

INTRODUCTION

Femoroacetabular impingement (FAI) is a condition that may affect 7-23% of the population (1,2). FAI may be a unilateral condition or it may affect both hips (3). The rate of bilateral symptomatic FAI has been reported as 21% in a consecutive cohort of 641 patients who underwent surgical treatment for FAI (3). However, the radiological diagnosis of FAI can occasionally be bilateral with only one hip being symptomatic (4)

The objective of this study was to determine the incidence of radiographic FAI in the contralateral hip of patients presenting with unilateral symptomatic hip and determine the fate of the asymptomatic hip with FAI.

MATERIALS & METHODS

Between 2004 to 2016, 652 patients underwent surgical management of hip pain arising from underlying femoroacetabular impingement (FAI). Mini-open femoroacetabular osteoplasty (FAO) was performed for all patients.

- Patients with abnormalities on the femoral head/neck side were thought to have **cam type FAI** (49.1%), while those with abnormalities on the acetabular side were believed to suffer from **pincer type FAI** (11.2%). Division of the FAI to cam or pincer type FAI was not possible in 39.7% of patients who were exhibiting signs of both pincer and cam FAI.
- The diagnosis of FAI was made based on clinical symptoms, radiographic and/or cross sectional imaging findings.

FIGURE 1 & TABLE 1

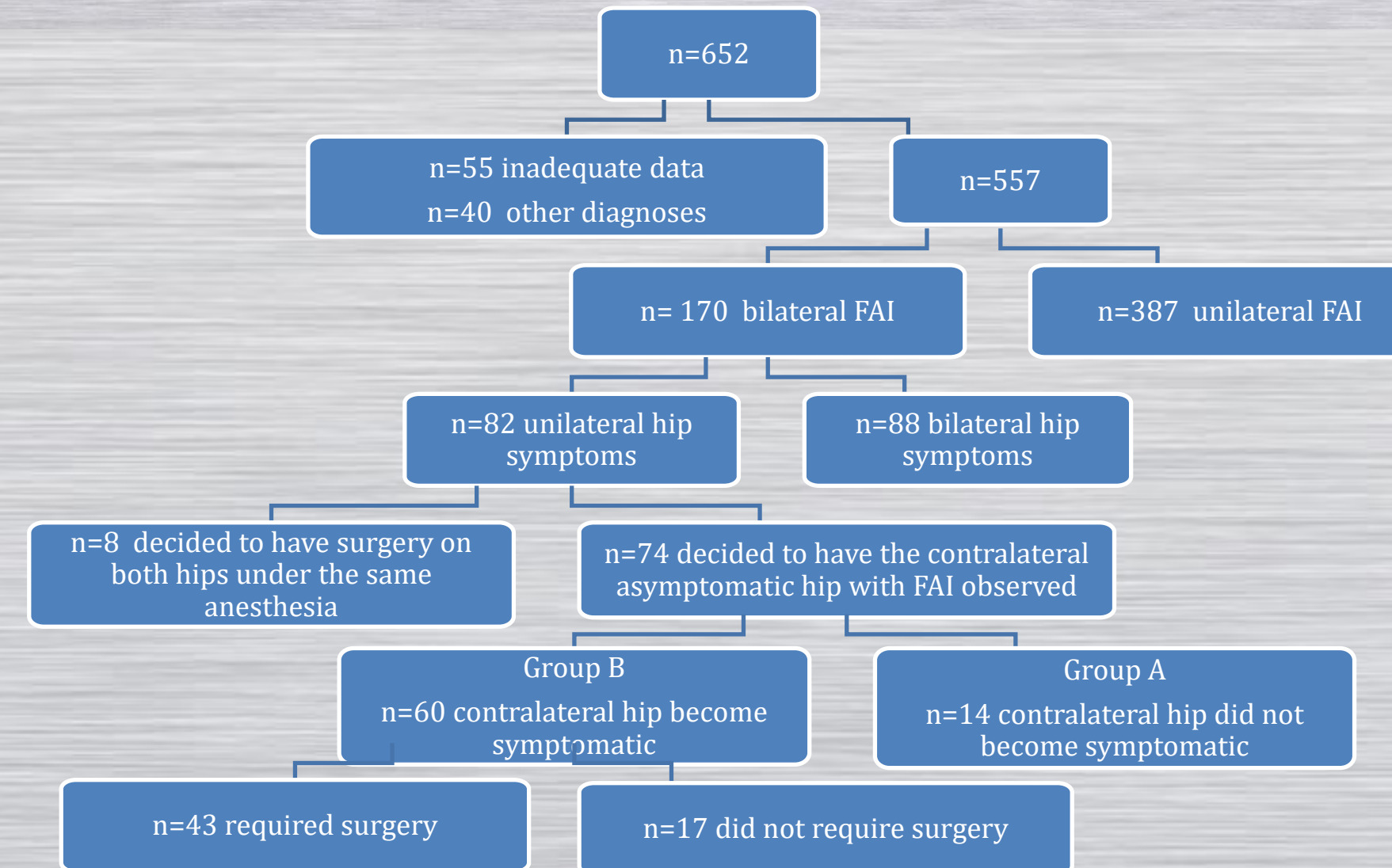


Figure 1. Flow diagram depicting the study sample of contralateral hip inclusion with and without surgery.

Table 1: Logistic regression model of radiologic characteristics

	B	SE	Wald	Sig	OR	95% CI for OR	
						Lower	Upper
Neck shaft angle ²	-0.243	0.093	6.811	0.009	0.784	0.653	0.941
Alpha angle ²	0.069	0.031	5.032	0.025	1.071	1.009	1.137
CE angle ²	0.123	0.062	3.878	0.049	1.130	1.001	1.277
Alpha angle ¹	-0.030	0.029	1.072	0.301	0.971	0.917	1.027
Age	-0.071	0.035	3.994	0.046	0.932	0.869	0.999
Constant	30.338	12.406	5.980	0.014	1.98		

¹First hip; ²Contralateral hip; CE: center edge; B: coefficients; SE: standard error; OR: odds ratio; CI: confidence interval

RESULTS

- Of 74 patients with bilateral FAI and an asymptomatic contralateral hip, 60 patients (81.1%) became symptomatic at an average 2.1 years (range: 0.3 to 10.7 years) follow-up.
