

PPCS 2013

Cystoscopic finding & Hydrodistension

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Cystoscopy

Positive findings

- Mandatory examination to identify Hunner's lesion

Negative findings

- Exclusion diagnosis
 - stone
 - infection
 - cancer (CIS)
 - endometriosis.....

Cystoscopic positive finding

2 types of category

ulcer type or non-ulcer type

= with or without Hunner's lesion

- Hunner's lesion

demarcated reddish mucosal lesion

lacking normal capillary structure

denudation of epithelium and inflammatory reactions

high levels of intravesical NO

elevated proinflammatory gene expression

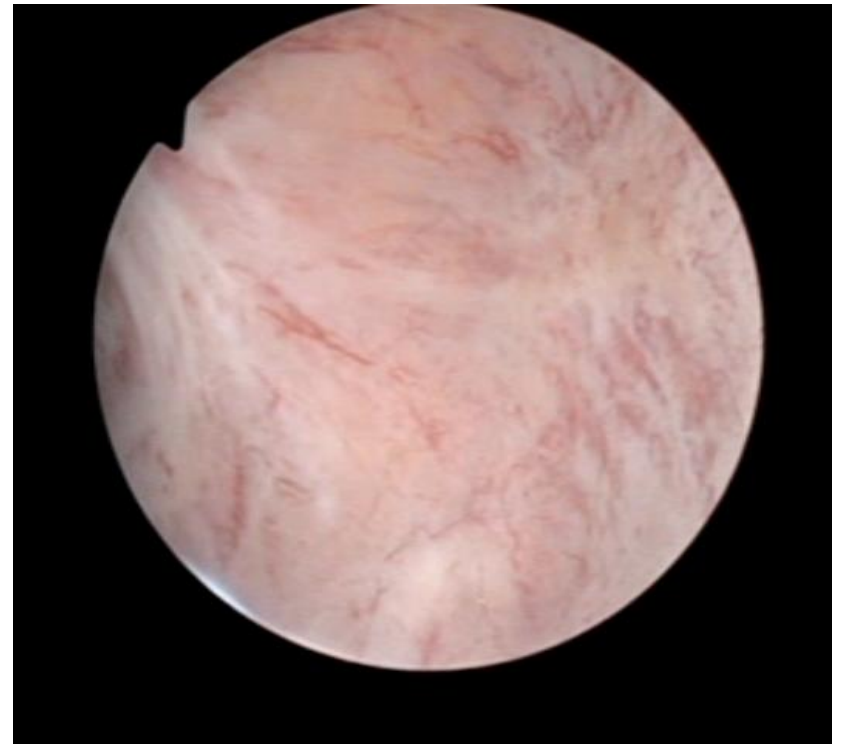
up-regulation of TRP channels and/or ASIC channels

