



DEBATE ON
LAPAROSCOPIC
GASTRIC PPLICATION



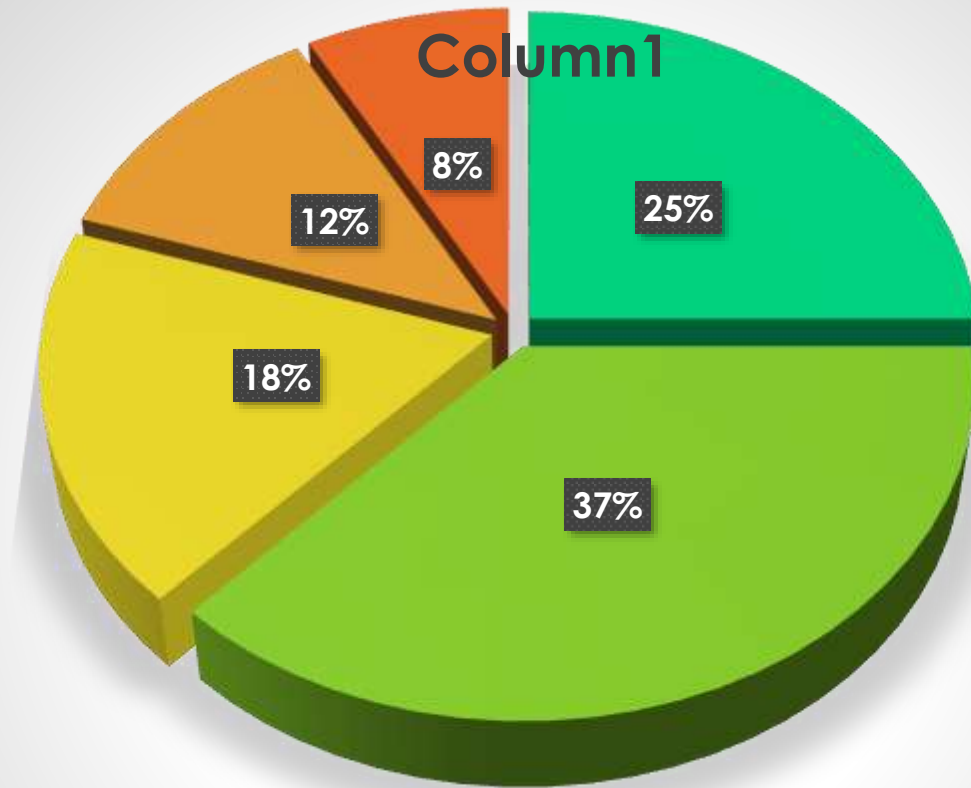
DR. MOHAMMAD TALEBPOUR
SINA HOSPITAL, TEHRAN, IRAN





