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Clinical effect of polydeoxyribonucleotide injection for treatment of supraspinatus tendinopathy

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Introduction

Supraspinatus tendinopathy is one of the most common cause of shoulder pain. Generally, painful supraspinatus tendinopathy is managed by conservative treatments. In many cases, corticosteroid injections could have showed successful treatment effect for short-term, but supraspinatus tendinopathy often generates recurred pain and aggravation of pathology. Repeated steroid injections could cause critical adverse effects. Polydeoxyribonucleotide (PDRN) is known to have regenerative effect and anti-inflammatory effect for the soft tissue injury. PDRN injection has revealed treatment effect in some musculoskeletal disorders, such as plantar fasciitis and lateral epicondylitis. The purpose of this study was to investigate the clinical effect of PDRN on the treatment of supraspinatus tendinopathy.

Method

This is a prospective double blind case-control study. We enrolled 48 patients with painful supraspinatus tendinopathy, which revealed hetero- or hypo-echogenicity, or incomplete partial/full thickness tear of the tendon in screening ultrasound evaluation. Patients with complete tear of supraspinatus tendon, or pathology in other tendons such as bicipital tendiopathy and infraspinatus tendinopathy were excluded. Patients were evaluated visual analogue scale (VAS), shoulder ROM and ultrasound. The ultrasound shoulder pathology rating scale (USPRS) was used for grading the ultrasound findings. All the patients were allocated by randomization into case group and control group (Figure 1). Patients of case group were received PDRN injection and control group were 0.5% lidocaine. The injections were performed around the supraspinatus tendon, 3 times at interval of one week. Follow-up evaluations were performed at 1 week, 2week, 6 week, and 12 weeks after last injection. Repeated-measure ANOVA was performed for the comparison between the group.

Results

There were no significant differences between the groups in age, sex, and side of supraspinatus tendinopathy (Table 1). The comparisons of baseline measurement

revealed no significant intergroup differences (Table 1). All the patients who received the PDRN injections showed significant improvement of pain. In comparison with control group, significant differences were observed (Figure 2-A). In follow-ups of USPRS score, the scores were significantly improved after PDRN injection. However, 0.5% lidocaine injection did not showed significant interval changes. There were significant intergroup differences, as well (Figure 2-B). In addition, case group patients showed significantly more improvement of shoulder abduction and internal rotation than control group (Figure 2-D, E).

Conclusion

The PDRN injection showed significant improvement of shoulder pain and ROM. In addition, the ultrasound findings were significantly improved. These findings suggest that the PDRN could be a good optional treatment for the patients with painful supraspinatus tendinopathy.

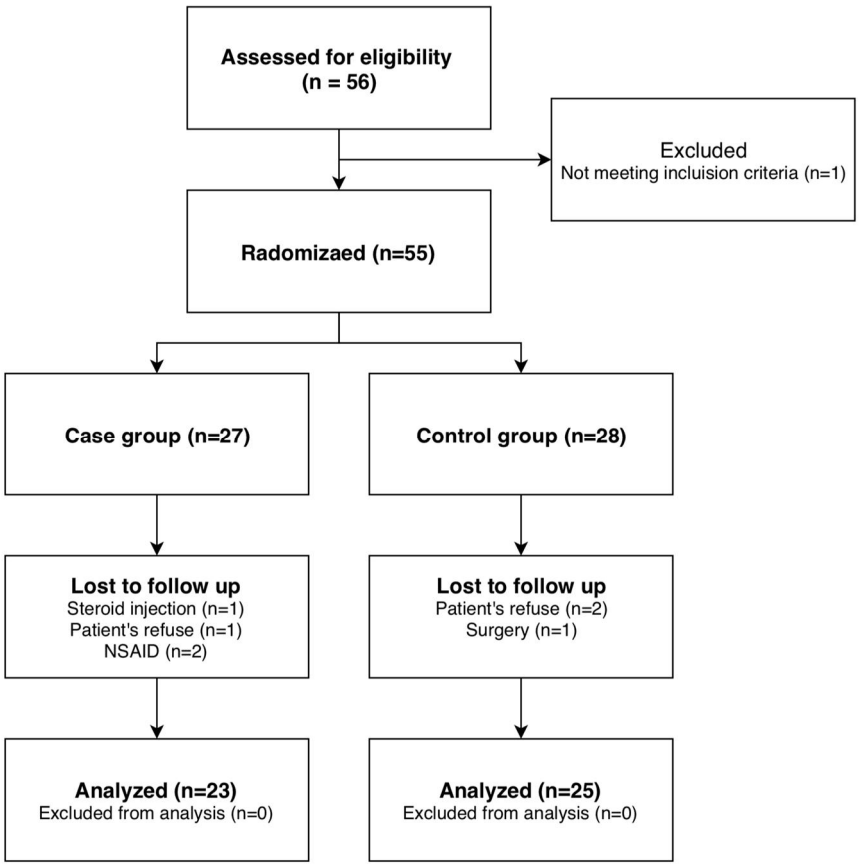

Figure 1. Enrollment and allocation of patients.