Pre-hydrodistention findings

Hunner's Lesion



Scar

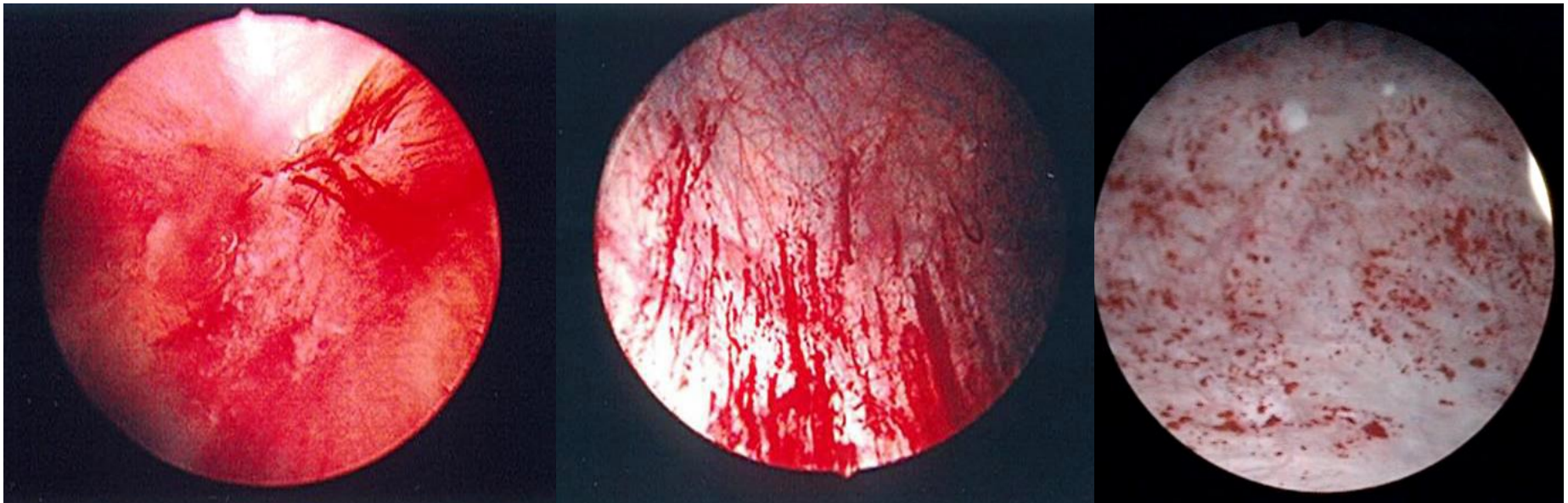


During/post hydrodistention

Bleeding from
Hunner's Lesion

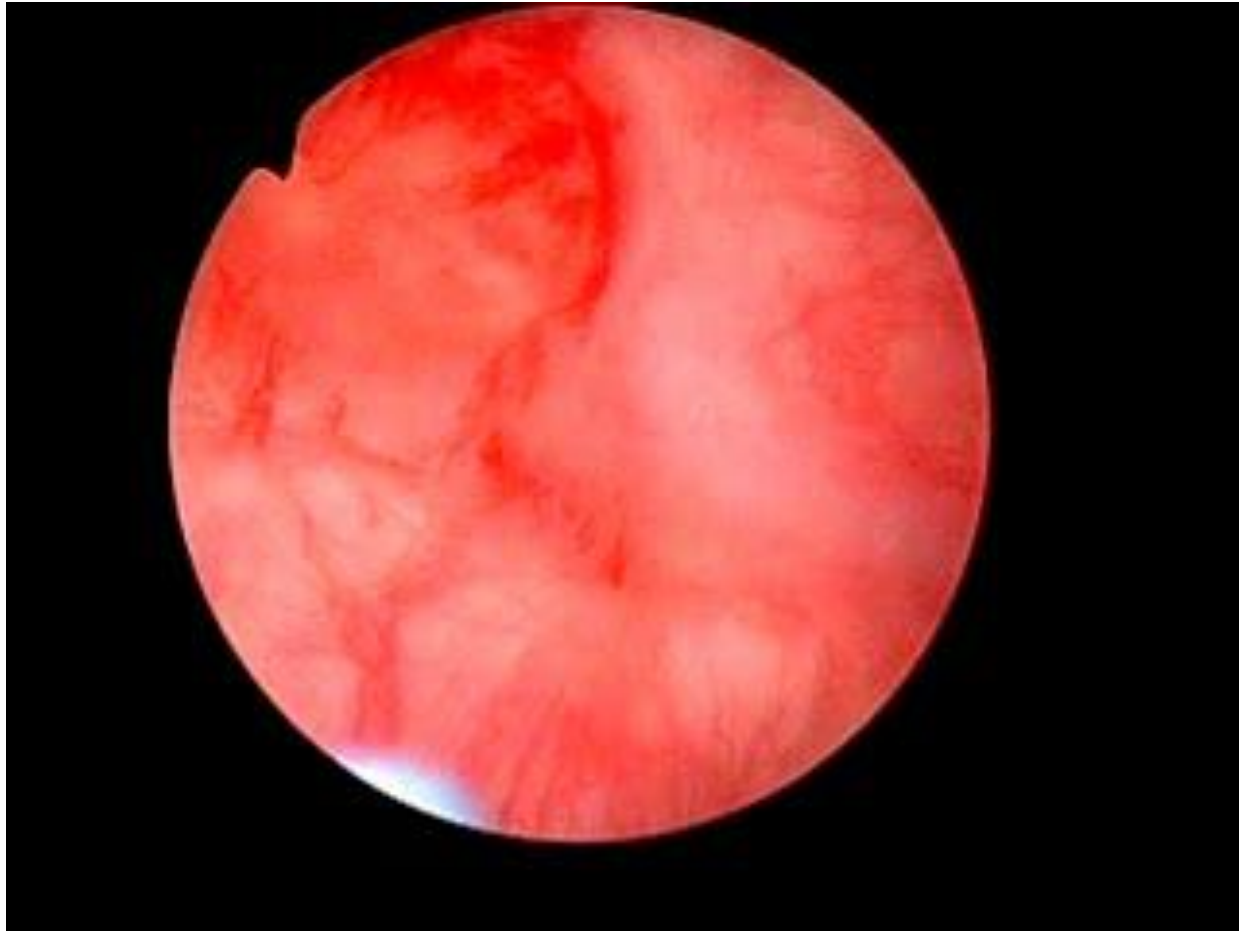
Rainfall bleeding

glomerulation

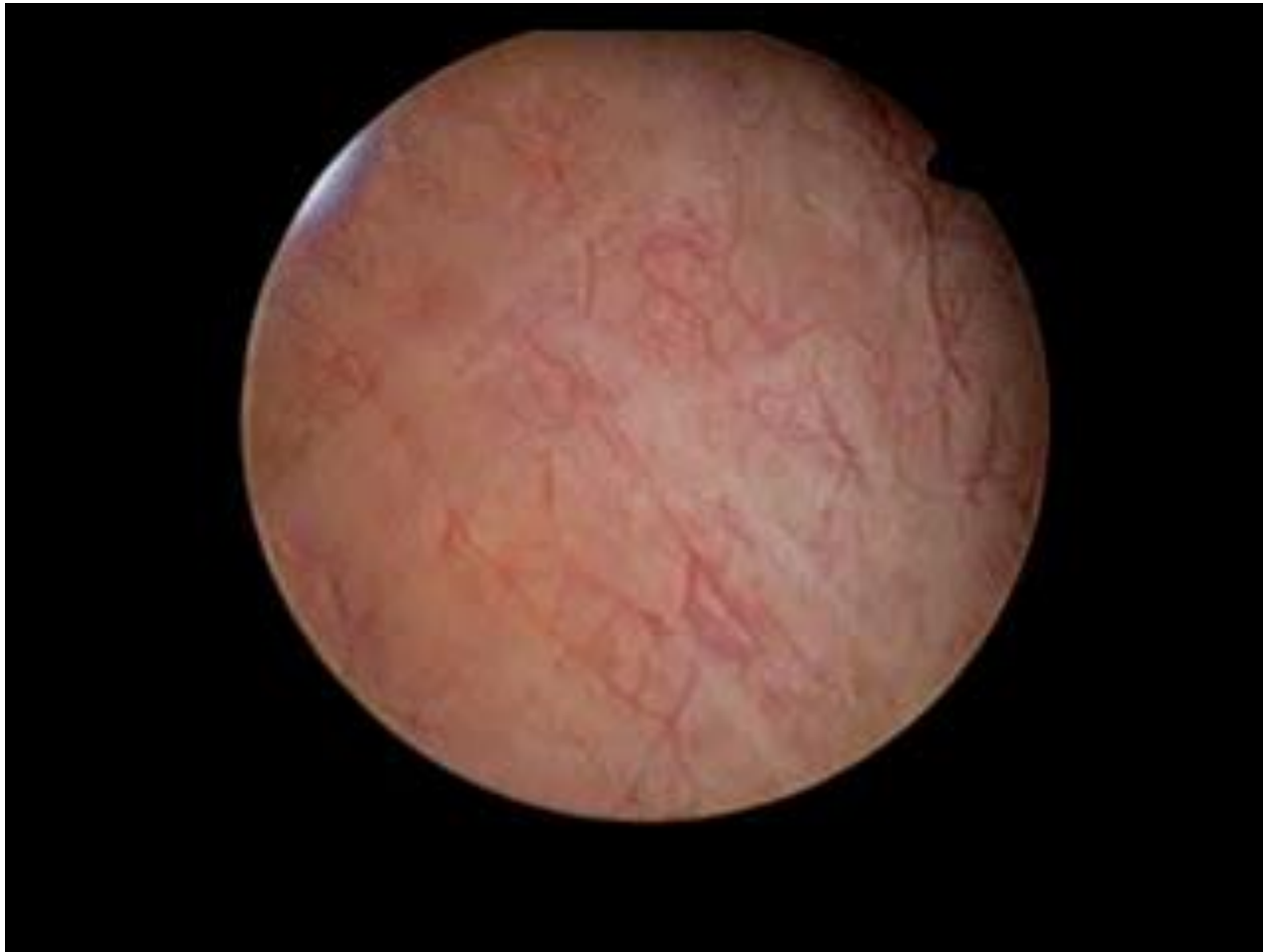


Cystoscopy with hydrodistension

Ulcer type



Cystoscopy with hydrodistension non-ulcer type



Classification of PBS/IC (ESSICS)

Cystoscopy with hydrodistention

	Not done	Normal	Glomerulations ^{a)}	Hunner's lesion ^{b)}
Biopsy				
Not done	XX	1X	2X	3X