 - Of these 60 patients, 43 patients (71.7%) needed surgical intervention within an average of **2.2 years** (range: 0.3 to 4.8 years) after the initial onset of symptoms.
 - The remaining 14 (18.9%) patients did not become symptomatic at an average follow up of 3.4 years (range: 1 to 6.1 years).
- Binary logistic regression model identified **reduced neck shaft angle** (p=0.009), (p=0.049), **increased alpha angle** (p=0.025), and **younger age** (p=0.046) **increased lateral center edge (CE) angle** as predictors for developing symptoms in the contralateral hip (Table 1).
- None of the other examined variables such as **gender, BMI, history of trauma, psychiatric condition, employment, Tonnis grade, Tonnis angle, cross over sign, type of impingement, and joint congruency** were found as independent predictors for progression of symptoms.

DISCUSSION

Based on this study, it appears that the incidence of bilateral FAI is **common** (one-third of patients). The majority of patients with unilateral symptomatic FAI and radiographic evidence of bilateral FAI become symptomatic relatively quickly and require surgical intervention in the **contralateral** hip.

This information will allow surgeons to have an informative discussion with patients with bilateral FAI when one hip is asymptomatic.

REFERENCES

1. Fukushima K, Uchiyama K, Takahira N, Moriya M, Yamamoto T, Itoman M, et al. Prevalence of radiographic findings of femoroacetabular impingement in the Japanese population. J Orthop Surg. 2014 Apr 11;9:25.
2. Hack K, Primio GD, Rakhra K, Beaulé PE. Prevalence of Cam-type Femoroacetabular Impingement Morphology in Asymptomatic Volunteers. J Bone Jt Surg. 2010 Oct 20;92(14):2436-44.
3. Klingenstein GG, Zbeda RM, Bedi A, Magennis E, Kelly BT. Prevalence and Preoperative Demographic and Radiographic Predictors of Bilateral Femoroacetabular Impingement. Am J Sports Med. 2013 Apr 1;41(4):762-8.
4. Allen D, Beaulé PE, Ramadan O, Doucette S. Prevalence of associated deformities and hip pain in patients with cam-type femoroacetabular impingement. J Bone Joint Surg Br. 2009 May;91(5):589-94.