Impact of Bariatric Surgery on urinary incontinence in obese individuals: 5 year outcomes

Dr. Prasanna Ramana A
Fellow, Metabolic and Bariatric Surgery
Department Of Surgical Disciplines
All India Institute Of Medical Sciences, New Delhi, India.

CO AUTHORS: Prof Sandeep Aggarwal, Prof Rajeev Kumar, Dr Prabhjot Singh

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[ ] 1 year outcomes of this study has been published in Surgical Endoscopy

Arumugaswamy PR, Singla V, Singh P, Kumar R, Aggarwal S. Impact of bariatric surgery on urinary incontinence in morbidly obese individuals. Surg Endosc. 2022 Jul;36(7):4771-4779. doi: 10.1007/s00464-021-08818-y. Epub 2021 Nov 5. PMID: 34741207.

INTRODUCTION

- With every 5 unit increase in BMI there is 30 to 60 percent increase in incidence of urinary incontinence.*
- Weight loss is found to have positive impact on UI.
- Evidence on long term impact of bariatric surgery on UI is sparse.

Danforth et al American journal of obstetrics and gynecology. 2006;194(2):339-345.
Brown JS et al Obstet Gynecol. 1996; 87(5, pt 1):715–721.

INTRODUCTION

- **Chronic *increased intra abdominal pressure* l**eads to:*

1. Increased *intra vescical pressure, increased urethral mobility* and detrusor instability.
2. Chronic strain, stretching and weakening of the muscles, nerves and other pelvic floor structures**.**

- *Autonomic and sensory* ***neuropathy*** causing detrusor dysfunction

- ***Oxidative stress*** due *to OSA*

*Subak LL et al *The Journal of urology*. 2009;182(6 Suppl):S2-S7. doi:10.1016/j.juro.2009.08.071.

**Smith AG et al *J Diabetes Complications*. 2013;27(5):436-442. doi:10.1016/j.jdiacomp.2013.04.003

***Witthaus et al .J Urol 193: 1692-1699.

AIM

- 5 yr impact of bariatric surgery on urinary incontinence in obese individuals.

METHODOLOGY

Study design

- Prospective observational study

Study population

- All patients aged ≥ 18 years, who underwent bariatric surgery in our unit between July 2018 and June 2019, were screened for urinary incontinence using ICIQ UI SF questionnaire.

- Patients with prior urinary tract surgery were excluded.

METHODOLOGY

- All patients filled up the ICIQ UI SF questionnaire preoperatively. The patients underwent either LSG, LRYGB or MGB.
- Patients with UI filled the questionnaire post operatively at 3, 6, 12 , 36 and 60 months follow up.
- Participants were also asked about number of pads changed and the same was recorded at each follow up.

ICIQ-UI Short Form

Initial number

CONFIDENTIAL

DAY MONTH YEAR

Today's date

Many people leak urine some of the time. We are trying to find out how many people leak urine, and how much this bothers them. We would be grateful if you could answer the following questions, thinking about how you have been, on average, over the PAST FOUR WEEKS.

1 Please write in your date of birth: DAY MONTH YEAR

2 Are you *(tick one)*: Female ☐ Male ☐

3 How often do you leak urine? *(Tick one box)*

never ☐	0
about once a week or less often ☐	1
two or three times a week ☐	2
about once a day ☐	3
several times a day ☐	4
all the time ☐	5

4 We would like to know how much urine <u>you think</u> leaks.
How much urine do you <u>usually</u> leak (whether you wear protection or not)?
(Tick one box)

none ☐	0
a small amount ☐	2
a moderate amount ☐	4
a large amount ☐	6

5 Overall, how much does leaking urine interfere with your everyday life?
Please ring a number between 0 (not at all) and 10 (a great deal)

0 1 2 3 4 5 6 7 8 9 **10**
not at all — a great deal

ICIQ score: sum scores 3+4+5 ☐☐

6 When does urine leak? *(Please tick all that apply to you)*

never – urine does not leak ☐
leaks before you can get to the toilet ☐
leaks when you cough or sneeze ☐
leaks when you are asleep ☐
leaks when you are physically active/exercising ☐
leaks when you have finished urinating and are dressed ☐
leaks for no obvious reason ☐
leaks all the time ☐

Thank you very much for answering these questions.

The ICIQ-UI Short Form

(International Consultation on Incontinence Modular Questionnaire)

- Evaluates the *frequency, severity and impact on quality of life* of urinary incontinence in men and women.
- It is highly accurate and a validated questionnaire.
- It is scored on a scale from 0-21.

Primary outcome measures

- Impact on UI based on ICIQ UI SF score at 60 months.