Normal	XA	1A	2A	3A
Inconclusive	XB	1B	2B	3B
Positive ^{c)}	XC	1C	2C	3C

- a) Cystoscopy: glomerulations grade 2–3.
- b) With or without glomerulations.
- c) Histology showing inflammatory infiltrates and/or detrusor mastocytosis and/or granulation tissue and/or intrafascicular fibrosis.

Background of the Patients

2007年～2013年 282 cases

Cystoscopy + Hydrodistention + biopsy done
for diagnosis: 273 cases

Male : Female = 56 : 226 (19.5% : 89.5%)

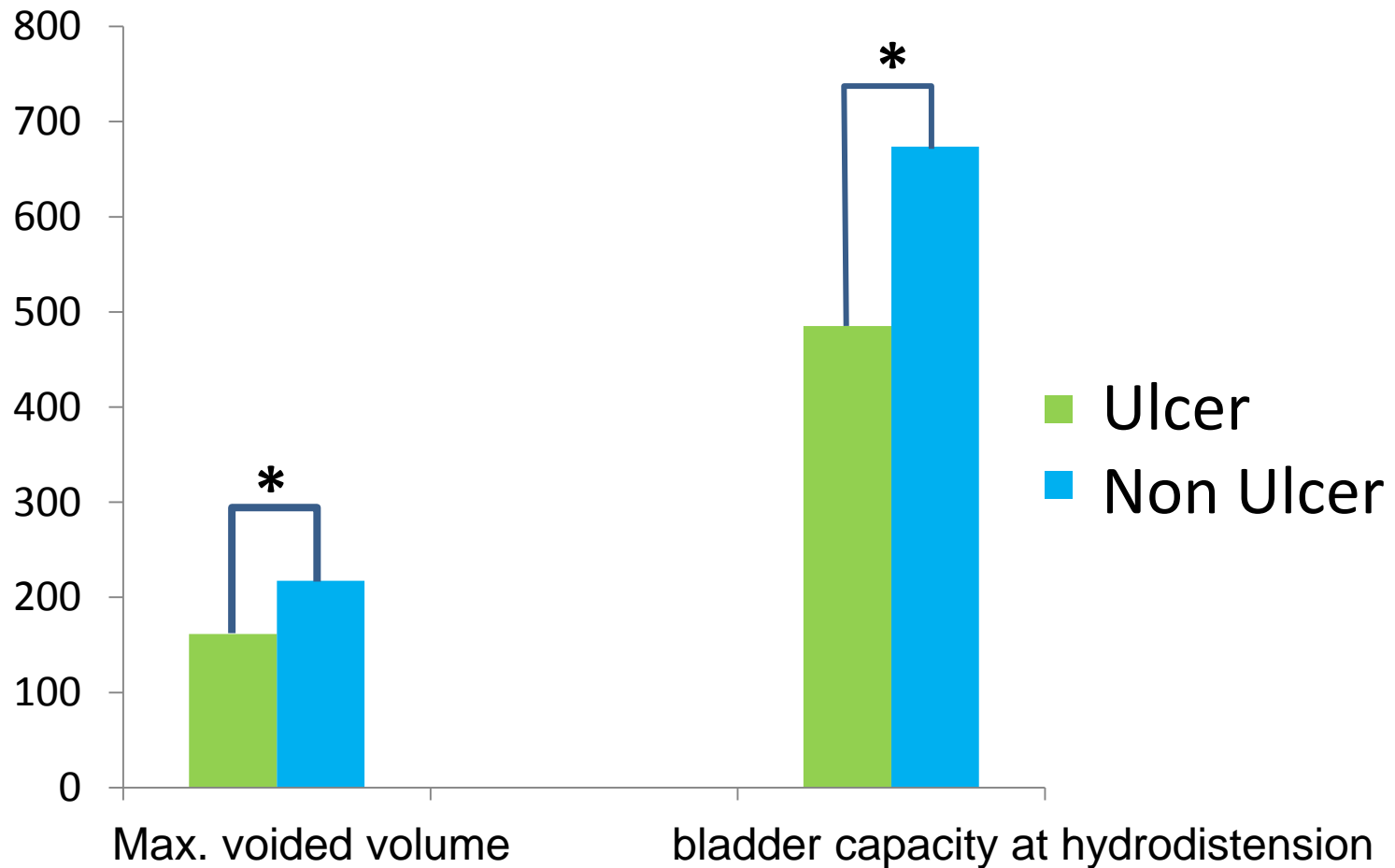
Non ulcer : ulcer = 112 : 161 (41% : 59%)