SINA

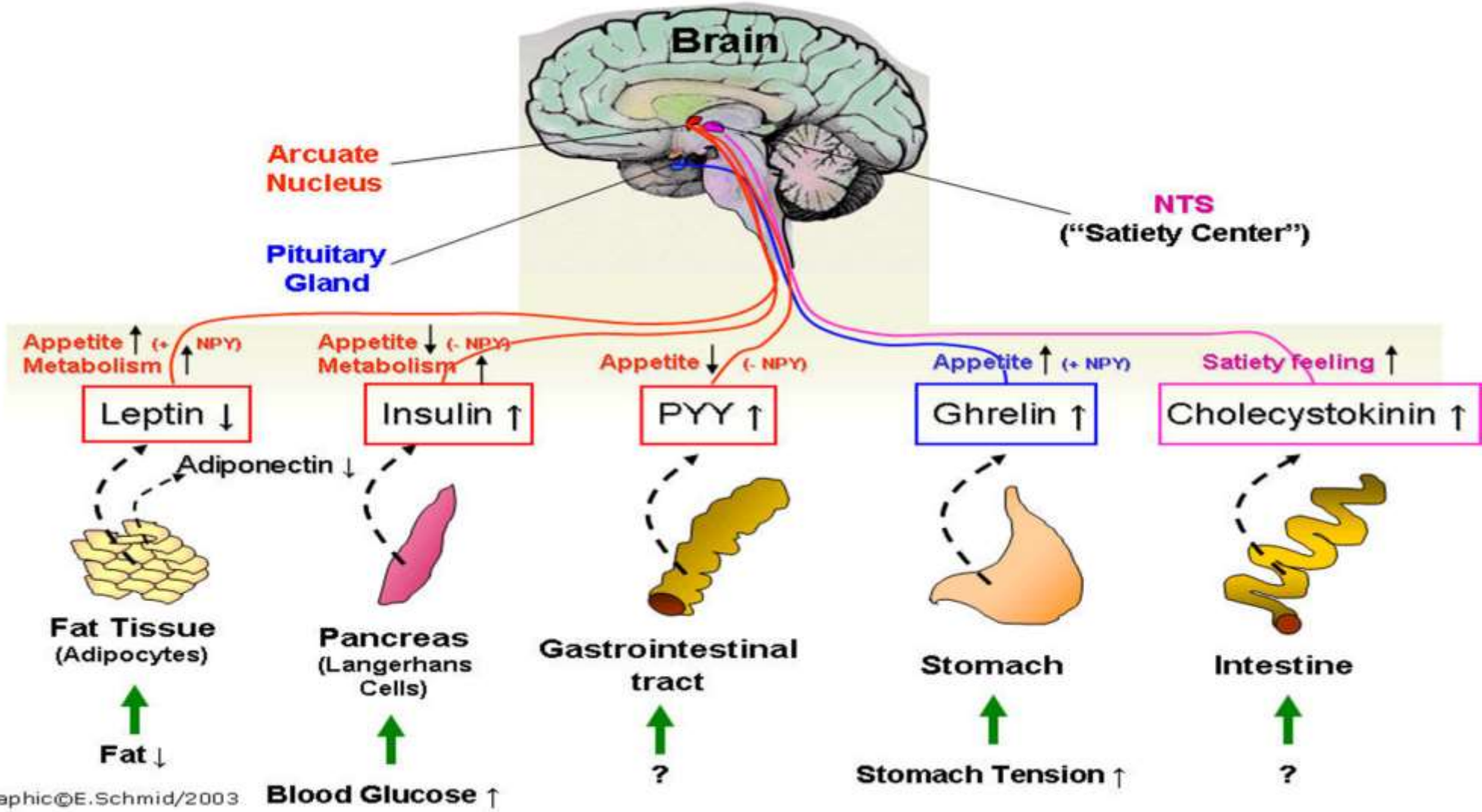
BMI OF GENERAL POPULATION AT 2025



- NORMAL
- 30>BMI>25
- 35>BMI>30
- 40>BMI>35
- BMI>40

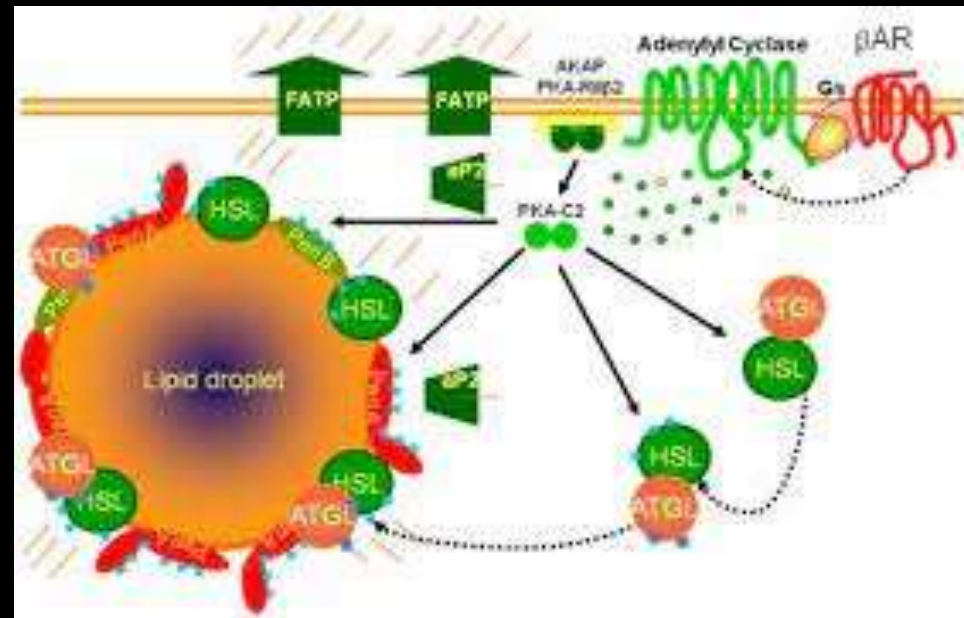
NORMAL HORMONAL BALANCE

Important hormones in human metabolism, appetite & satiety control

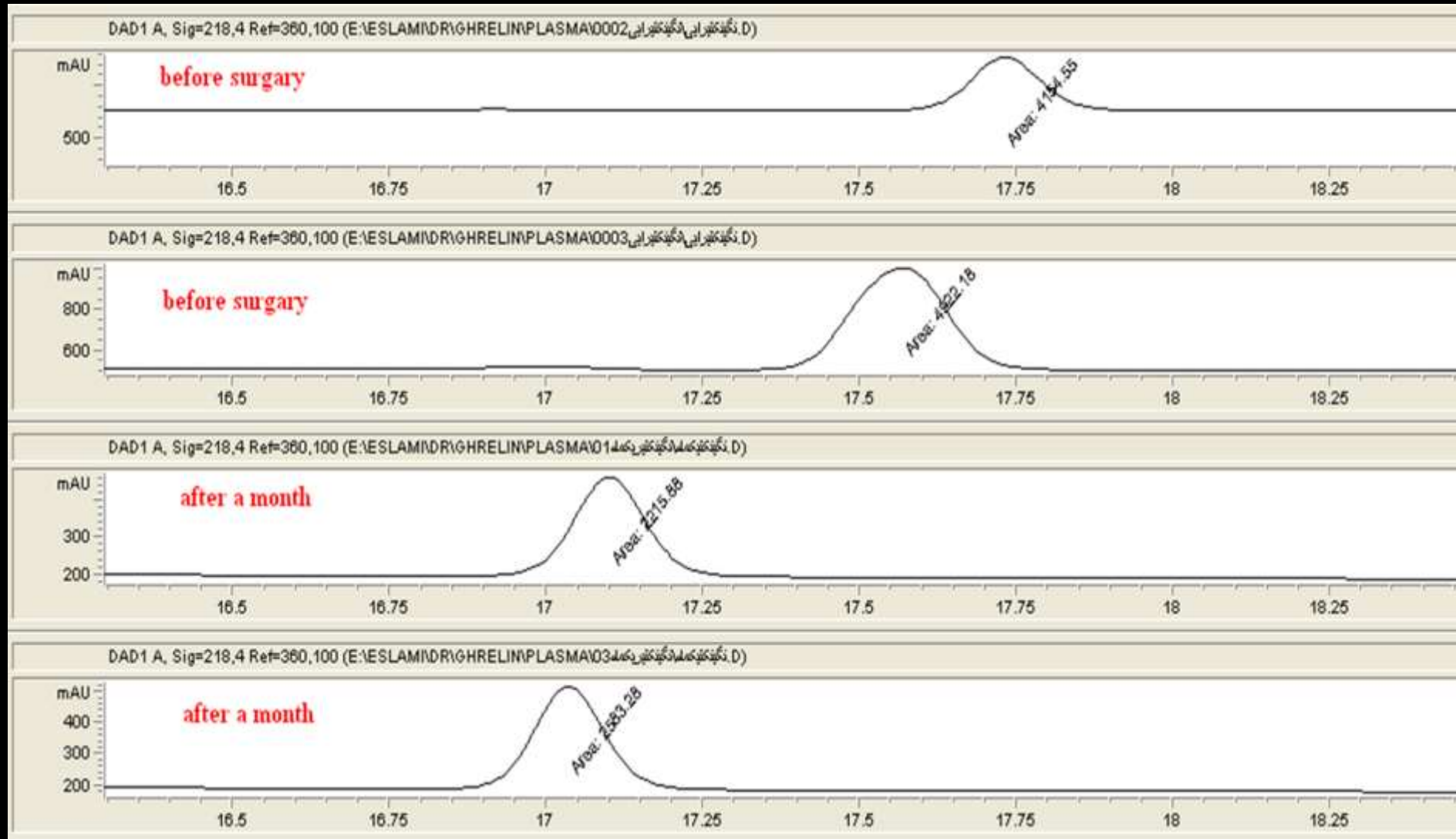


THE MAIN EFFECT OF BARIATRIC OPERATIONS

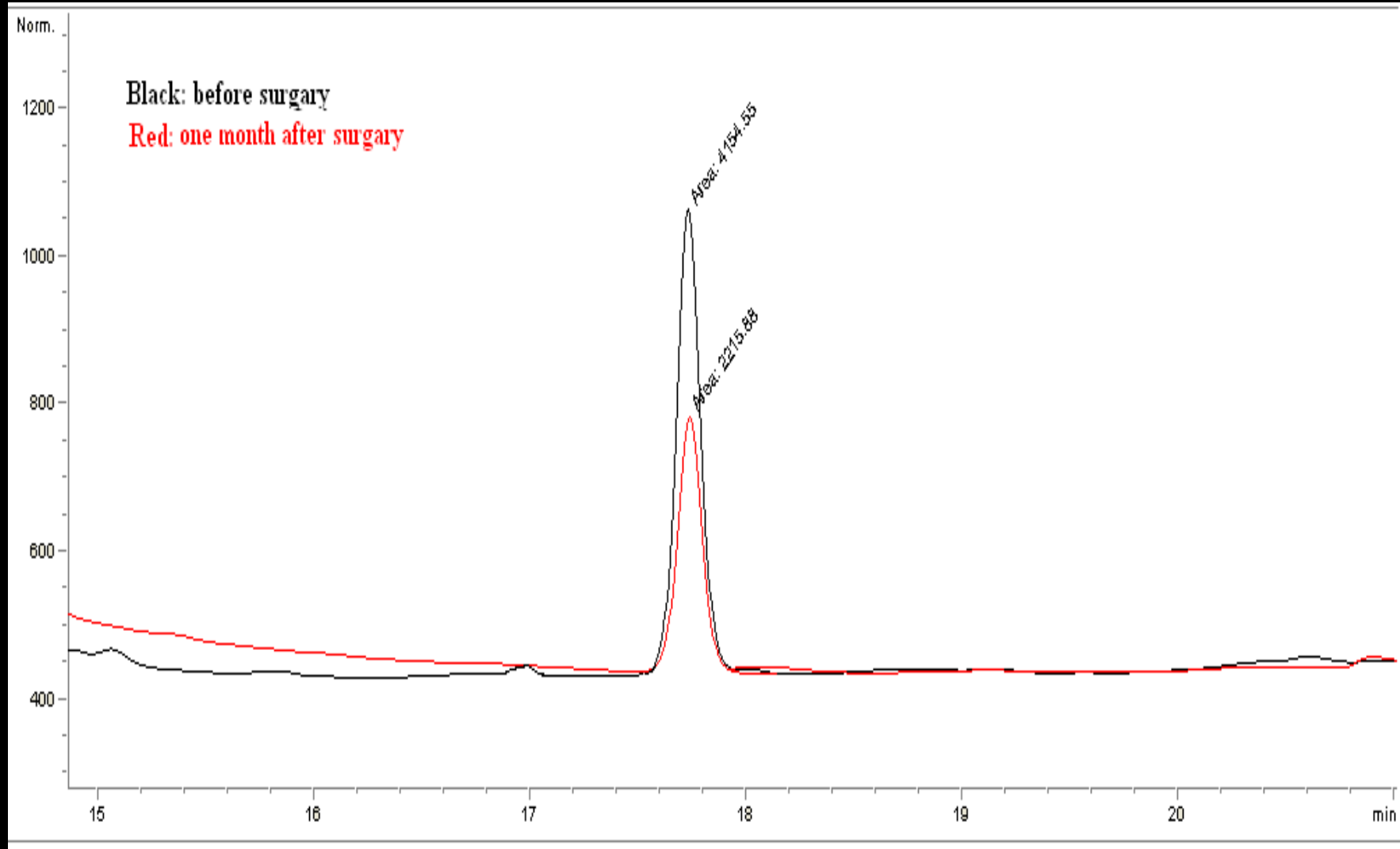
- Restrictive or malabsorptive
- Hormonal change
- Adaptation
- Transient
- Patient's role



LIQUID CHROMATOGRAPHY AND MASS SPECTROMETRY:



GHRELIN CONTENT WAS OBVIOUSLY DECREASES AFTER A MONTH:



PROTEIN MAPPING

Liquid Chromatography of plasma before and after LGP

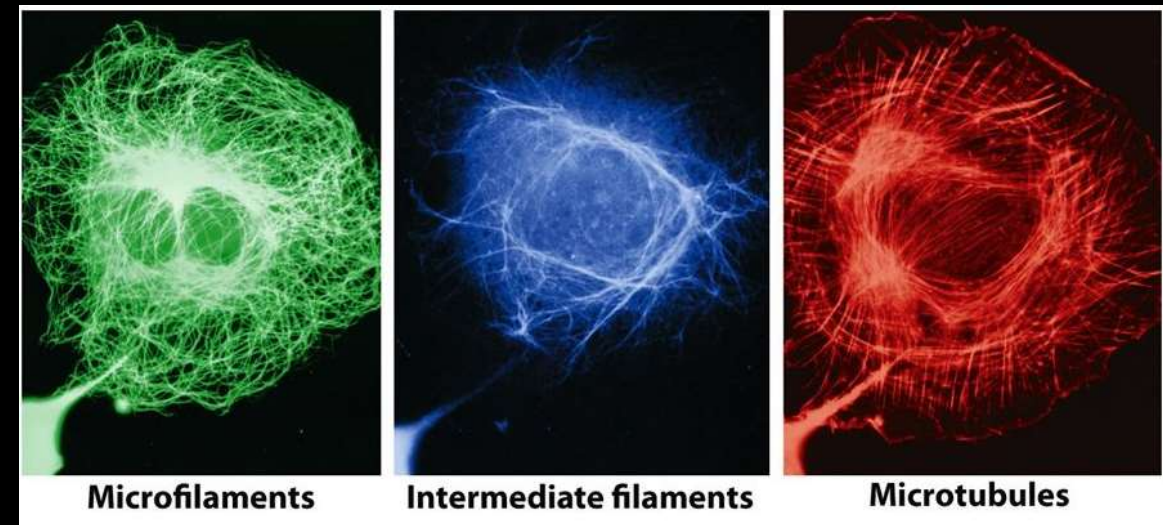
Change of plasma proteins

Role of new proteins in weight loss

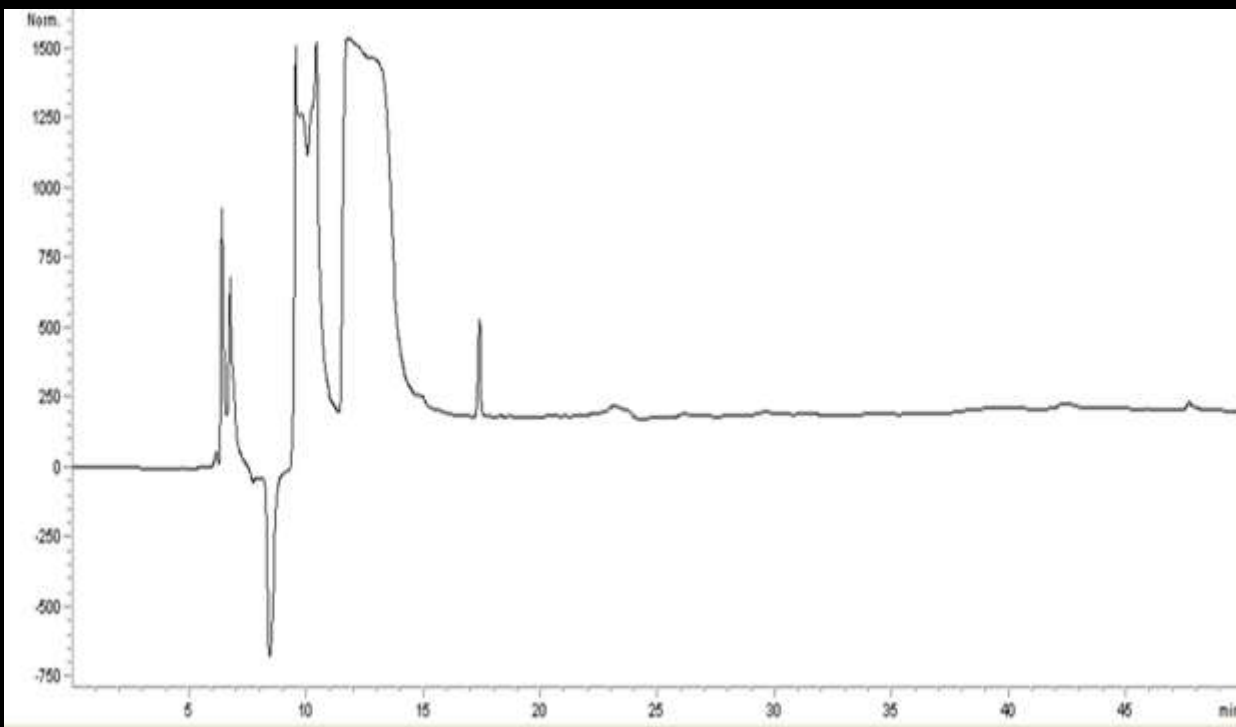
Primary or secondary role??

Need to find exactly the role of all of new Proteins

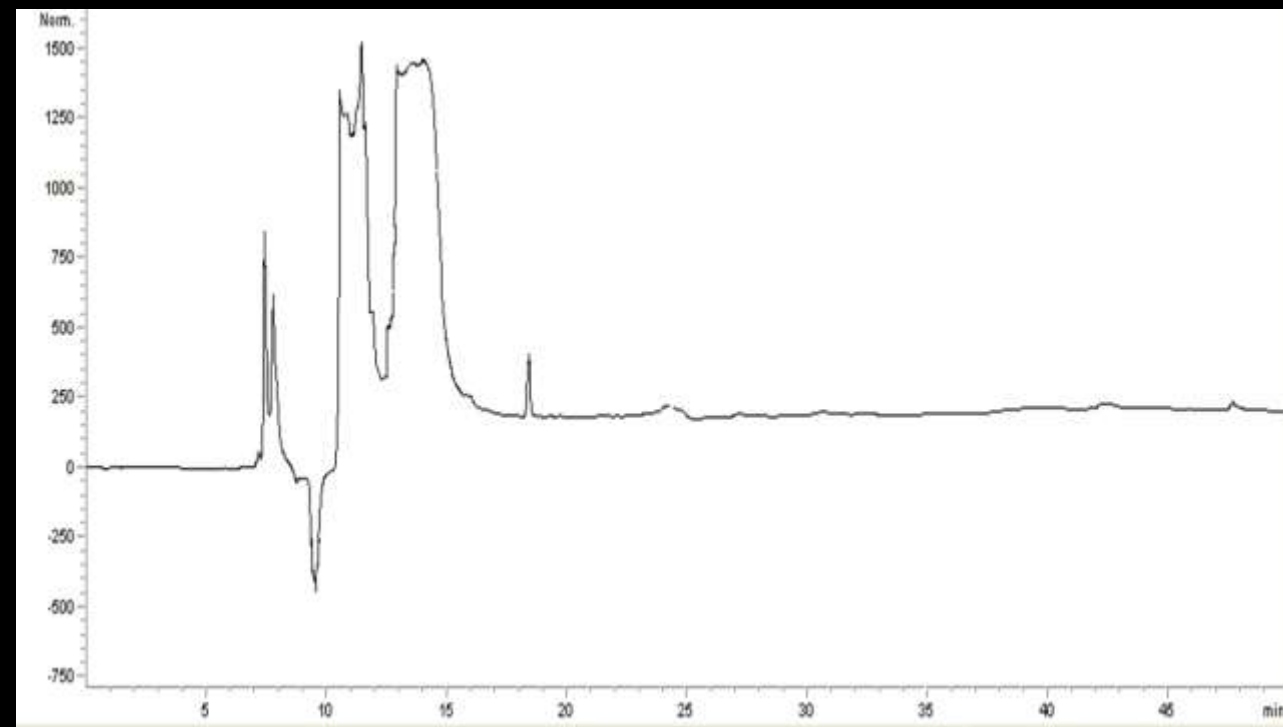
Result: **Lack of appetite, Rapid lipolysis**