Table 1. Comparisons of demographic characteristics and baseline assessment between the groups

		Control Group	Case Group	*p-value*
	Total numbers	25	23	
	Age	54.16±11.97	51.91±9.78	*.482*
	Sex (male)	16	11	*.259*
	Side (right)	17	16	*.907*
	VAS	59.46±12.50	58.70±14.91	*.838*
ROM	**- Flexion**	158.52±23.32	159.07±19.86	*.925*
	- Abduction	138.04±33.73	141.30±31.34	*.712*
	- Internal rotation	36.79±18.52	42.63±21.51	*.286*
	- External rotation	79.64±18.35	84.48±13.36	*.270*
	USPRS	4.50±1.77	4.33±1.64	*.719*

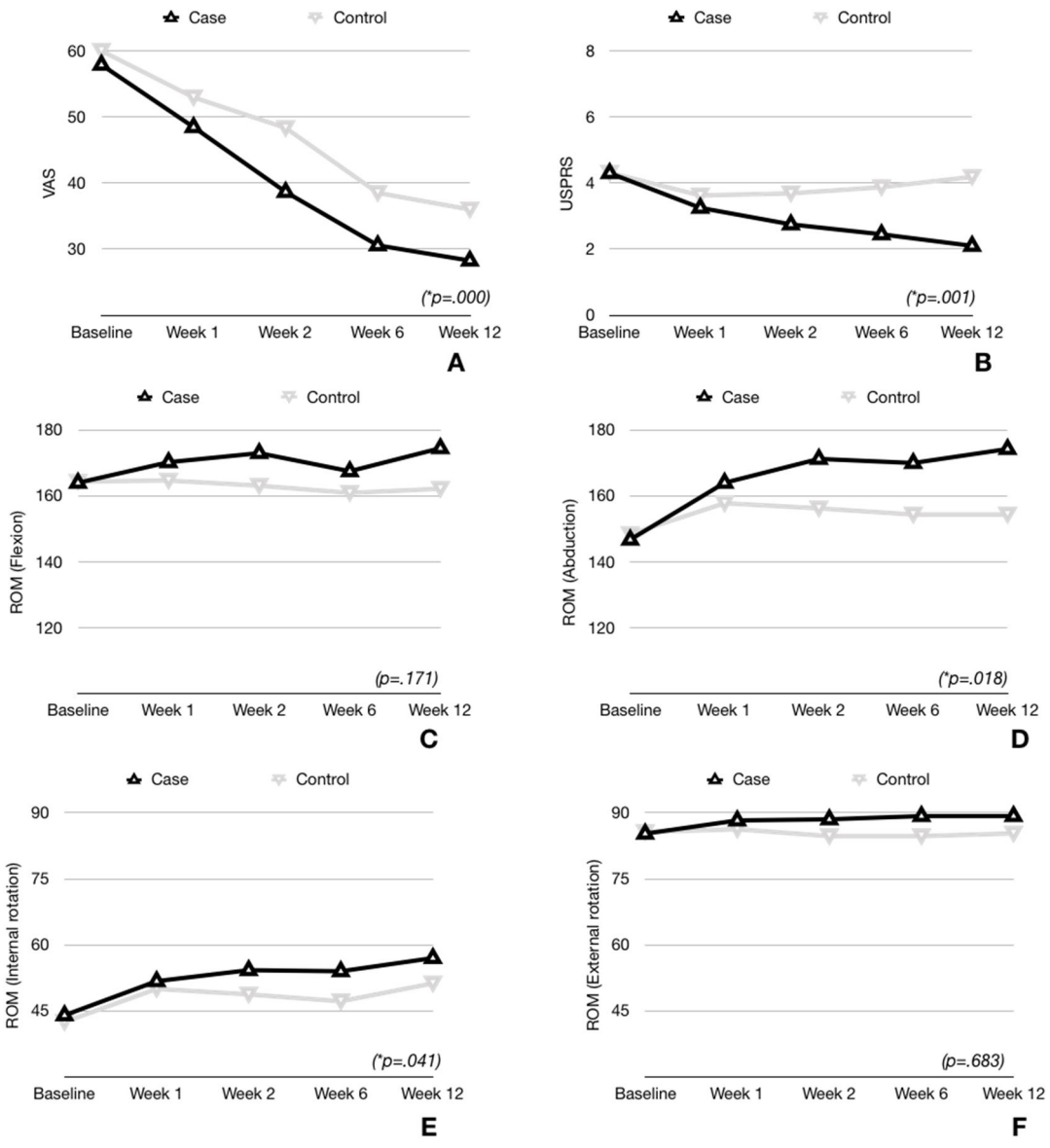

Figure 2. Results of follow-up evaluations and comparisons between the groups.