Mean age : 60.7 y.o. \pm 15.2

Ulcer type vs. non-Ulcer type

	Ulcer type n=161	Non Ulcer type n=112	p
Sex (M:F)	23:138	30:82	
Age at 1 st visit	65.5	54.1	<0.0001
Age at onset	60.5	48.6	<0.0001
OSSI	14.7	12.5	<0.0001
OSPI	12.9	11.5	0.0006
Urinary freq.	19.3	15.7	0.0005
Voided volume	99.9	120.0	0.0037
Maximum capacity	161.5	217.9	<0.0001

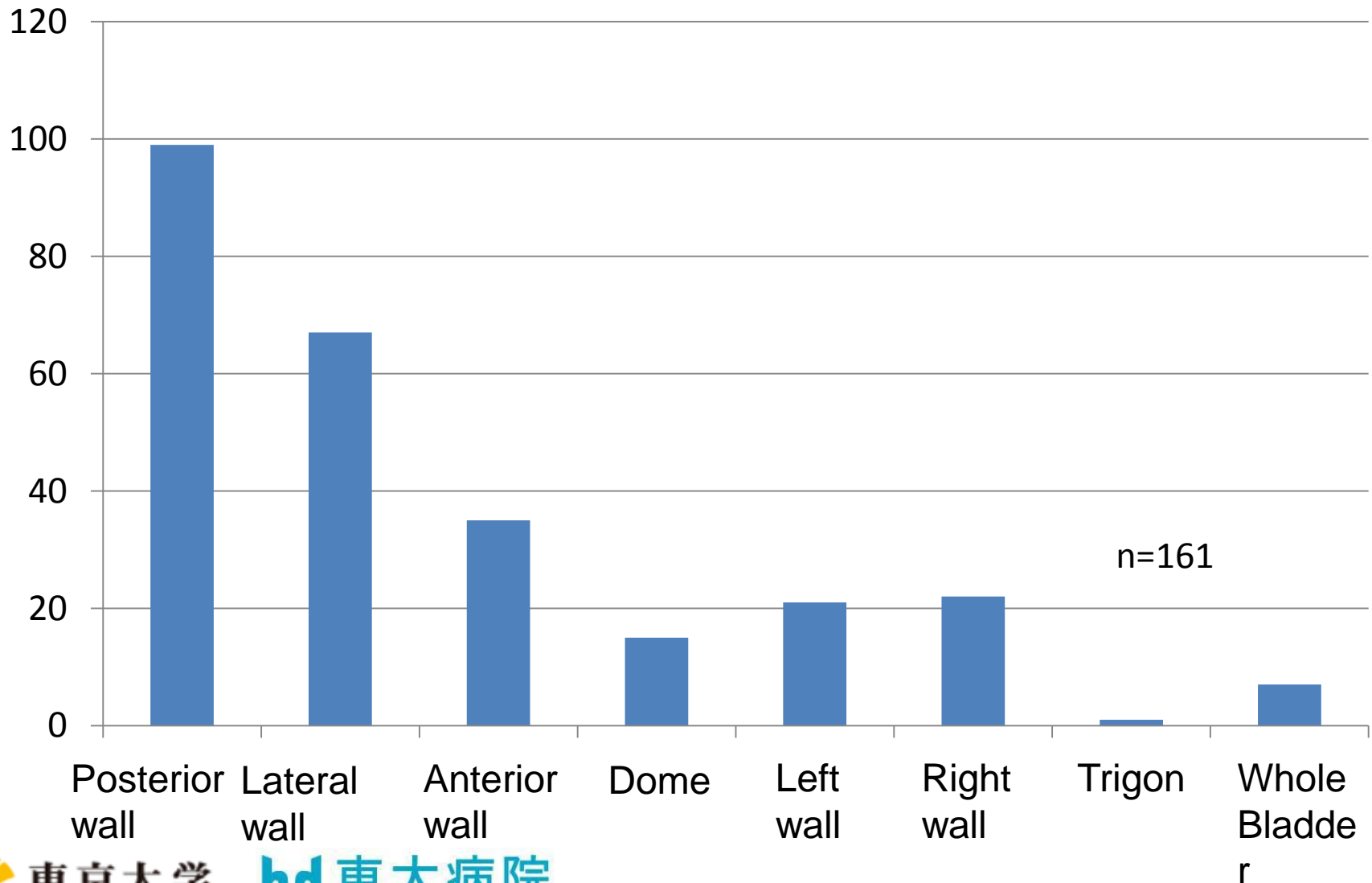
Hunner's Lesion and bladder capacity



*<0.0001

Mann-Whitney's U test

Predilection site for Hunner's lesion



Relationship between Pre-hydrodistention and Bladder Capacity

	R ²	P
OSSI① (urge)	0.08	0.014
OSSI② (frequency)	0.06	0.045
OSSI③ (nocturia)	0.11	0.004
OSSI④ (pain)	0.0007	0.94
OSSI Total Score	0.04	0.0009
OSPI① (frequency)	0.07	0.03
OSPI② (nocturia)	0.04	0.1
OSPI③ (urgency)	0.06	0.032
OSPI④ (pain)	0.0016	0.739
OSPI Total Score	0.04	0.0006