**HIGH PERFORMANCE
LIQUID CHROMATOGRAPHY
"PATIENT PLASMA" BEFORE OPERATION**



**HIGH PERFORMANCE
LIQUID CHROMATOGRAPHY
"PATIENT PLASMA" AFTER ONE MONTH**



CHANGES OF PROTEIN MAPPING BEFORE, 45 AND 90 DAYS AFTER PPLICATION

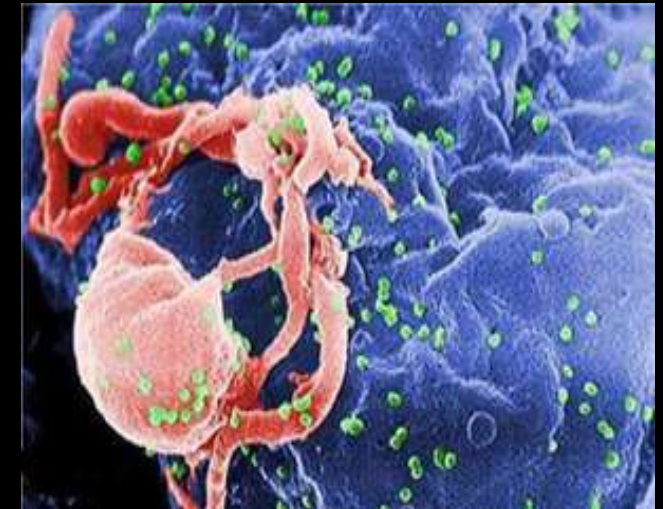
ASSESSMENT OF MOLECULAR AND BIOLOGIC CHANGES

THE ROLE OF SPECIFIC PROTEIN IN EACH ONE

EFFECTIVE ROLE OR PASSIVE ROLE OF SPECIFIC PROTEIN

THE INTERACTION BETWEEN DIFFERENT BIOLOGIC CHANGES

ACTIVATED LIPOLYSIS



ACTIVATED LIPOLYSIS

- New physiologic condition just after operation
- Duration: 14-21 days
- Metabolism of fat and sugar changed in the liver due to lack of appetite (any intake) and calorie demand of body (like **sanction**)
- **Weakness** during first 3 weeks due to fat and glucose low intake
- The interval needed for physiologic adaptation in the body to supply glucose by lipolysis in the liver
- It is induced maybe by new **enzymes or hormones** released secondary to prominent weakness after operation

SURG OBES RELAT DIS. 2016 MAR-APR;12(3):577-581. DOI: 10.1016/J.SOARD.2015.08.504. EPUB 2015 SEP 16.

CHANGES IN THE BODY COMPOSITION AFTER LAPAROSCOPIC GASTRIC PLICATION: A SHORT-TERM PROSPECTIVE CASE SERIES

Percentage of fatty tissue

Percentage of proteins

Comparing the curve of weight loss to curve of fat and protein loss during 6 month

Body composition before operation, 1, 3 and 6 month after operation



Body composition after gastric plication

Sixteen consecutive patients

There was no loss to follow-up.

Mean BMI=38 Kg/m² (SD=3.5) ,

Mean age=38 y (SD=11)

%Fat Mass=44% (SD=6.5%)

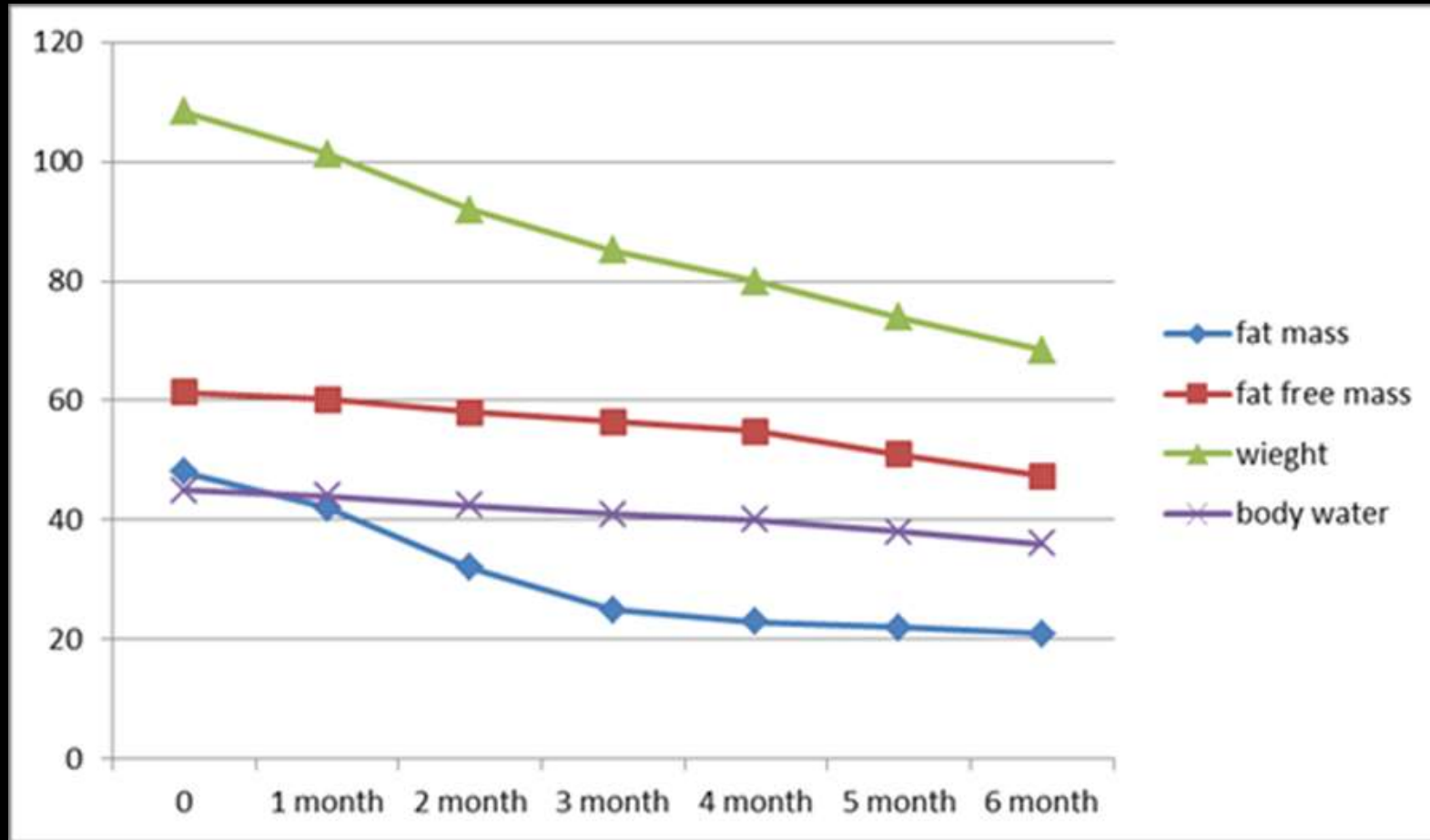
Mean postoperative body weight loss was 31 kg after 6 months,

25.5 Kg (83%) was due to FM reduction

Overall, %FM was decreased by 15% after 6 months, while %TBW increased by 11%



CURVE OF WEIGHT LOSS AND FATTY TISSUE LOSS Kg



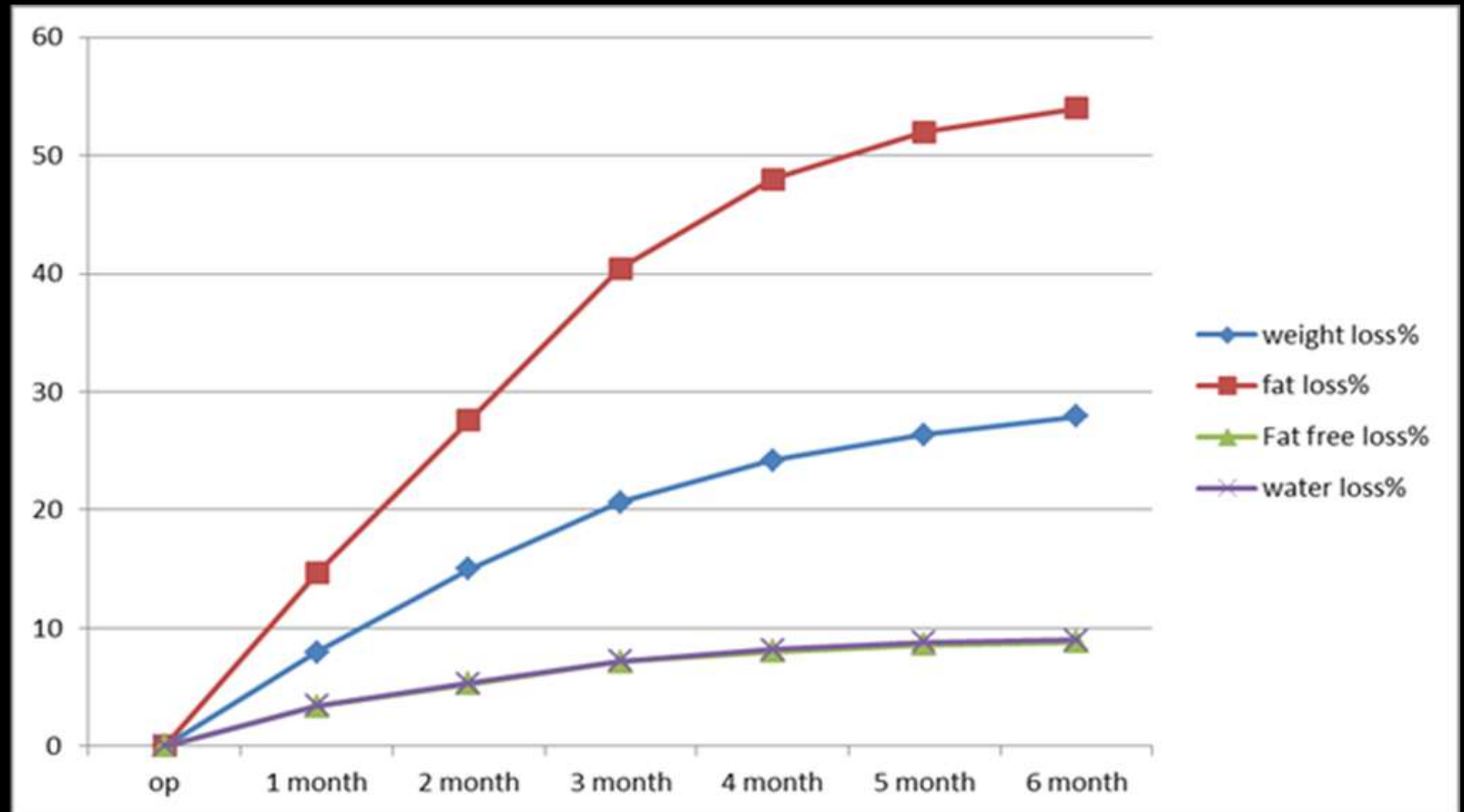
CURVE OF WEIGHT LOSS AND FATTY TISSUE LOSS%

Accelerated lipolysis

Unusual rapid physiologic fat loss

Minimal change in proteins

New hormone & enzyme



TRANSIENT HORMONAL CASCADE

- Power of hormonal cascade is related to degree of effectiveness of restriction
- Subside anyway
- Patient should change his lifestyle to prevent regain
- Otherwise hormonal imbalance will occur again
- Sleeve, plication, endoscopic midportion plication
- We need new method to preserve this hormonal cascade (DRUG??)