Secondary outcome measures

- Number of pads used.

- Weight loss outcomes – Total weight loss, percentage weight loss, BMI, and %EBMIL.

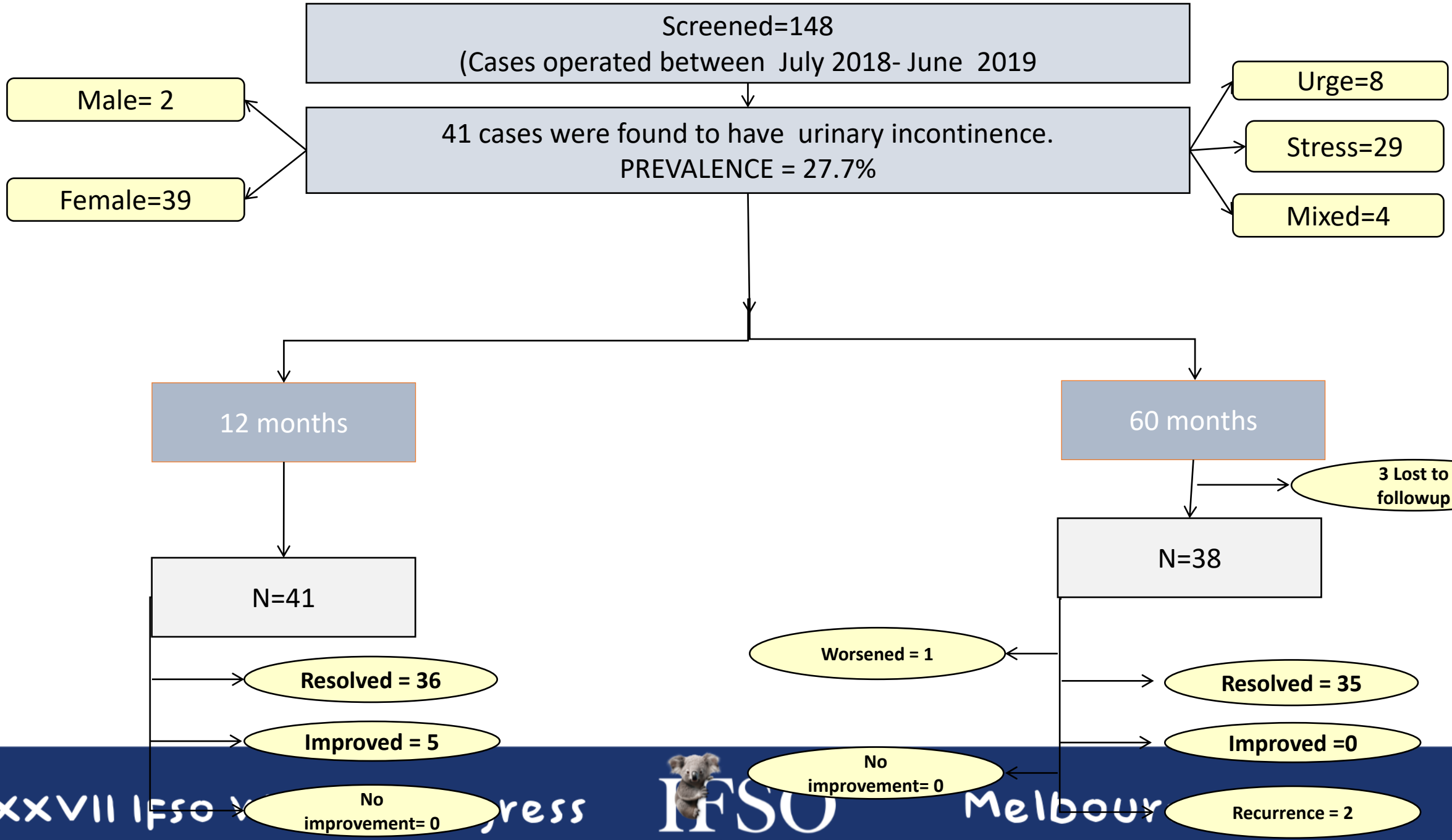
- Improvement and resolution of obesity related comorbidities

STATISTICS

All statistical analysis was done using SPSS version 25 (IBM Inc. USA)

- Measurements taken before and after surgery were analysed using the paired t test for continuous variables and the McNemar's chi-square test for categorical variables
- Logistic regression was used to predict important risk factors for urinary incontinence
- p value < 0.05 was considered significant

RESULTS


Screened=148
(Cases operated between July 2018- June 2019
Male= 2
Female=39
41 cases were found to have urinary incontinence.
PREVALENCE = 27.7%
Urge=8
Stress=29
Mixed=4
12 months
60 months
3 Lost to followup
N=41
N=38
Resolved = 36
Improved = 5
No improvement= 0
Worsened = 1
Resolved = 35
Improved =0
No improvement= 0
Recurrence = 2

- Women , diabetics , hypothyroid and patients with higher waist circumference, low height and older age were more likely to have UI.

