EFFECT OF BARIATRIC SURGERY ON REGRESSION OF ENDOMETRIAL CANCER AS PART OF FERTILITY SPARING MANAGEMENT

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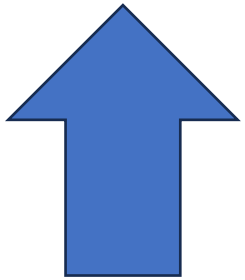
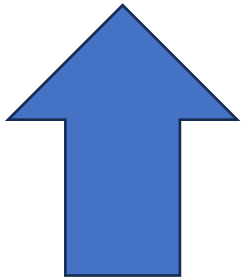
Background

- Endometrial cancer (EC) is the 2nd most common gynaecological cancer globally[1]
- Standard treatment for early EC: total hysterectomy with bilateral salpingo-oophorerectomy (THBSO)
- Fertility sparing treatment (FST): endocrine / hormonal therapy



Rising incidence of early onset EC[2]



Delayed childbearing age[3]

Mechanistic Pathways Linking Obesity to Endometrial Cancer

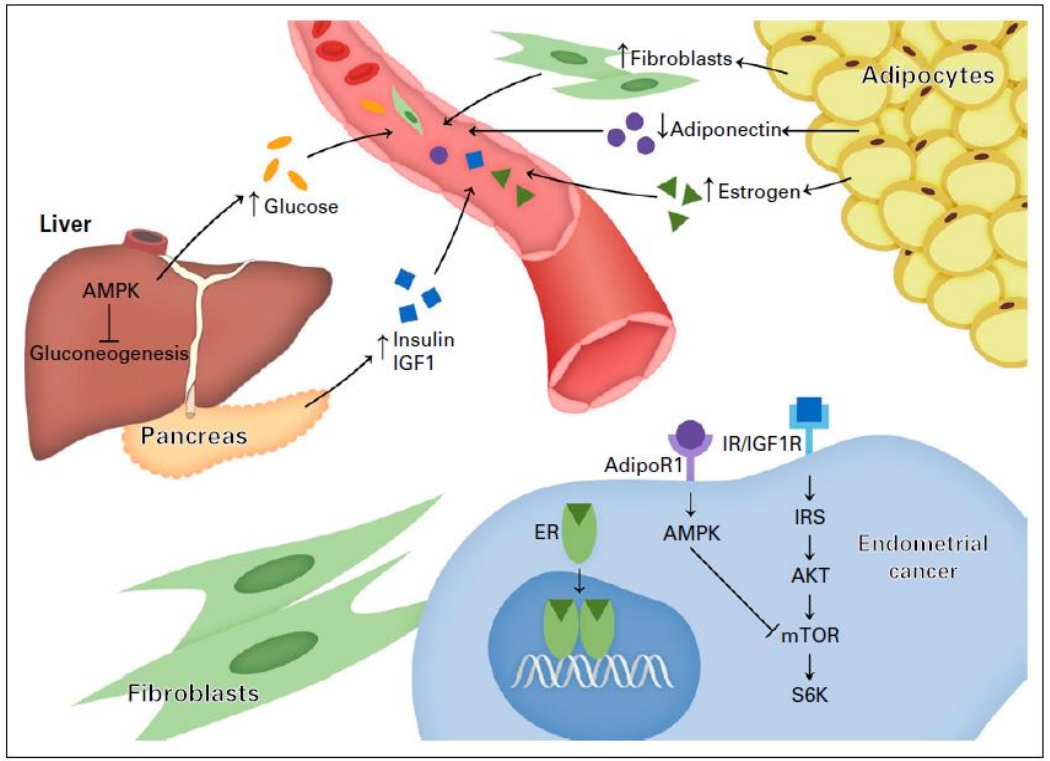


Fig 1. Effects of obesity on endometrial proliferation and tumorigenesis. Obesity contributes to the increased risk of endometrial cancer in the postmenopausal uterus by a variety of mechanisms. Increased adiposity increases aromatase activity, which leads to the conversion of androgens to estrogens, to directly promote endometrial proliferation and transcription of proproliferative genes. The chronic inflammation associated with visceral adiposity is mediated by proinflammatory adipokines and leads to hyperinsulinemia, increases in insulin-like growth factor 1 (IGF1), and hyperglycemia, which fuel endometrial proliferation. A concurrent decrease in anti-inflammatory cytokines is also observed. Inflammation and an increase in estrogen metabolites further contribute to DNA damage and genetic instability. Finally, stem cells can be recruited from adipose tissue, where they contribute to a supportive tumor microenvironment. ER, estrogen receptor; IGF1R, insulin-like growth factor 1 receptor; IR, insulin receptor; IRS, insulin receptor substrate; mTOR, mammalian target of rapamycin. (Illustration created by Suety Kwan).

4.Michaela A. Onstad et. al. Addressing the role of obesity in endometrial cancer risk, prevention and treatment. J Clin Oncol 2016 34:4225-4230.