Hydrodistension

First reported by Bumpus in 1930s

Used for both diagnostic and therapeutic purpose

First choice as a palliative therapy

Efficacy rate: approx. 50%

Time to therapeutic failure : 6 months

Morbidity: Bladder wall rupture
Bladder necrosis

Popular procedure

1. General/spinal anesthesia
2. Cystoscopic observation with light inflation of the bladder for checking Hunner's ulcer
3. Further hydrodistention by saline at 80cmH₂O for a few minutes
4. Deflation of the bladder by draining saline with continuous cystoscopic observation. Bleeding and gromerulation can be seen
5. Insertion of a urethral catheter

Presumptive mechanism of hydrodistention

Hydropressure



Ischemia



Metabolic acidosis



Degeneration of afferent nerve



Reduction in pain



Increase in bladder capacity

Duration of hydrodistension

Brief/short hydrodistension

Most common

1-10 min

Prolonged hydrodistension

60% at 6mo 43.3% at 1yr (Glemain et al)

2 times of 30 min distension in 2days

70% at 3mo

3Hr with mean arterial pressure

37% at 6mo 21% at 12mo

high morbidity - bladder necrosis

No evidence and No RCT has been done

Anesthesia - local or not?

For an 'office' urologist

intravesical instillation of 4% lidocaine

(Aihara K et al 2009)

caudal block with 0.25% bupivacaine &

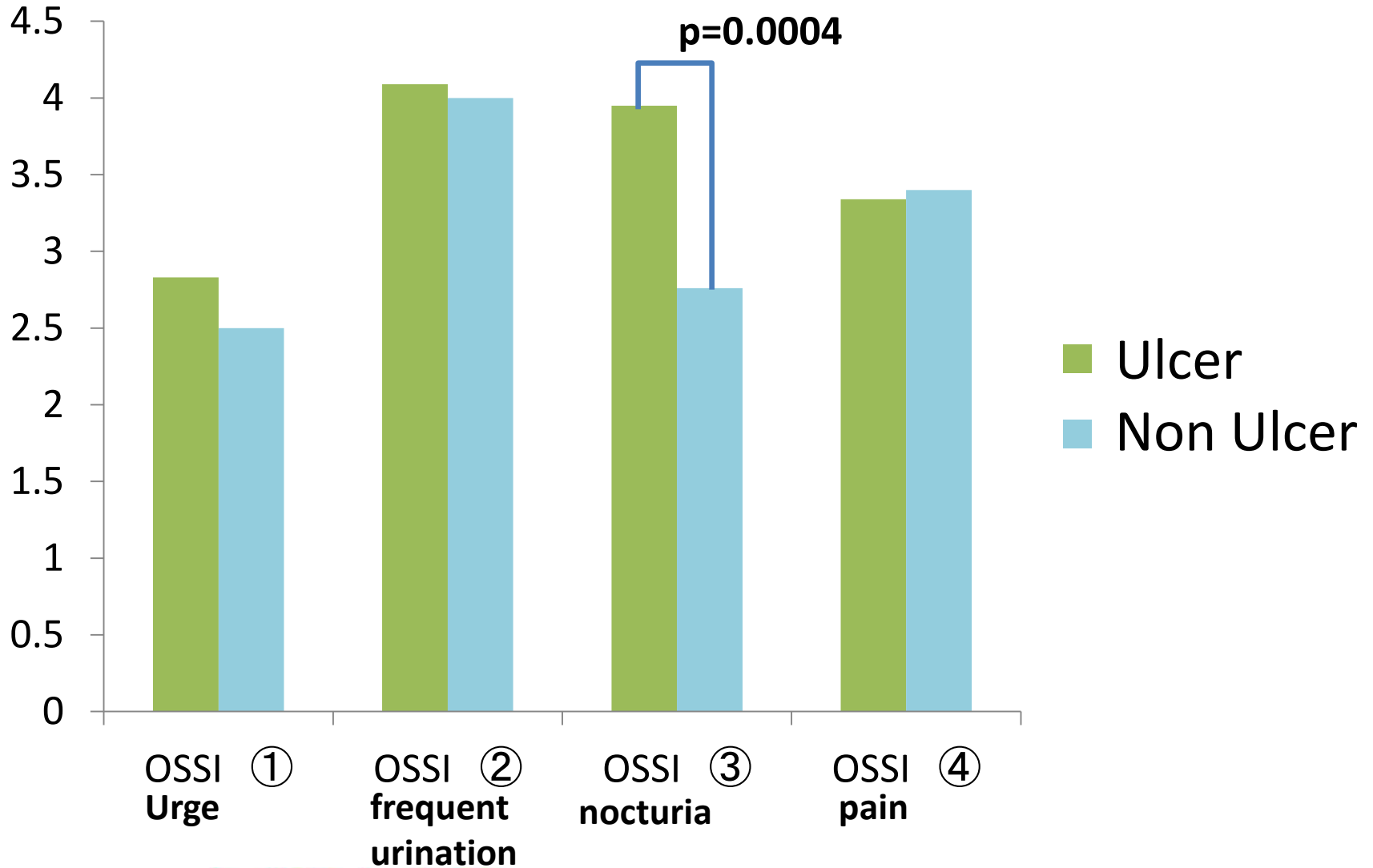
10ml clonidine (Tempest H et al 2010)