- Mean %EWL was 59.2% at 5 year (69.3% at 1 year).

- Significant negative correlation was found between ICIQ UI SF score and %EWL (r: -0.48; p:0.002)

- Patients with stress incontinence had best outcomes with 96.5 % resolution rate at 1 year and at 5 years urge and mixed incontinence both had 100 percent resolution rates while stress incontinence had 88.5% resolution.

- There were **2 recurrences** and both patients had significant weight regain and had stress urinary incontinence.

	Baseline	3 months	6 months	12 months	36 months	60 months	p Value baseline vs year 5
ICIQ-UI-SF scores (mean ± 2SD)	8.8 ± 6.4	4.4 ± 5.9	1.6 ± 6.4	0.68 ± 4.2	0.58±3.6	1.6±6.4	<0.001
Number of pads (median)	2	1	0	0	0	0	<0.001
Total resolved, n (%)	-	8(22)	29(70.7)	36(87.8)	36(90)	35((92.1)	
Total improved, n (%)	-	32(78)	9(21.9)	5(12.2)	0	0	
No improvement, n (%)	-	1	3	0	1(2.5)	0	
Recurrences, n (%)		0	0	0	2(5)	2(5.2)	
Worsened, n (%)		0	0	0	1(2.5)	1(2.6)	
Slight UI, n (%)	6 (14.6)	21(51.2)	9(22)	3(7.3)	1(2.5)	2(5.2)	<0.001
Moderate UI , n (%)	29(70.7)	10(24.4)	2(4.9)	2(4.9)	3(7.5)	1(2.6)	<0.001
Severe To Very Severe UI, n (%)	6(14.6)	1(2.4)	1(2.4)	0	0		<0.001
Proportion of patients using any number of pads.	92.7 % (n=38)	70.7 % (n=29)	19.5% (n=8)	9.8 % (n=4)	10% (n=4)	2.6% (n=1)	<0.001

- One patient who underwent LSG developed denovo GERD symptoms.

LITERATURE REVIEW

	Bulbuller et al (Turkey)	O'Boyle et al (Ireland)	Shimonov et al (Israel)	Subak et al (USA)	Laungani et al (USA)	OUR STUDY
Intervention	Questionnaire ICIQ-UI SF, IIQ-7	Questionnaire ICIQ-UI SF	Questionnaire ICIQ-UI SF, BFLUTS	Questionnaire validated participant-reported UIQ	Questionnaire ICIQ –UI SF	Questionnaire ICIQ –UI SF
Sample size	120	240	77	1987	490	148
Mean BMI	46.17(SD=5.35)	50 (SD=6.2)	42(SD=4.7)	46	48(SD =7)	46.3(SD=15.2)
Pre op Prevalence of UI (n)	60% (72)	45% (108)	37.7% (29)	41.9% (834)	66% (309 but only 58 analysed))	27.7% (41)
Urge	31.95% (23)	16%(13)	7%(2)	16.1%(135)	12%(7)	19.5% (8)
Stress	25% (18)	38%(31)	59%(17)	27.2%(227)	28%(16)	70.7% (29)
Mixed	43.05% (31)	46%(38)	34%(10)	56.5%(472)	60%(35)	9.7% (4)
Total Resolution At 12 Months	38%(28)	33%(27)	51.7%(15)	31%(268)	64%(37)	87.8%(36)

Journal of
Clinical Medicine

MDPI

Article

Urinary Continence Resolution after Bariatric Surgery: Long-Term Results after Six-Year Follow-Up

Thibaut Waeckel [1], Khelifa Ait Said [1], Benjamin Menahem [2,3,*], Anais Briant [4], Arnaud Doerfler [1], Arnaud Alves [2,3,5] and Xavier Tillou [1,5]

- SUI remained improved at 6 years: the USP score decreased from 1 [0; 3] before surgery to 0 [0; 0] (p = 0.001) at 1 year after surgery and 0 [0; 0] (p = 0.0253) at 6 years.

- There was no correlation between the evolution of SUI and the evolution of %EWL

- The type of surgery (LSG or LRYGB) did not influence the evolution between the results before surgery and at six years (p = 0.72).

THANK YOU