

Prevalence of and risk factors for subspinal impingement in symptomatic patients

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Presenter Disclosure

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Introduction

- Subspinal impingement is well known as a representative extra-articular type of femoroacetabular impingement (FAI).



Hetsroni et al. Clin Orthop. 2013

Larson et al. Arthroscopy 2007

The purpose of this study

- Determine the **prevalences** of SSI by presence of symptom
- Comparison the **morphologic characteristics** by presence of SSI in the symptomatic patients
- Determine **risk factors** (age, gender) for SSI

Materials and Methods

- Study period : From January 2010 to May 2015

**Symptomatic
patients
(n=427)**

**Sx : groin pain, clicking, locking, or
giving way, that had lasted for a
minimum of 3 months
+ P/Ex : impingement test, the log-
roll test, and the FABER test,**

**Mean age : 33.4 years
216 men , 211 women**

**Control
(n=1546)**

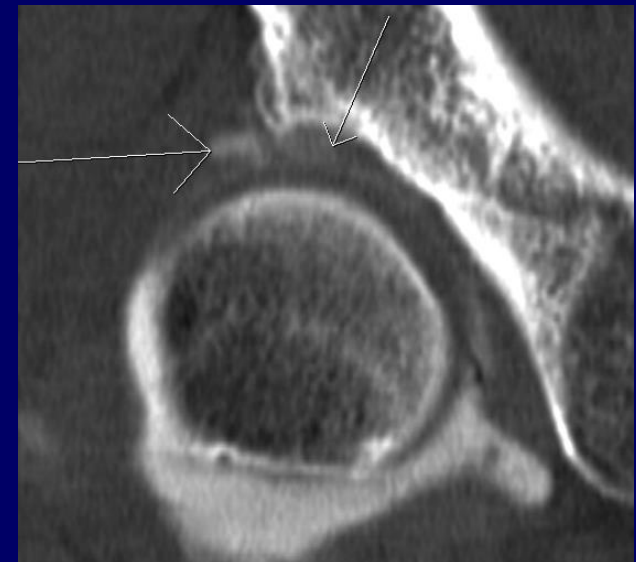
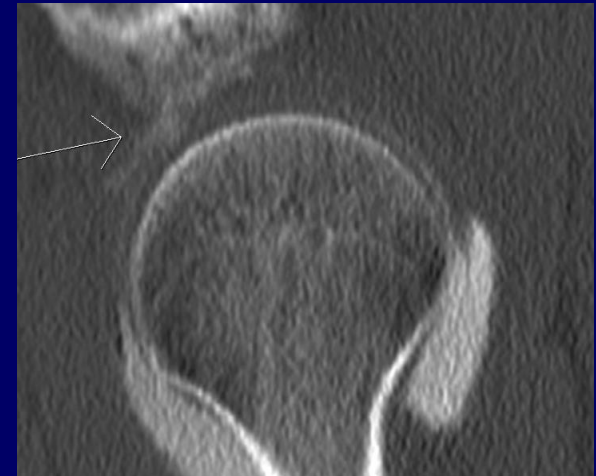
**Visited the emergency room
because of ureter stones or
minor trauma
+ Abdominalpelvic CT**

**Mean age : 33.8 years
999 men , 547 women**

Materials and Methods

Imaging Protocols of CT arthrography

1. Under fluoroscopic guide, Injection of contrast at femoral head neck junction
2. CT scan with a 16 channel or 64 channel
3. Coronal, sagittal, and oblique axial image were reconstructed



Materials and Methods

Classification of subspinal impingement

- Type I : **Smooth ilium wall between** the caudal level of the **AllS** and the **acetabular rim**.
- Type II: Bony prominences can be seen on the ilium wall extending from the caudal area of the **AllS to the acetabular rim**
- Type III: AllS **extends distally** to the antero-superior acetabular rim and it has a downward “spur appearance”

Results

Determine the prevalences of SSI by presence of symptom

Symptomatic

15.2%

(n=65/427)

VS

Asymptomatic

16.9%

(n=262/1546)

Type	Symptomatic	Asymptomatic
Type 1	362	1294
Type II	60	217
Type III	5	45

Results

Comparisons of morphologic characteristics in symptomatic patients

	SSI group Number (%)	Non-SSI group Number (%)	p-value
Number	64 (14.9)	363(85.1)	
Age(year)(Mean ± SD)	29.9±9.7	33.9±8.8	0.001
Gender(Male/Female)	39/25	166/197	0.025
Relation with FAI	30(46.9)	181(49.9)	0.188
Cam	6(9.4)	41(11.3)	0.053
Pincer	16(25.0)	85(23.4)	0.027
Mixed	8(12.5)	55(15.2)	0.139
None	34(53.1)	182(50.1)	0.219
Lateral center-edgeangle			0.003
Normal or Dysplasia	60(93.8)	309(85.1)	
Overcoverage	4(6.2)	54(14.9)	

	SSI group Number (%)	Non-SSI group Number (%)	p-value
Cranial anteversion			0.027
Retroversion	24(37.5)	93(25.6)	
Normal	40(62.5)	270(74.4)	
Central anteversion			0.000
Retroversion	26(40.6)	56(15.4)	
Normal	38(59.4)	307(84.6)	
Alpha angle			0.032
Normal	50(78.1)	252(69.4)	
Abnormal	14(21.9)	111(30.6)	
Labral tear			0.658
Tear	45(70.3)	229(63.1)	
Normal	19(29.7)	131(36.9)	

Results

Determine risk factors (age, gender) for SSI

	SSI group Number (%)	Non-SSI group Number (%)	p-value
Number	64 (14.9)	363(85.1)	
Age (year)	29.9±9.7	33.9±8.8	0.001
Gender (Male/Female)	39/25	166/197	0.025

Discussions

- The prevalence of SSI in symptomatic patients and control patients was similar (15.2% vs 16.9%, respectively).
- Nevertheless, SSI is not rare; it is a relatively common finding in both symptomatic patients and controls.
- Treatment of SSI in symptomatic patients is important because neglect of SSI can necessitate reoperation. Therefore, SSI should not be considered an incidental finding in symptomatic patients.

Discussions

Prevalence of subspinal impingement in previous study

Auhor (year)	Prevalence (%)	Age (year)	Percentage of Male(%)
Eyal Amar (2015)	21.0%	34.0	62.0
Current study (2016)	15.2%	33.4	61.0

Conclusion

- A **high prevalence of incidental findings** of SSI is common in **young male** patients, and is not a critical finding.
- However, it is a **potential risk factor** for **hip pain**.