Early onset
(during reproductive age)

Trend of delayed childbearing

Fertility Sparing Treatment (FST)

Endometrial Cancer

(Increased prevalence[5]) of Obesity

Bariatric Surgery (BS) Treatment

Does bariatric surgery have a role in the fertility sparing treatment (FST) of endometrial cancer (EC)?

Aims and Methods

- Observational analysis of early regression and continued remission of EC in tandem with sustained weight reduction for all patients on FST who also underwent BS

- Single centre, retrospective case series from Jan 2021- Dec 2023

Inclusion Criteria

EC on fertility sparing treatment AND

BMI>37.5kg/m2 OR BMI>32.5kg/m2 with related comorbidities

Females of reproductive age who wished to preserve fertility

Histologically proven G1 endometrial cancer without myometrial invasion/lymph node involvement/metastasis

Exclusion Criteria

Patients who underwent THBSO for EC treatment

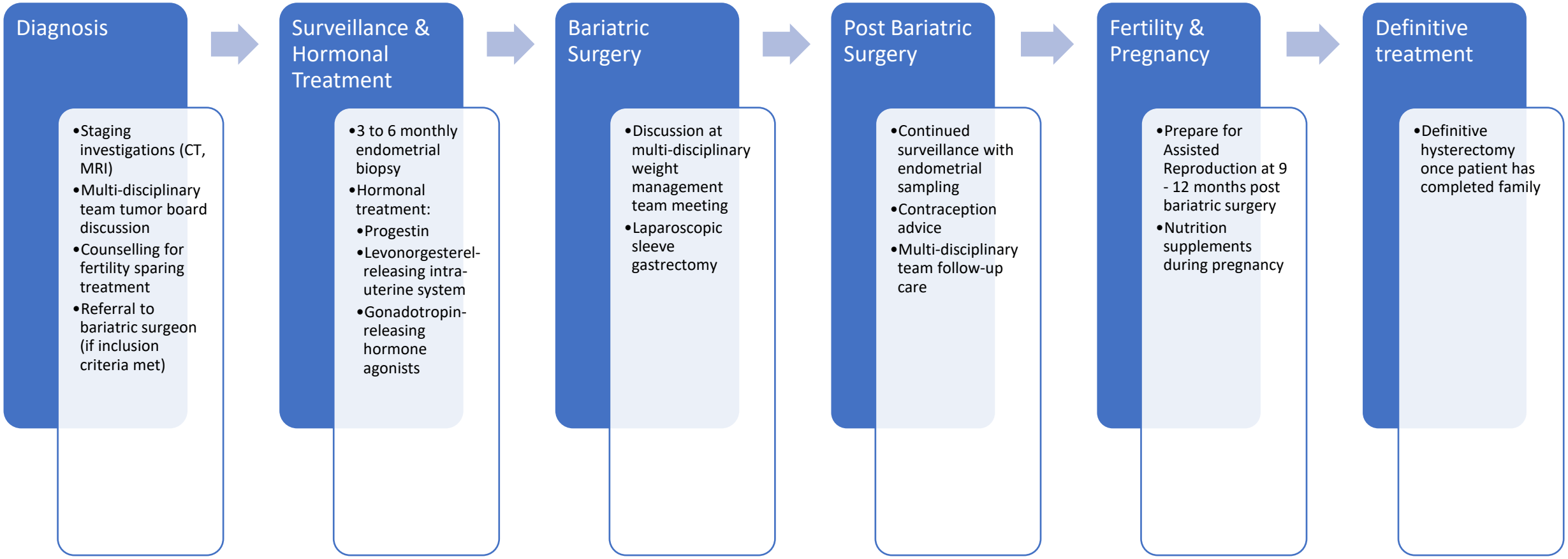
Patients who did not undergo BS

Patients on fertility sparing treatment whose EC showed regression before BS

Genetic syndromes (eg. Lynch syndrome)

Methods

- Protocol for fertility sparing treatment for patients with early endometrial cancer.



