervals using the modified Cincinnati Knee Rating System. Patients with treated patella or tibia lesions were excluded. Data was collected at cartilage harvest, implantation and at 5-year follow-up. Information on adverse events and treatment failures came from standardized data collection forms or spontaneous report by patients or treating physicians. The primary endpoint of this study was the change in the overall condition score from baseline to 5-year follow-up. Treatment failures were assigned a score of "2" (all symptoms present) and included in the analysis.

**RESULTS:** 89 of 100 patients had complete 5-year follow-up. 8 patients had less than 5 years follow up. Patients were, on average, 37 years of age and included 65 males. At baseline, patients reported significant functional impairment and symptoms. 58% of all lesions were acute. 78% of patients had at least one surgery prior to cartilage harvest, including 36% who had a marrow stimulation procedure. 85 patients had single lesions, mean size: 4.2 cm<sup>2</sup>. 15 patients had multiple lesions, mean total surface area: 9.0 cm<sup>2</sup>. For the 89 patients, the mean overall condition scores improved from 3.2 to 6.1 (p<0.0001). Seventy-nine percent of patients for whom five-year follow-up data is available reported an improvement from baseline. Of these patients, excluding those who met the a priori treatment failure definition or otherwise failed to show improvement from baseline, an overall improvement of 4 points from a baseline score of 2.9 to a follow-up score of 6.9 points was reported (p<0.0001). For 40 patients for whom both clinician and patient evaluations were available, clinician and patient reported scores correlated closely (p<0.0001). Overall, patient reported

symptom category scores improved at five years follow-up compared to baseline: pain scores improved from 3.1 to 5.5 ( $p < 0.0001$ ) and swelling scores changed from 4.1 to 6.1 ( $p < 0.0001$ ). 13 patients failed treatment and accounted for nearly half of all subsequent operative procedures. Reasons for treatment failures were readily identifiable for 7 cases.

**CONCLUSION:** These multicenter results are particularly promising given the severe functional impairment and poor clinical status of patients at baseline. Also significant, 38% were on worker's compensation and 35% of evaluated patients represented the surgeon's first experience with ACI. Consistent with assessments at earlier time points, patients treated with ACI reported statistically significant and clinically relevant long-term improvements in function and symptoms. ACI treatment for full thickness chondral lesions of the distal femur may return patients, including those who failed prior procedures and/or have massive lesions, to a high level of physical function and sports.