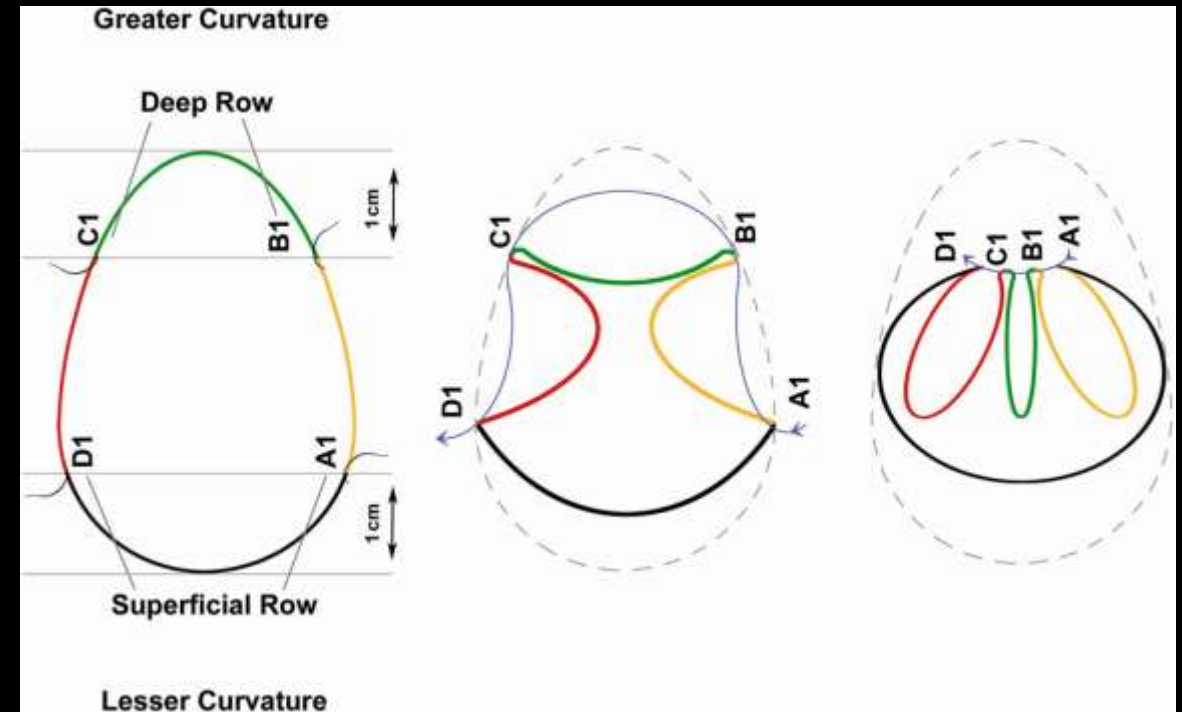
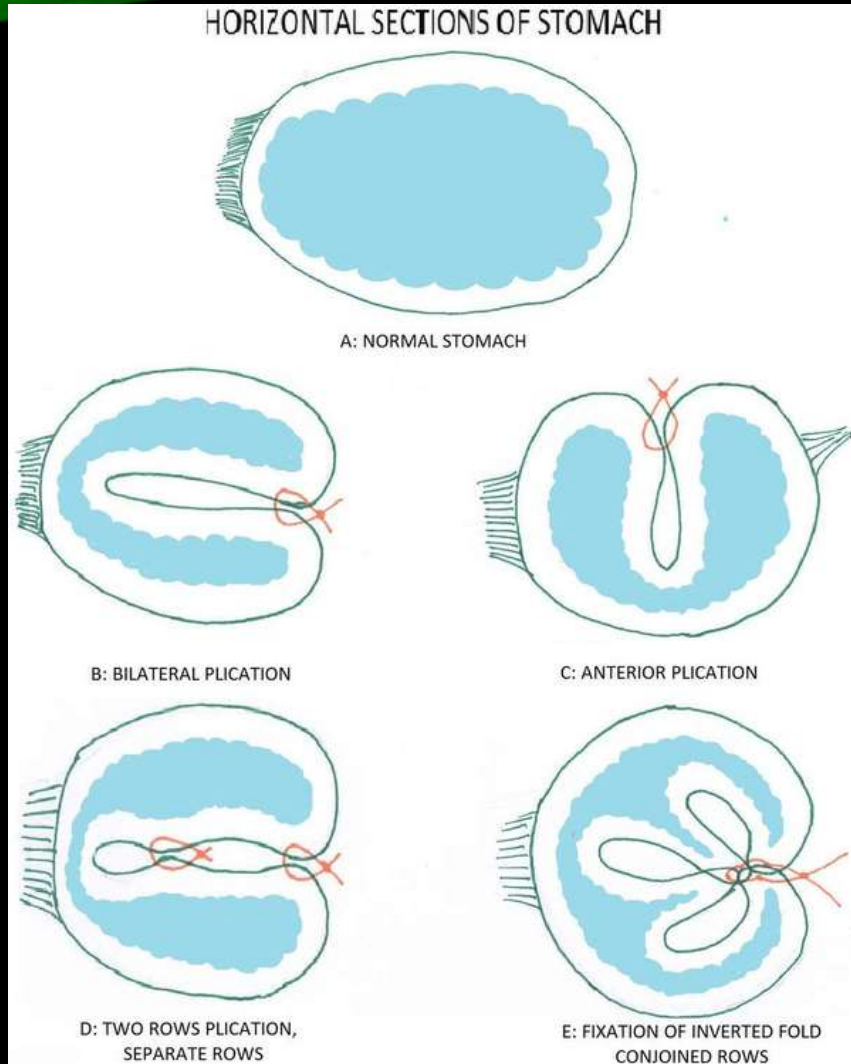
APETITE

- **Hormonal imbalance** due to:
 - environmental effect
 - epigenetic factors
 - bacterial
 - and so on
- **hormonal cascade** after bariatric operations
- **Accelerated lipolysis**
- Future of obesity control is by **drugs** able to induce hormonal balance





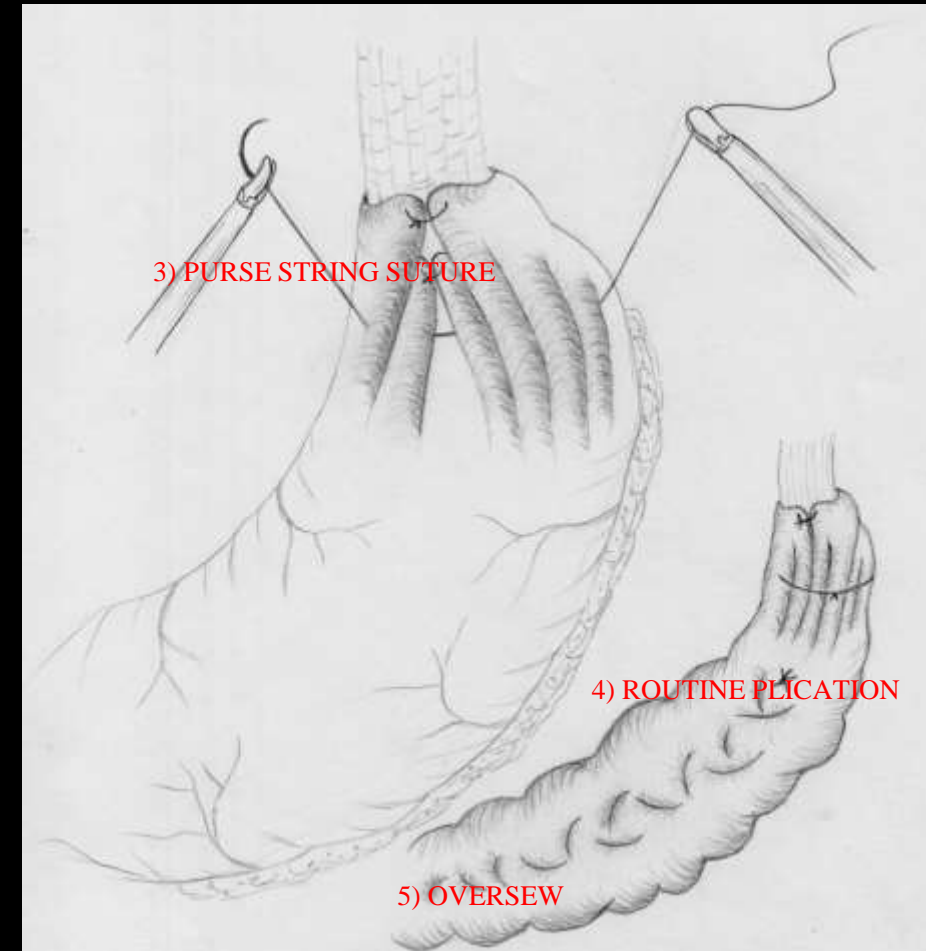
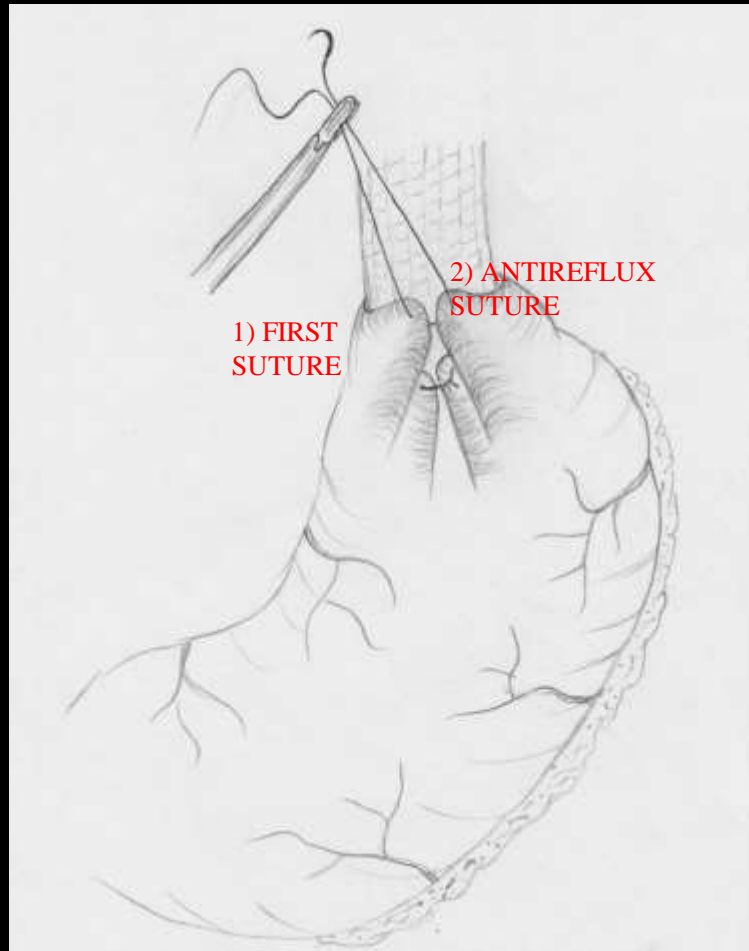
HISTORY