Easy, low cost and well tolerated

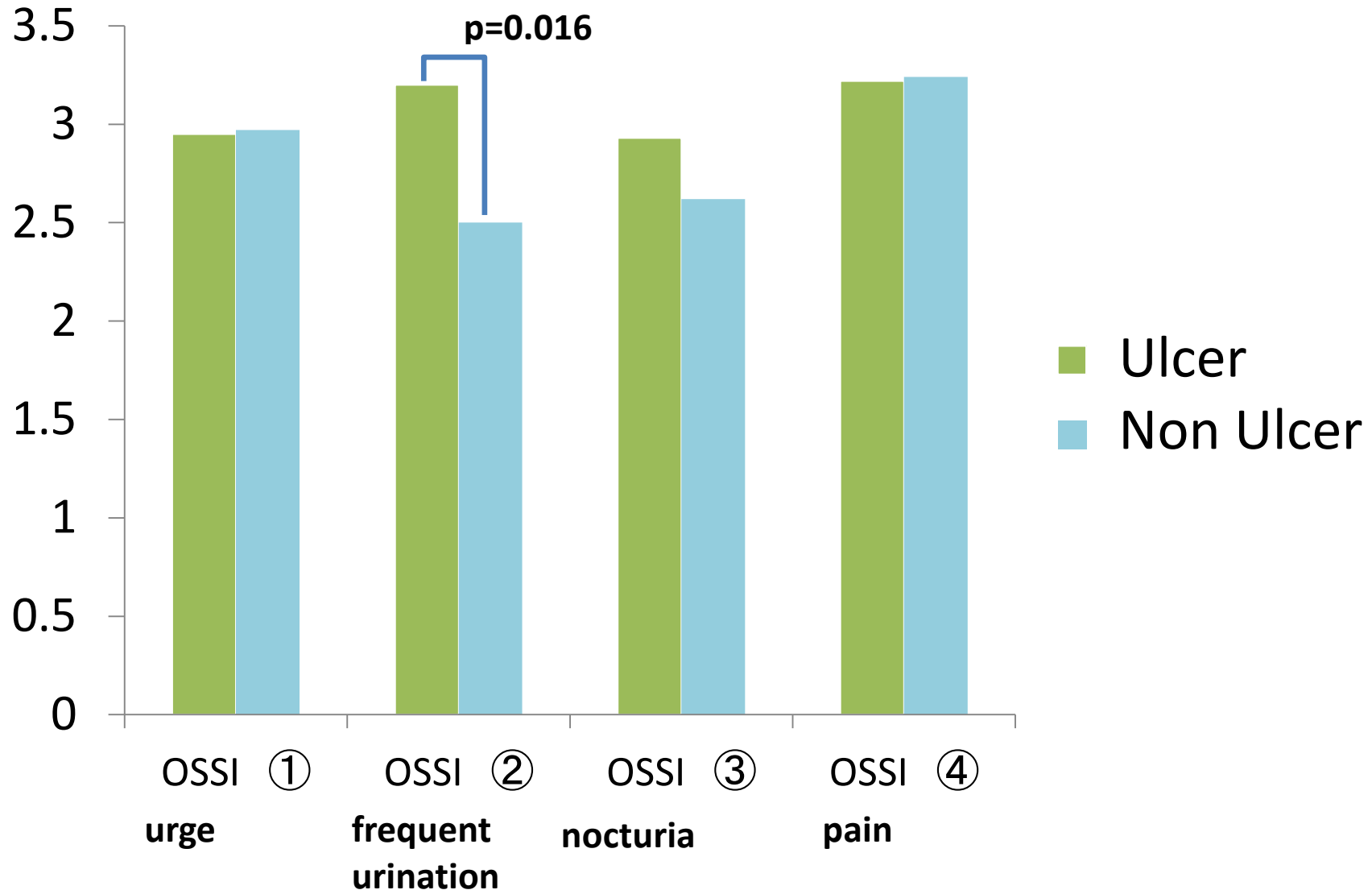
BUT Could lead to insufficient hydrodistension

