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Atypical Posterior Pain Presentation of Femoroacetabular Impingement: An Age, Gender and BMI Matched Cohort Analysis

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Introduction and Purpose

- Patients with femoroacetabular impingement (FAI) most commonly present with anterior groin pain
- A minority of patients present primarily with posterior pain, but otherwise have clinical and radiographic evidence of FAI.
- Purpose: The objective of this study was to compare outcomes of hip arthroscopy for FAI in patients with atypical posterior pain to a matched control group with the typical anterior pain presentation

Patient Selection

- Consecutive patients undergoing primary hip arthroscopy for FAI that had failed conservative management were identified using our institutional hip registry between 1/2012 and 1/2014.

- Typical pain group
  - Anterior groin pain or c-sign.
- Atypical pain group
  - Posterior hip or buttock pain.
- Atypical patients matched 1:2 to typical patients based on gender, age, and BMI
- Patients with thigh, knee, lateral, and low back pain were excluded.

Data Collection

- Patient demographics: sex, age, BMI, range of motion, and sports participation.
- Radiographic measurements: lateral center edge angle (LCEA), alpha angle, and Tonnis grade.
- Intraoperative data: procedures performed and findings
- Preoperative and minimum 2-year postoperative hip-specific functional outcome scores
  - Modified Harris Hip Score (MHHS).
  - Hip Outcome Score Sport-Specific and Activities of Daily Living subscales (HOS-SS and HOS-ADL).
- Complications and reoperations

Data Analysis

- Student's t-tests used to compare typical to atypical groups and pre- to post-operative values.
- Fischer's exact test, one-way ANOVA, and bivariate regression were used as needed to compare data.
- Alpha value of 0.05 statistically significant.

Typical and Atypical Patients

- 503 hip arthroscopies for FAI during the study period
  - 31 with atypial posterior pain (6.2%).
  - 373 with typical pain (74.2%).
  - 99 excluded with other pain locations (19.6%).

- 28/31 (90.3%) atypical pain patients available at minimum 2-year follow-up
  - Matched to 56 typical patients.
  - No preoperative differences between typical and atypical groups ($p>0.05$).

Patient Reported Outcomes

- At 2.6+/-0.6 years follow-up, there were no differences in outcomes between atypical and typical groups
  - Both groups improved significantly for all outcomes ($p<0.0001$) compared to preoperative values.

Preop Score	Atypical	Typical	P-value
HOS-ADL	68.5+/-17.0	69.2+/-17.1	0.88
HOS-SS	42.0+/-25.5	44.4+/-24.9	0.71
mHHS	60.1+/-12.4	60.0+/-12.3	0.96

Postop Score	Atypical	Typical	P-value
HOS-ADL	88.6+/-11.0	86.8+/-14.7	0.57
HOS-SS	71.0+/-26.2	71.3+/-27.3	0.97
mHHS	78.8+/-12.9	76.9+/-13.6	0.57

Revision and THA Conversion

- Revision and THA conversion

	Atypical	Typical	P-value
Revision arthroscopy	1 (3.6%)	0 (0%)	0.33
THA conversion	0 (0%)	1 (1.8%)	0.48

- No significant difference in revision/THA conversion/

Patients Achieving PASS and MCID

	Atypical	Typical	P-value
PASS HOS-ADL	64%	66%	0.99
PASS HOS-SS	52%	52%	0.99
PASS mHHS	64%	62%	0.99
MCID HOS-ADL	74%	67%	0.58
MCID HOS-SS	72%	72%	0.99
MCID mHHS	79%	77%	0.86

- No difference between atypical and typical patients.

Discussion and Limitations

- Despite analyzing our large registry, atypical posterior pain presentation of FAI was uncommon.
  - Only 6.2% of patients with this as primary complaint.
- Small sample size introduces possibility of type 2 error
  - Regardless, we report a relatively large series of patients with atypical posterior pain and that results are comparable to patients with typical pain complaints.
- Patients with more unusual locations of pain including knee and lateral were excluded.
- Pain is subjective and experienced differently by different patients, making comparisons challenging.

Conclusions

- Atypical posterior hip pain is an uncommon presentation of FAI.
- Patients with atypical pain demonstrate similar significant improvements in outcome scores compared to controls with typical anterior groin pain or c-sign.
- Patients with atypical pain also had similar rates of clinically significant differences based on MCID and PASS rates.