TECHNIQUE

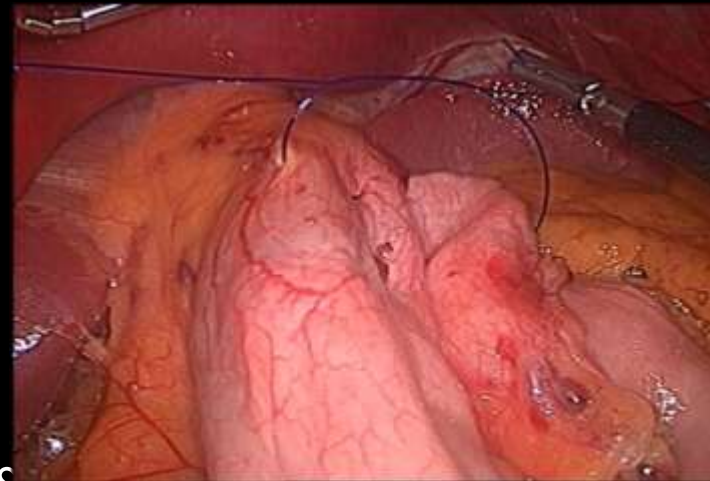


4 STEPS OF LGP

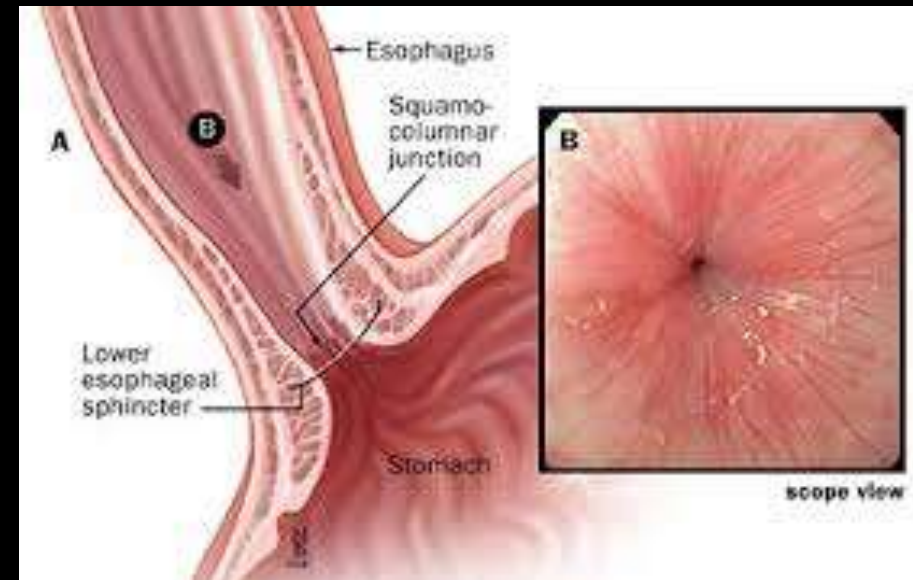
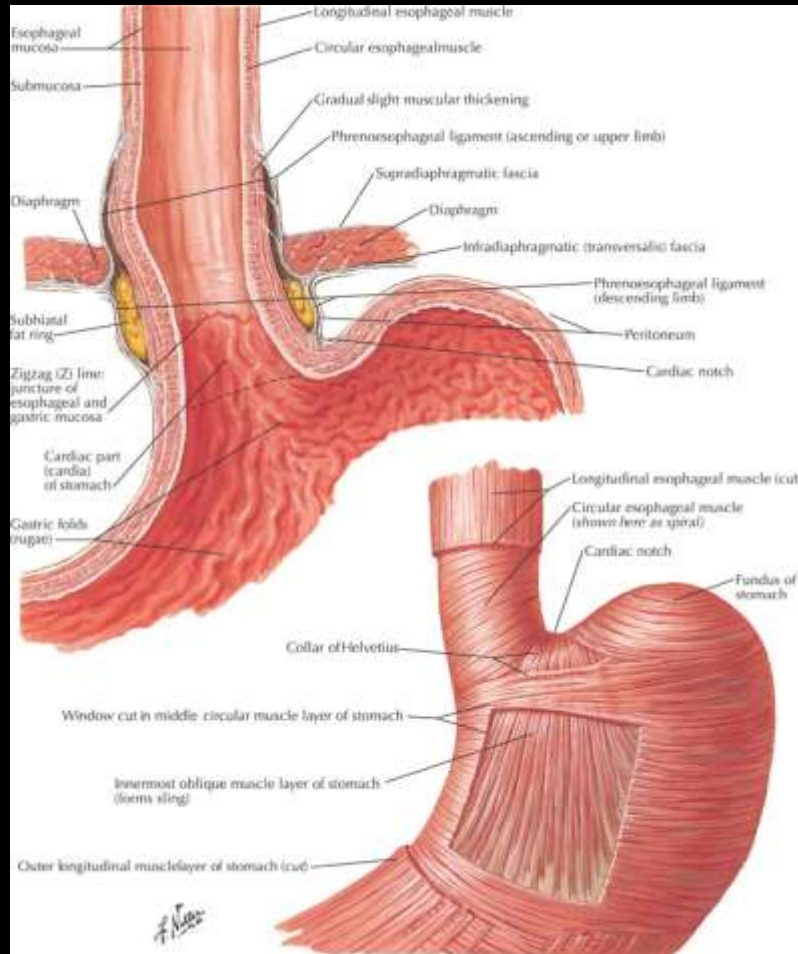


ANTIREFLUX SUTURE IN PLICATION

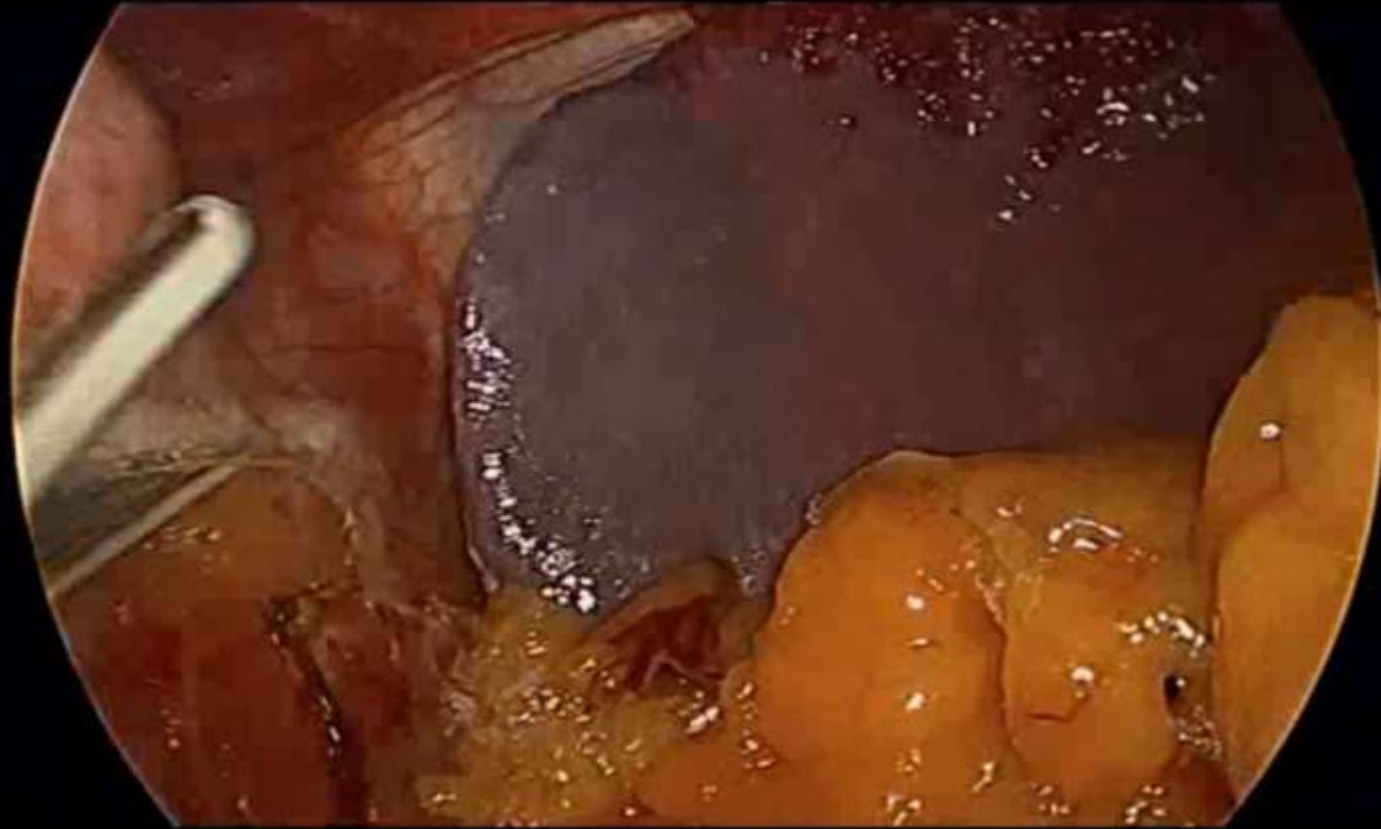
- NEW ANTIREFLUX METHOD
- ESPECIAL ANATOMY OF LES
- ENOUGH TISSUE TO MAKE LATERAL GASTRIC FOLD OVER DISTAL PART OF ANTERIOR ESOPHAGUS
- PLICATION CAN USE IN STAGE 3 AND 4 GERD??
- MANOMETRY



