Nonoperative Management of Femoroacetabular Impingement: Clinical Outcomes at 5 Years–A Prospective Study

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Purpose: Our purpose is to present 5-year outcomes data utilizing a nonoperative protocol on a consecutive series of patients with FAI syndrome.

Methods: Between 2013 and 2016, patients were prospectively recruited in a nonoperative FAI study. The protocol consisted of an initial trial of rest, physical therapy, and activity modification. Patients who remained symptomatic were offered an intraarticular steroid injection. Patients with recurrent symptoms were offered arthroscopic treatment. Patient-reported outcomes, including the modified Harris Hip Score (mHHS) and Nonarthritic Hip Score (NAHS), were collected 1-, 2-, and 5-years after enrollment. We present the 5-year data. Statistical analysis was performed to determine outcomes based on FAI type and treatment.

Table 1. All patient reported outcomes collected during the course of the study

				1 year follow up			2 year follow up			5 year follow up		
		Initial Visit (IV)		mean 13.9±2.4 months		1 year vs IV	mean 27.5±4.7 months		2 year vs IV	mean 62.1±7.4 months		5 year vs IV
		N	Mean—Std. Dev.	N	Mean—Std. Dev.	p-value	N	Mean—Std. Dev.	p-value	N	Mean—Std. Dev.	p-value
Modified Harris Hip Score	Activity Mod.	49	69.6±14.2	30	88.5±13.4	<0.001	42	90.5±11	<0.001	49	90.6±10.2	<0.001
	Injection	7	69.9±8.3	3	93.9±10.8	0.109	6	93.3±4.4	0.042	7	86.6±15.3	0.091
	Scope	11	69.3±11	8	74.4±16.5	0.752	11	88.5±6.8	0.008	11	87.1±10.1	0.008
	p-value		0.999		0.066			0.648			0.43	
Non-Arthritic Hip Score	Activity Mod.	46	76.6±15.8	30	85.8±17.3	0.023	42	88.3±13.3	<0.001	49	88±12.8	<0.001
	Injection	7	72.5±13.4	3	91.7±6.9	0.109	6	90.2±5.2	0.046	7	86.6±13	0.128
	Scope	11	77.3±11.4	8	77.3±19.6	0.888	11	88.5±6.9	0.012	11	88.8±8.6	0.022
	p-value		0.628		0.472			0.511			0.771	

Table 2. All patient reported outcomes collected during the course of the study by impingement type

				1 year follow up			2 year follow up			5 year follow up		
		Initial Visit (IV)		mean 13.9±2.4 months		1 year vs IV	mean 27.5±4.7 months		2 year vs IV	mean 62.1±7.4 months		5 year vs IV
		N	Mean—Std. Dev.	N	Mean—Std. Dev.	p-value	N	Mean—Std. Dev.	p-value	N	Mean—Std. Dev.	p-value
Modified Harris Hip Score	Cam	32	66.9±14.1	18	89.4±14.1	0.002	27	90.1±8.7	<0.001	32	86.4±11.3	<0.001
	Pincer	9	74.6±5.5	7	83.0±11.6	0.225	9	84.7±13.4	0.092	9	94.0±10.8	0.011
	Cam & Pincer	8	67.8±15.8	6	77.9±16.2	0.465	7	90.4±8.9	0.028	8	92.4±6.8	0.017
	No radiographic sign of FAI	18	72.6±12.3	10	87.3±16.9	0.05	16	94.2±9.0	0.001	18	92.0±9.9	0.001
	p-value		0.26		0.205	□		0.171			0.066	
Non-Arthritic Hip Score	Cam	31	73.2±15.5	18	87.3±17.6	0.017	27	88.4±10.5	<0.001	32	84.7±13.2	0.001
	Pincer	9	77.0±8.7	7	86.3±14.2	0.237	9	85.1±14.4	0.135	9	91.1±11.9	0.012
	Cam & Pincer	7	81.6±14.1	6	79.2±15.2	0.752	7	85.2±12.7	0.786	8	90.8±8.9	0.173
	No radiographic sign of FAI	17	79.2±15.9	10	81.6±21.1	0.721	16	92.2±11.4	0.005	18	91.0±10.6	0.008
	p-value		0.454		0.316			0.226			0.114	

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Results: One hundred thirty-three hips in 100 patients were enrolled. Sixty-seven hips in 50 patients were available for 5-year follow-up. At enrollment, the mean mHHS and NAHS were 69.6±13.1 and 76.3±14.7, respectively. In total, 73% of the cohort was managed nonoperatively. Of the 11 patients requiring surgery, six (55%) converted to surgery within 1 year of enrollment, four (36%) converted to surgery between 1 and 2 years, and one patient converted to surgery between 2 and 5 years. At final follow-up, the mean mHHS and NAHS were 89.6±10.7 and 88.0±12.1, respectively. At 1-year follow-up, only the activity modification group made a significant increase in mHHS and NAHS ($p<0.03$). By 2-year follow-up, all three treatment groups had made statistically significant improvements in mHHS and NAHS ($p<0.05$). By 5-year follow-up, the activity modification group and the scope group had maintained their statistically significant improvement in mHHS and NAHS ($p<0.03$). There was no significant difference in mHHS or NAHS between treatment groups at 5-year follow-up ($p>0.4$) (Table 1) and no difference in proportion of hips meeting the MCID for mHHS based on treatment course ($p=0.961$). There was no difference in mHHS or NAHS between FAI types at any time point ($p>0.06$) (Table 2) or in the proportion of hips that met MCID among FAI types ($p=0.511$). Seventy-two percent of patients returned to the same or similar sport/activity level, and there was no difference in the proportion of patients that returned to sports/activities among treatment type ($p=0.095$) or FAI type ($p=0.273$).

Conclusions: Nonoperative management of FAI syndrome is effective in a majority of adolescent patients with robust improvements in patient-reported outcomes persisting at 5-year follow-up.

Significance: Nonoperative management can be successful for a large portion of adolescent patients with symptomatic FAI syndrome with durable outcomes at 5-year follow-up.