How we carry out hydrodistension
@
the Univ of Tokyo

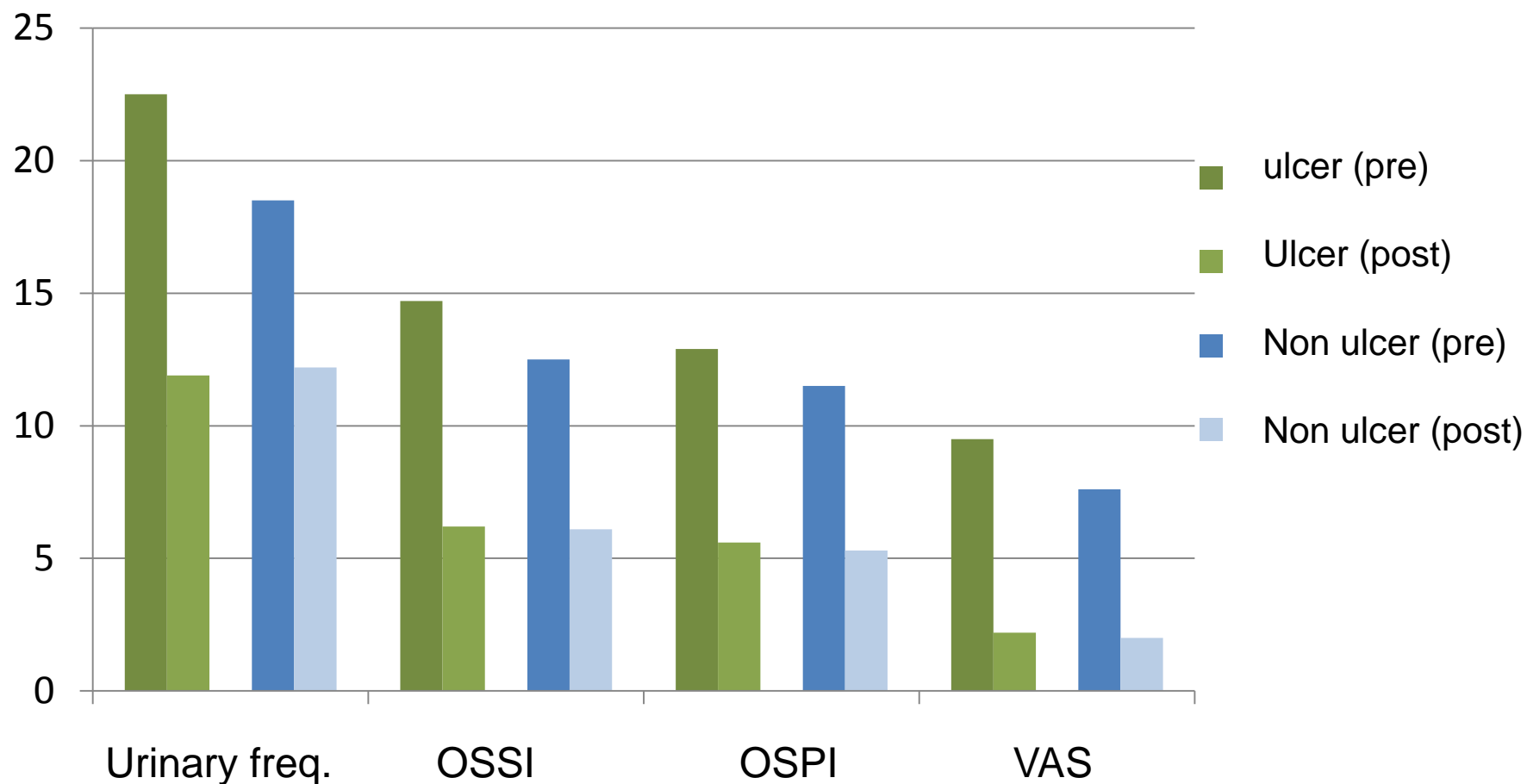
Pre- and post hydrodistension OSSI



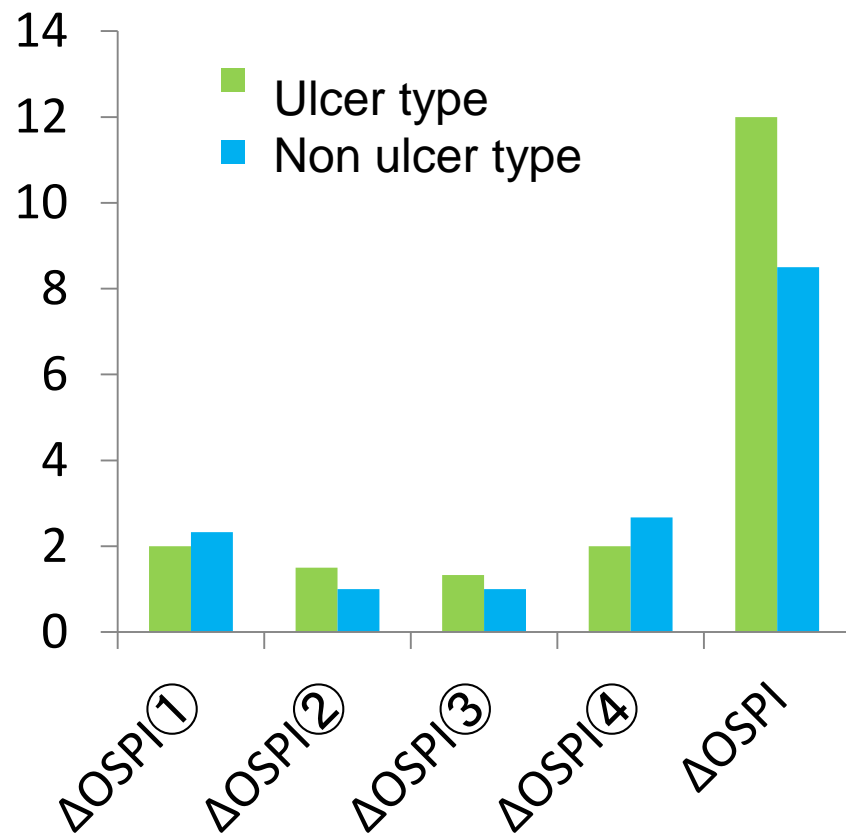
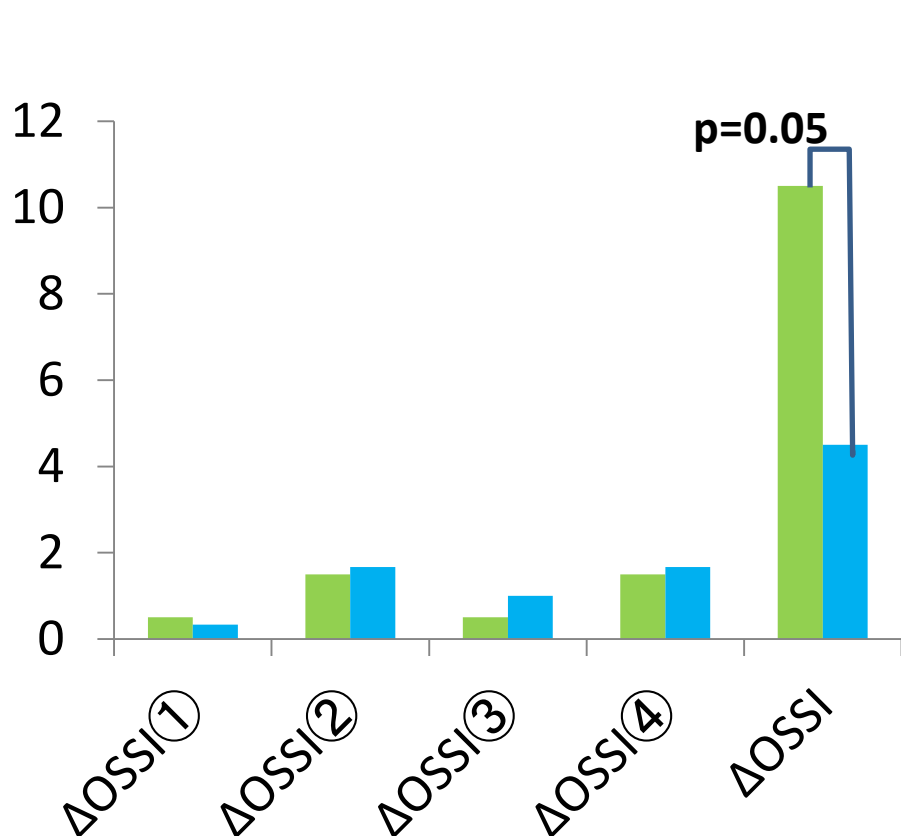
Pre- and post hydrodistension OSPI