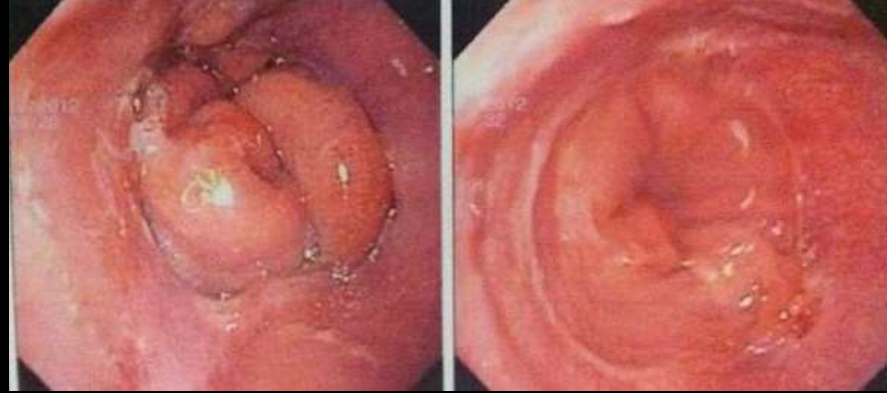
OBLIQUE ANATOMY OF LES



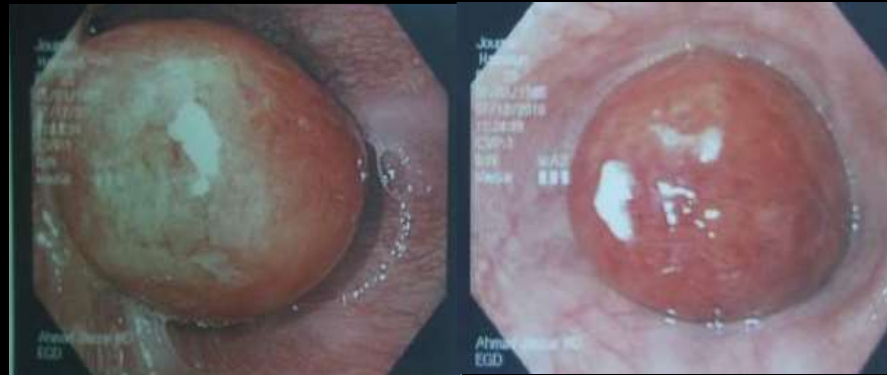
ANTI REFLUX PROCEDURE



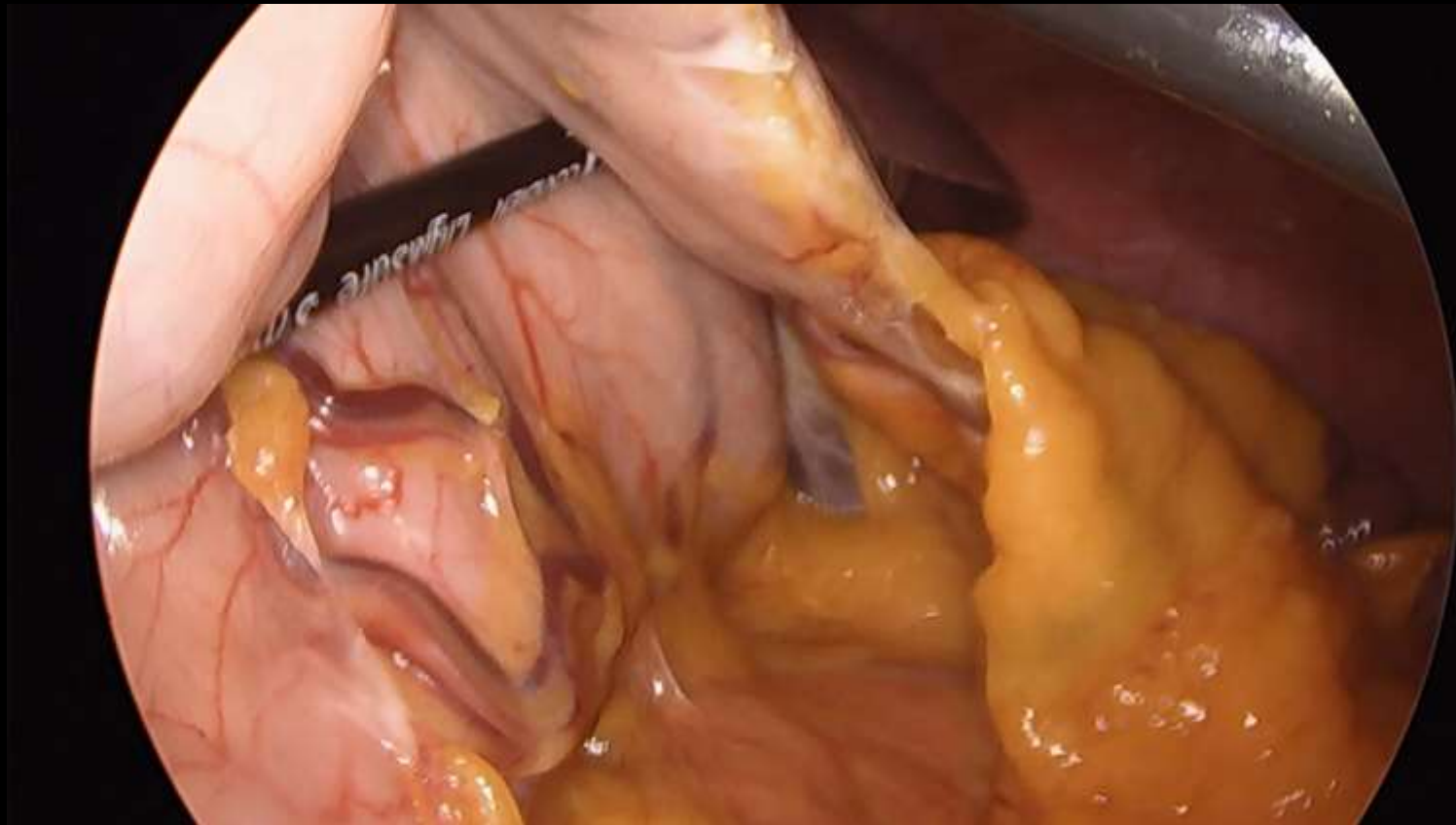
NORMAL

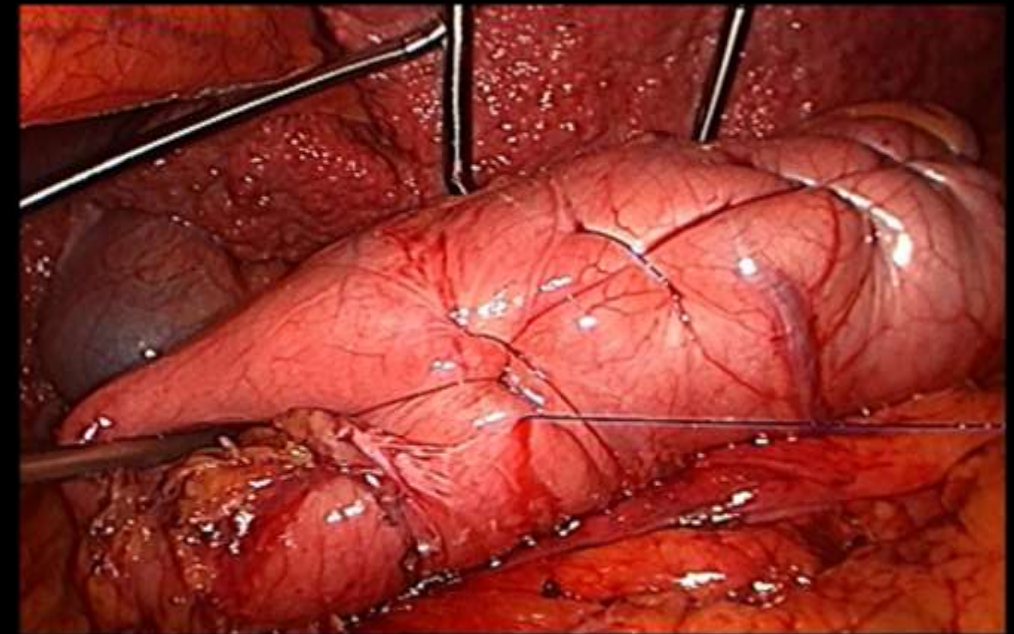
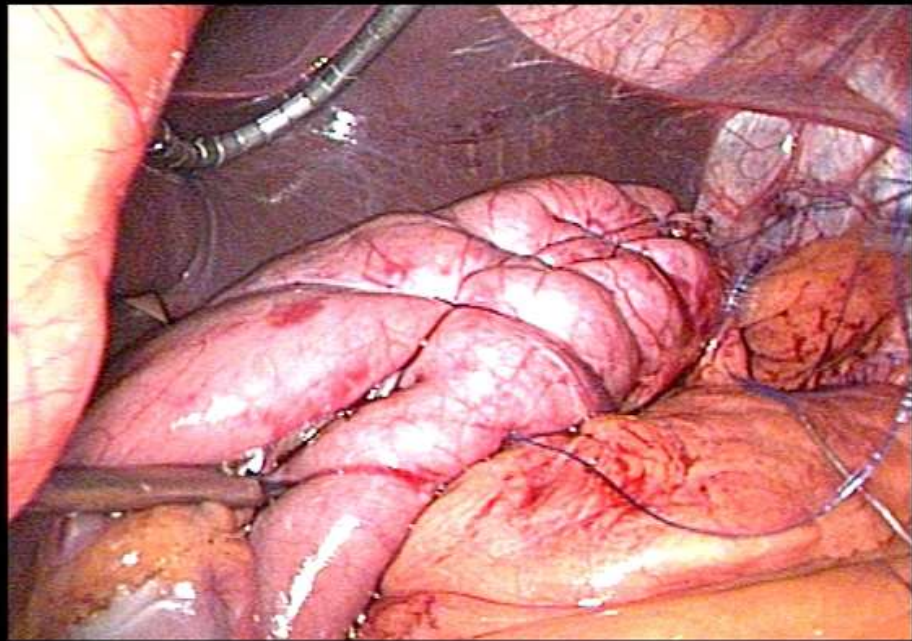
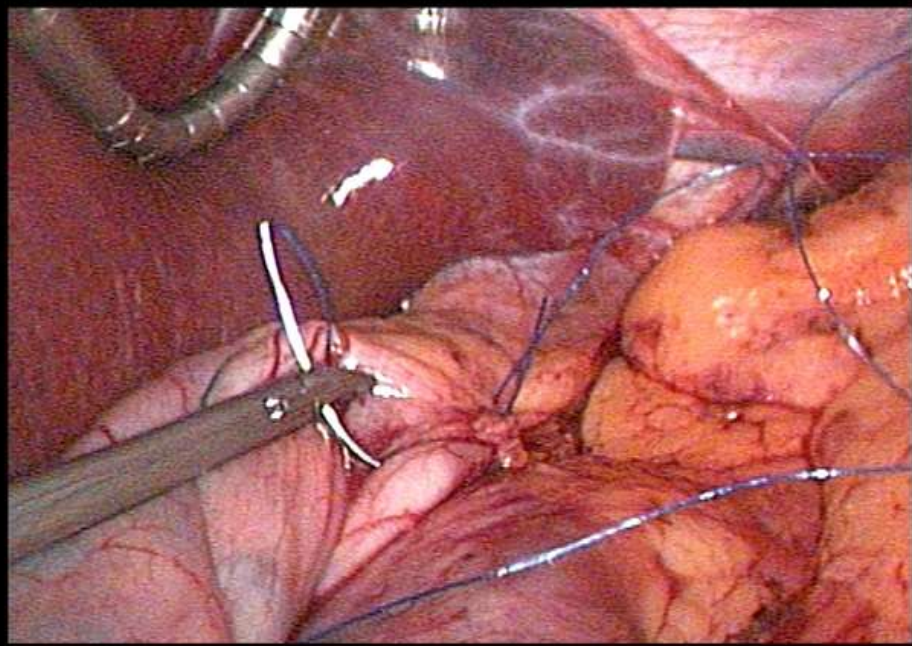


PATHOLOGIC



VIDEO PRESENTATION





FUNCTIONAL RESTRICTIVE EFFECT:

- **PAINFULL PERISTALSIS** (EPIGASTRIC PAIN) DUE TO 2- ROW FIXATION
- 2-ROW CONTINUOUS PPLICATION HAS THE MOST ABOVE EFFECT
- SEPARATE SUTURS: RISK OF INVERTED FOLD MOVEMENT
- **ANATOMIC VOLUME MORE THAN FUNCTIONAL VOLUME**
- **PROTEIN**, FATTY MEAL, PROMINENT
- CARBOHYDRATE, MODERATE
- LIQUIDS, SAME



Endoscopy and LGP



CONTRAST STUDY AFTER LGP



WHY LGP IS NOT SO POPULAR

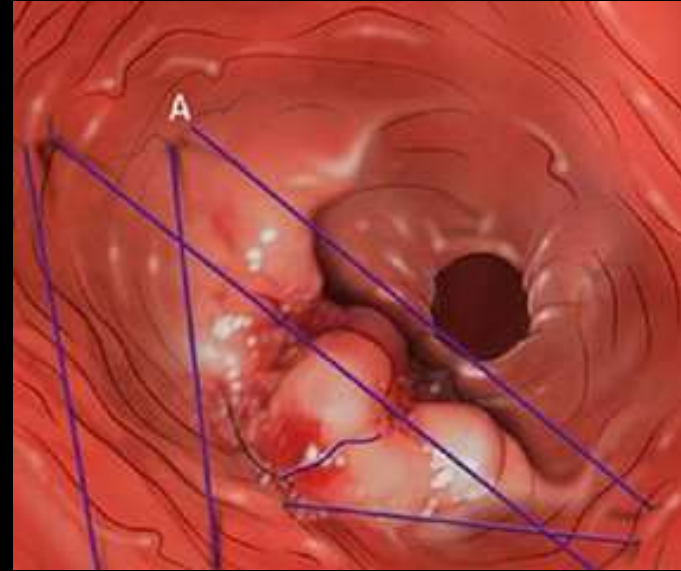
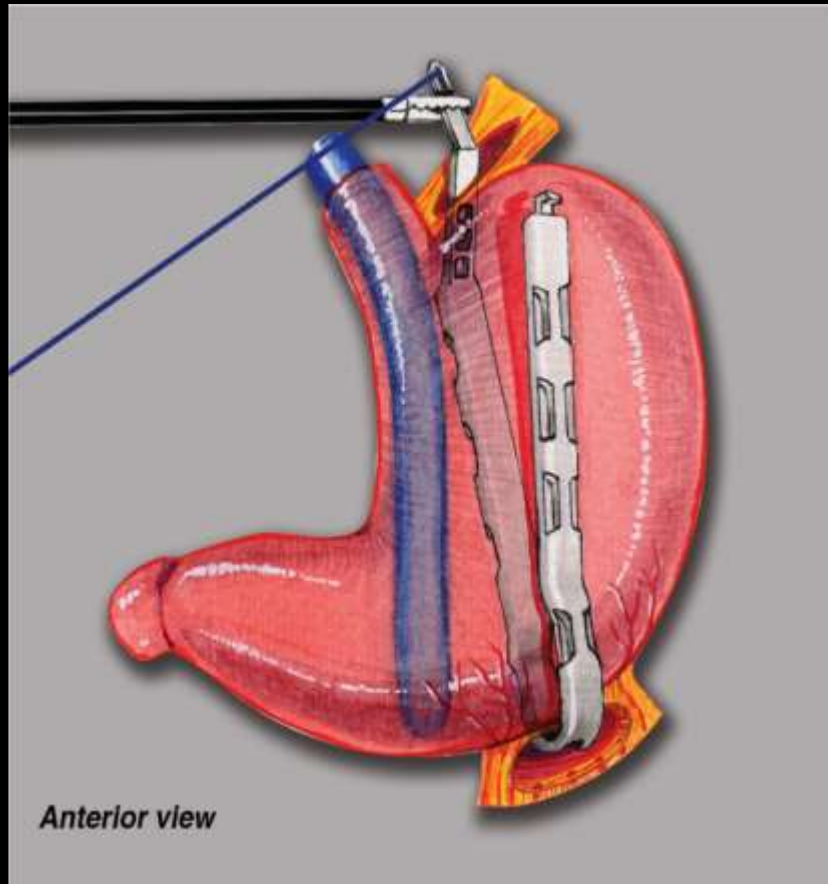
- Technical method
- Any advertisement
- Companies push other methods
- It is not well presented to patients