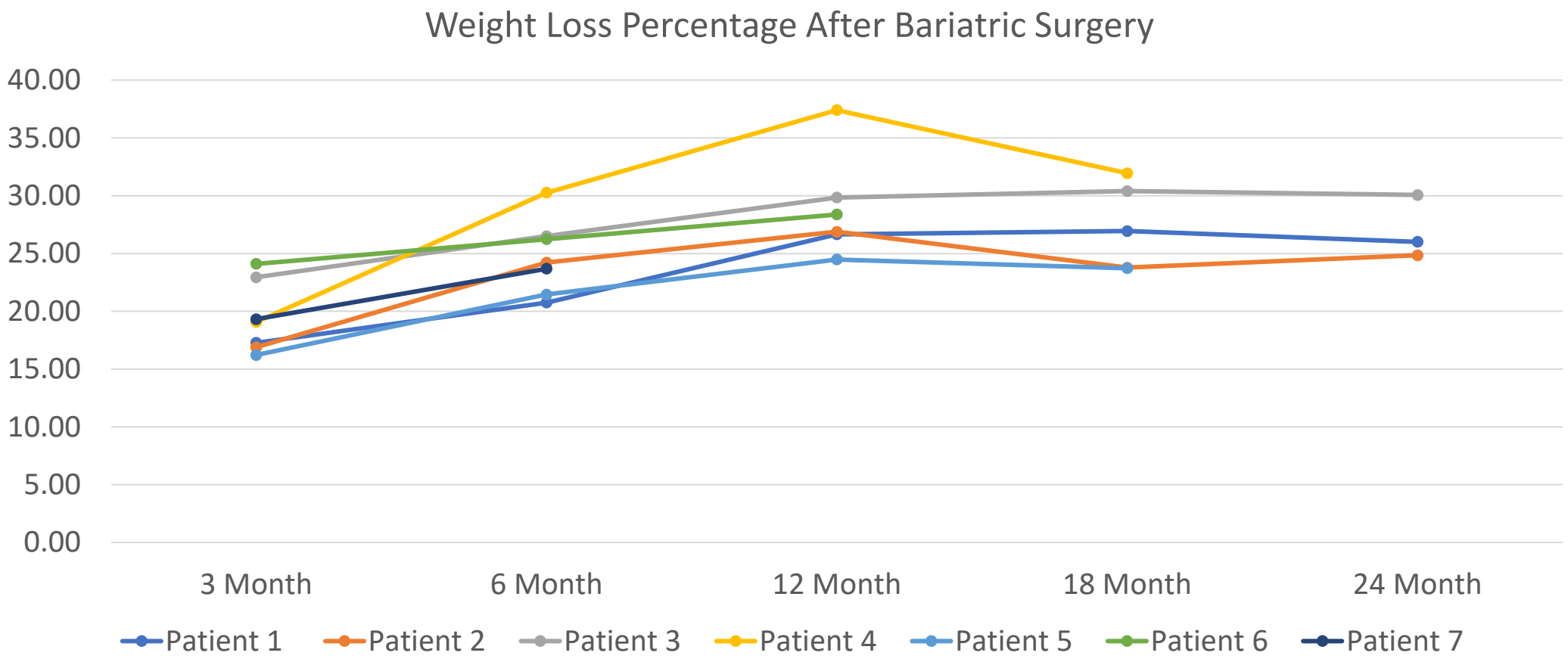
Results

Table 1. Patient Characteristics

Patient	Age (years)	Comorbidities	Pre-op Weight (kg)	Pre-Op BMI (kg/m^2)
1	32	Asthma, DM	106.5	40.65
2	37	DM, Hypertension, Hyperlipidemia	113.1	40.10
3	27	Nil	89.8	38.80
4	35	Hyperlipidemia	106.4	40.00
5	29	Nil	131.9	44.10
6	29	DM, polycystic ovary syndrome	98.3	41.50
7	34	Nil	103.0	40.70

Abbreviations: diabetes mellitus (DM)

Results


Weight Loss Percentage After Bariatric Surgery
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
3 Month
6 Month
12 Month
18 Month
24 Month
Patient 1
Patient 2
Patient 3
Patient 4
Patient 5
Patient 6
Patient 7

Results

Table 2. Outcomes After BS

Patient	Age (years)	Date of BS	Length of follow up (months)	Time to EC regression (months)	Remission	Outcomes
1	32	July 2021	37	1	N	IVF-NVD Apr 2023
2	37	July 2021	37	2	Y	IVF-unsuccessful
3	27	December 2021	32	6	Y	-
4	35	April 2022	28	5	Y	Natural-LSCS Jun 24
5	29	November 2022	20	2	Y	IVF-EDD Feb 2025
6	29	February 2023	18	NA	N	-
7	34	November 2023	9	4	Y	-

Abbreviations:
IVF-in-vitro fertilization
NVD-normal vaginal delivery
LSCS-lower segment caesarean section
EDD-estimated date of delivery

Benefits for Patients with EC on FST undergoing BS

General Health	Oncology	Reproductive Health	Antenatal Health
• Significant lasting weight loss • Improvement in obesity-related comorbidities • Increased life expectancy • Improvement in quality of life and psychological health	• Potentially help in cancer regression as part of fertility sparing therapy • Improved outcomes and reduced risks during definitive surgery (THBSO)	• Improved fertility rates • Improved success rates from Assisted Reproductive Techniques (ART)	• Reduced pregnancy-related complications e.g. Gestation Diabetes Mellitus (GDM) and Pre-Eclampsia • Reduced rates of miscarriage • Reduced perinatal complications

Limitations

- Retrospective study
- No control group
- Small group of patients
- Short follow up time

Conclusion

- BS has the potential to be an integral part of fertility sparing treatment
- Such patients should be managed in a multi-disciplinary team including gynae-oncology and bariatric specialists.
- Further prospective studies with a longer follow up period are necessary.

Acknowledgement

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