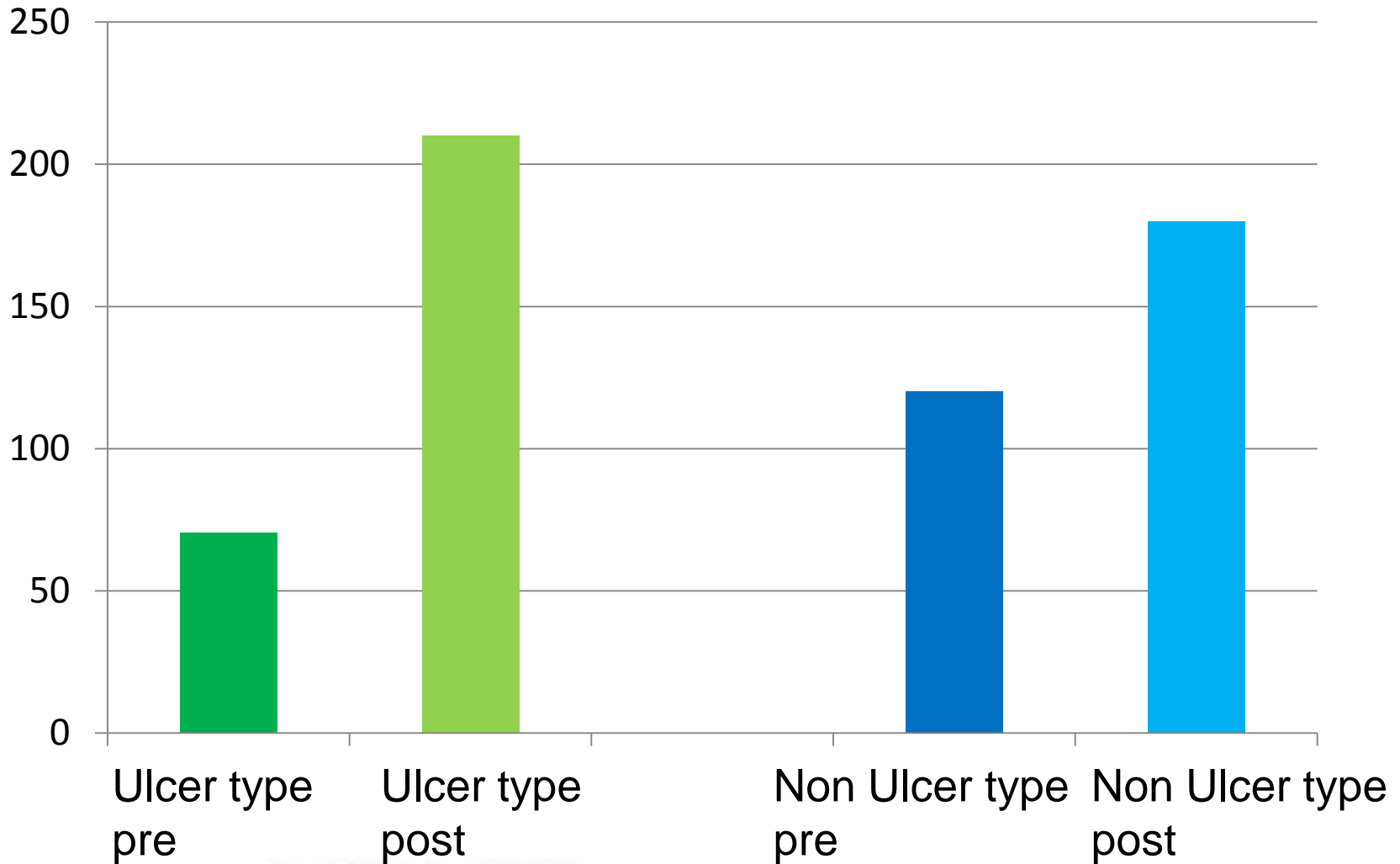
Effect of hydrodistension



Effect of hydrodistension on symptom ulcer type v.s. non ulcer type



Effect of hydrodistention in max. bladder capacity



Take home message

- Cystoscopy with hydrodistension is mandatory for diagnosis of IC/PBS. Hunner's ulcer / non Ulcer
- Therapeutic hydrodistension is one of the established therapy for short term
efficacy rate 50%
time to therapeutic failure 6mo
- Brief hydrodistension under general/spinal anesthesia is popular
- Prolonged hydrodistension, repeated hydrodistension has been reported.
- Optimal method has not been established yet.



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