3000 YEARS AGO, PASARGHAD, SHIRAZ



SIMILAR METHODS TO PLICATION:



RESULT

My data: 2754 **cases** during 22 years

At first: in every morbid obese case

The maximum rate was between 2009 to 2012 with **250 cases per year**

From 2012: in **selected** cases:

young patients

with high enough motivation to change their **life style** in the future

with the BMI between **35 to 42**

RESULT

The effective **volume** of stomach after plication:

At first: 50 cc in 3 groups

After one year: 100 cc in one-row

75cc in 2-rows and standard

After 4 years: 250 cc in one-row

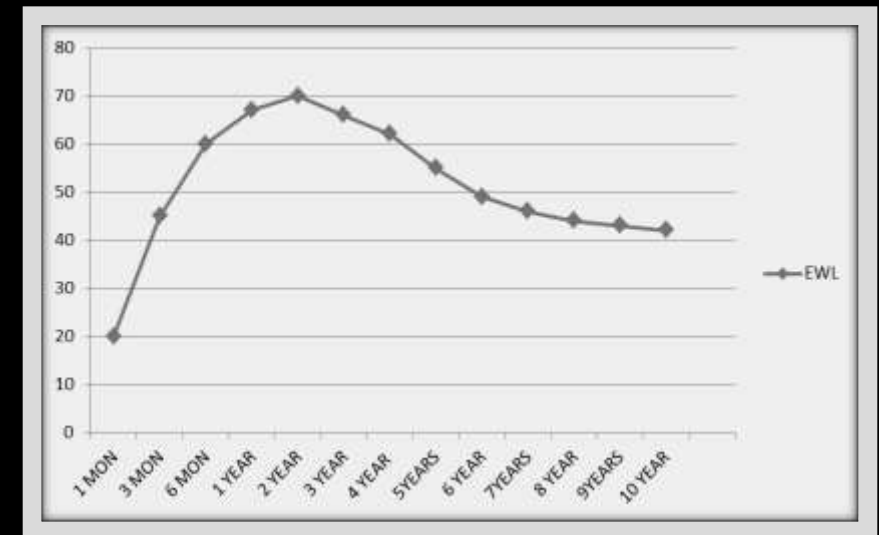
200 cc in 2-rows and standard

The rate of **excessive weight loss** after one year:

60% in one-row,

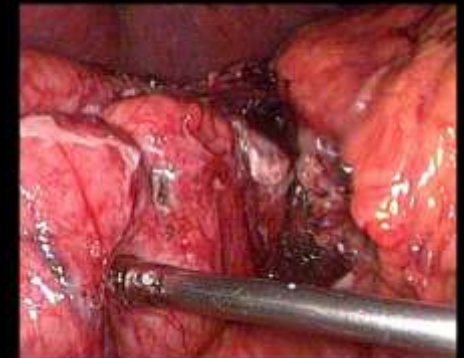
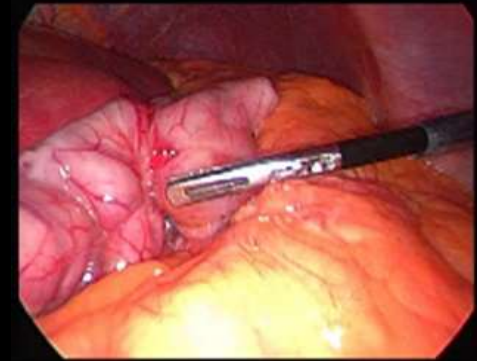
70% in two-row

75% after standard method.



RESULT

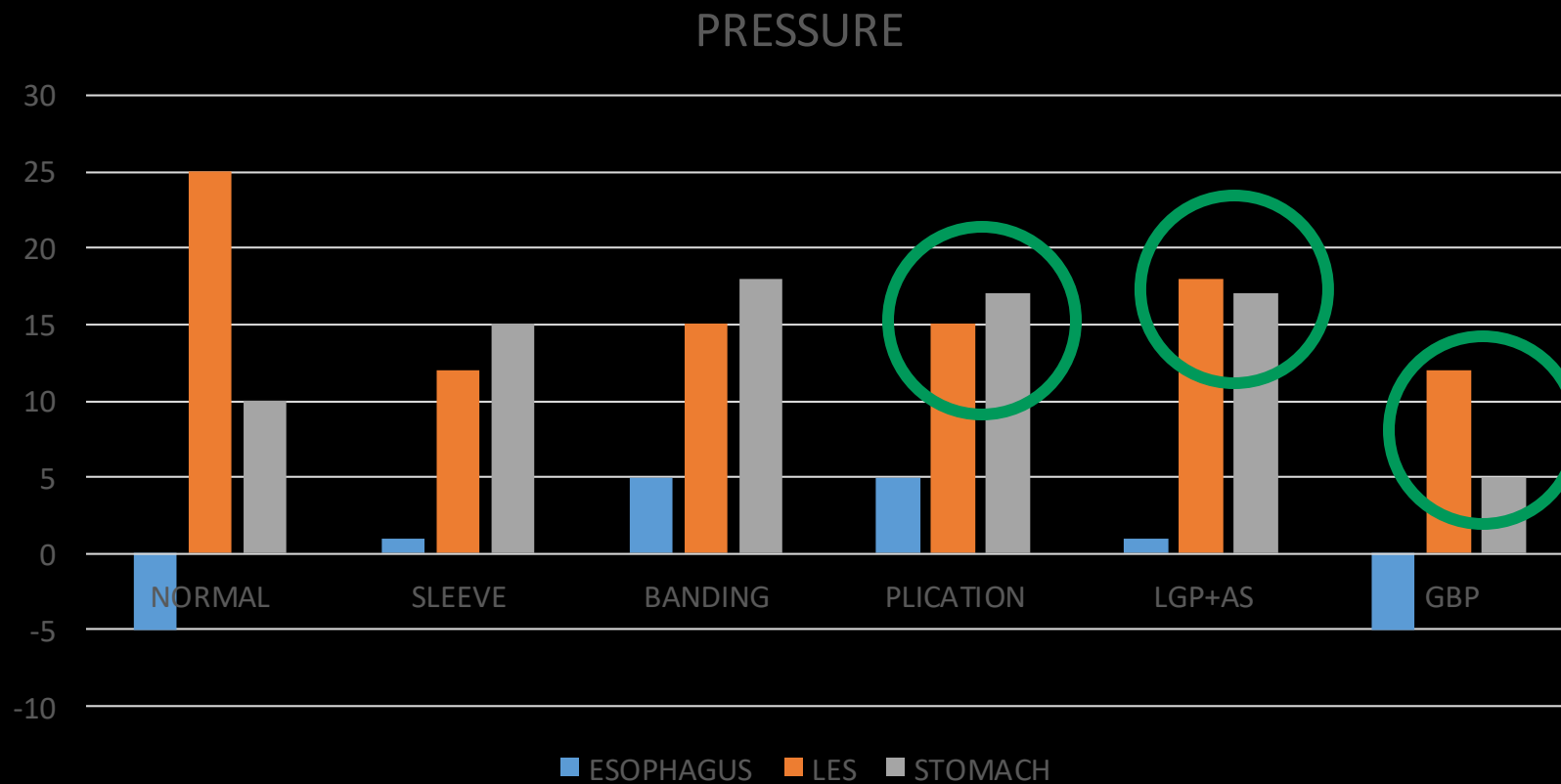
- LESS THAN **1%** COMPLICATION:
 - Leakage:** Mainly in one row
0 in standard
 - Obstruction:** Mainly in one
0 in standard
- **0.25%** TECHNIQUE RELATED MORTALITY (one row)
- **15%** REGAIN AFTER 4 YEARS
- Any problem with standard 5 steps method



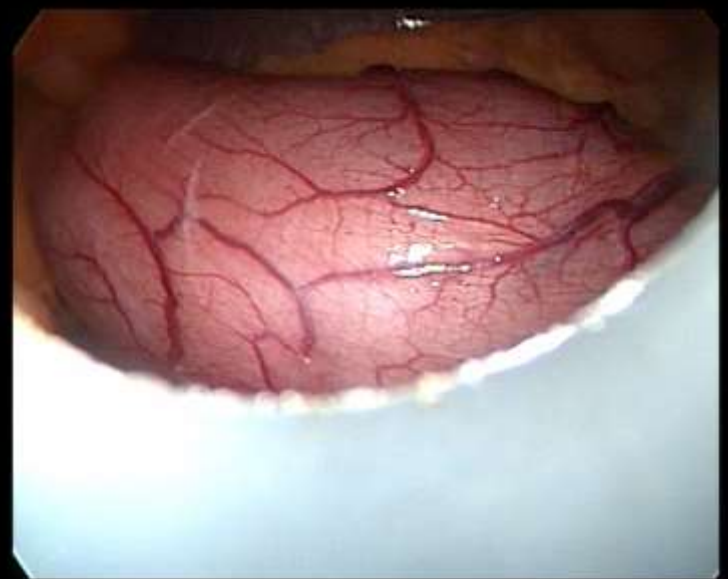
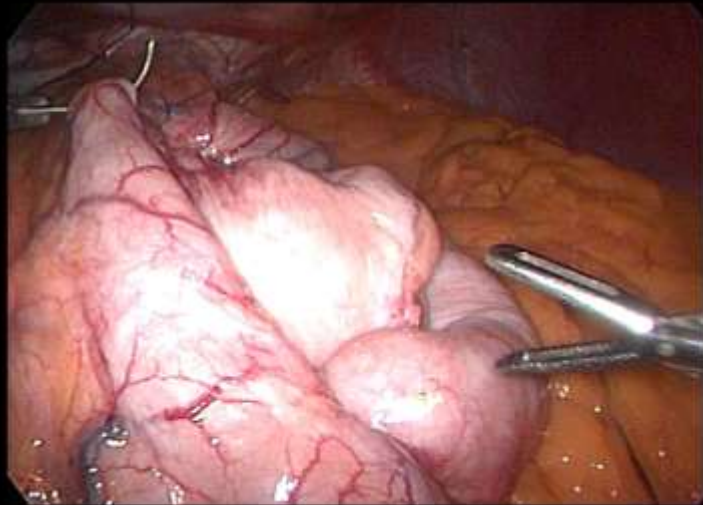
INTRALUMINAL PRESSURE AFTER ONE MONTH

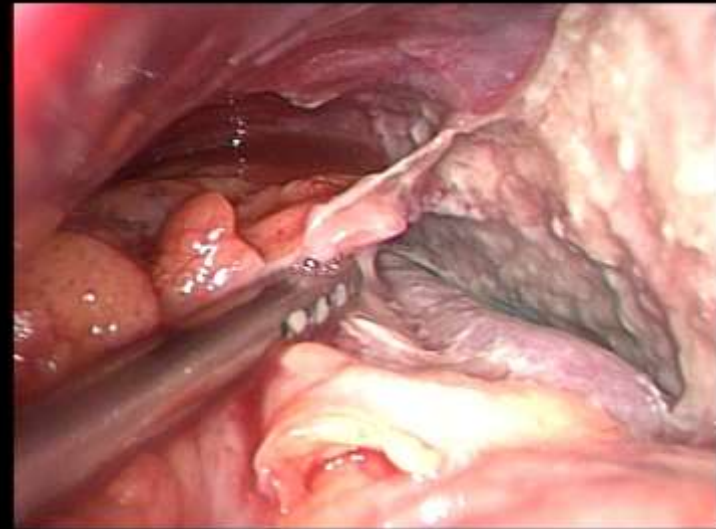
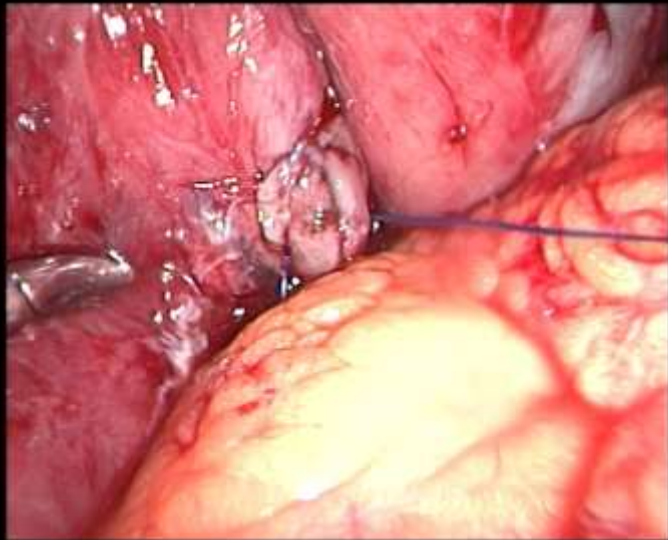
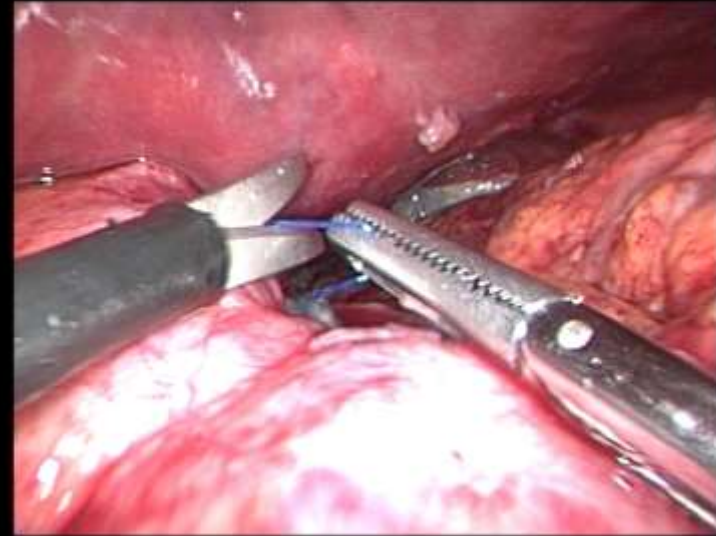
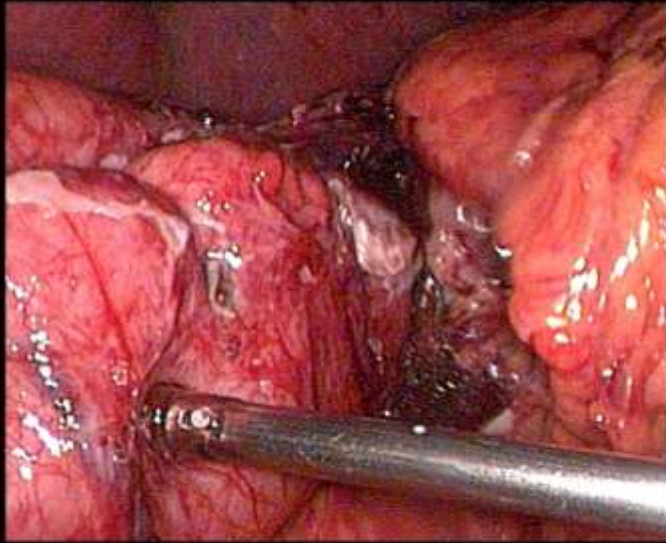
METHOD PRESSURE (mmHg)	SLEEVE	NORMAL	BANDING	PLICATION	PLICATION WITH ANTIREFLUX SUTURE	GBYPASS
ESOPHAGUS	0	-5 TO -10	-5 TO 5	0 TO 5	-5 TO 0	-5 TO -10
LES	12	20 TO 30	10 TO 20	10	18	15
STOMACH	15	5 TO 10	15 TO 25	15 TO 20	15 TO 20	2 TO 5

INTRALUMINAL PRESSURE AFTER DIFFERENT OPERATIONS



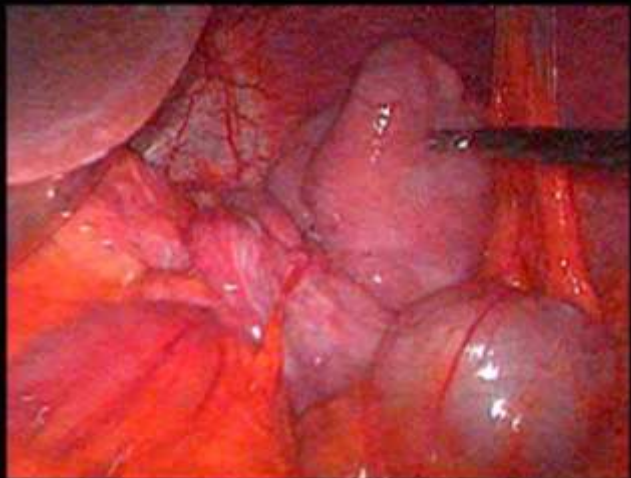
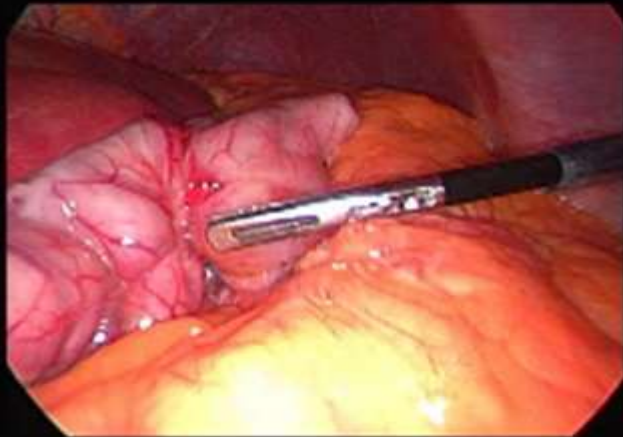
REPLICATION





OBSTRUCTION

7 DAYS AFTER OPERATION



J Laparoendosc Adv Surg Tech A. 2007 Dec;17(6):793-8.

Laparoscopic total gastric vertical plication in morbid obesity

TGVP 100 cases mean age: 32

F/M = 76/24

BMI: 47 (36-58).

EWL after 1 month: 21.4%

after 6 months: 54% (72 cases),

after 12 months: 61% (56 cases),

after 24 months: 60% (50 cases),

after 36 months: 57% (11 cases).

main postoperative complications:

permanent vomiting,

intracapsular liver hematoma,

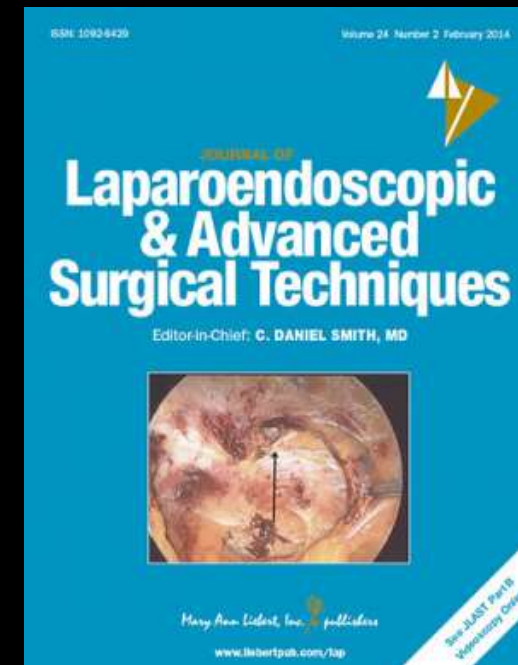
hypocalcemia at early postoperative period,

hepatitis,

leakage at the suture line, and acute gastric perforation.

CONCLUSIONS:

The percentage of EWL is comparable to other restrictive methods, but more rapidly



Twelve year experience of laparoscopic gastric plication in morbid obesity: development of the technique and patient outcomes

METHODS:

12 years: Anterior plication (10 cases),
one-row bilateral plication while Rt GE artery included (42 cases),
one-row plication (104 cases)
two-row plication (644 cases)

RESULTS:

800 cases (mean age: 27.5, range: 12 to 65 years, nine under 18).

Female to male ratio was 81% to 19%

average BMI was 42.1 (35-59).

The mean excess weight loss (EWL) was 70% (40% to 100%) after 24 months

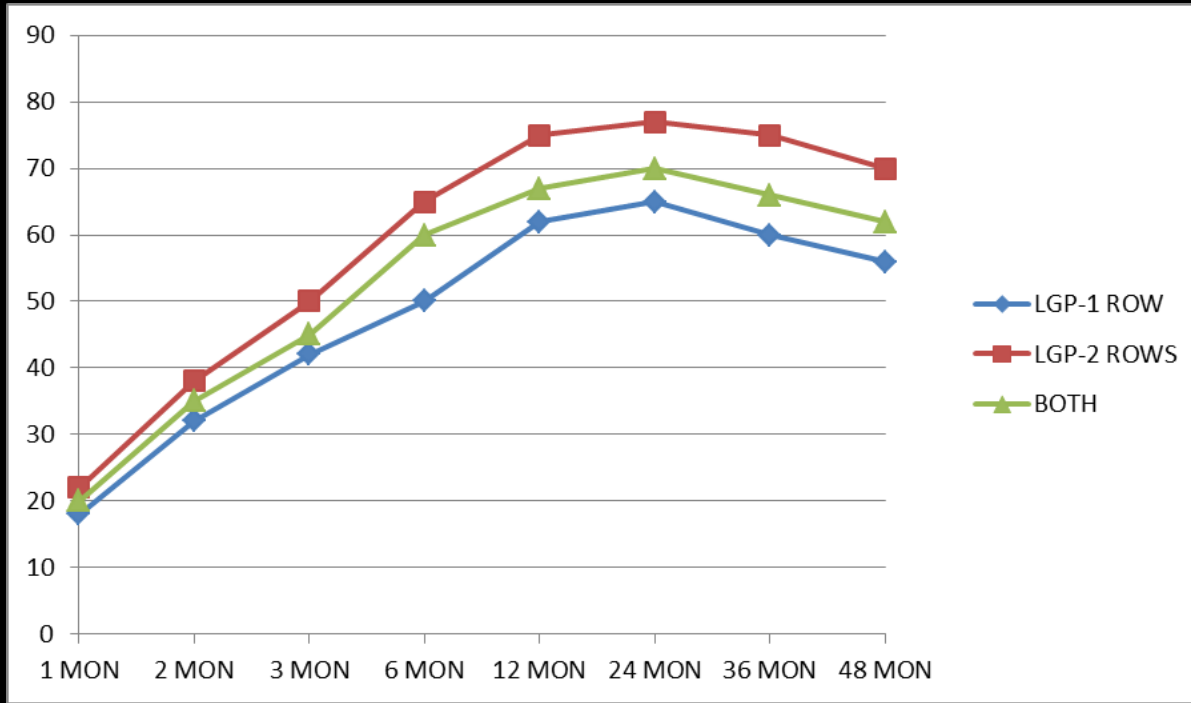
5.5% and 31% of cases complained from weight regain respectively during 4 and 12 years after LGP.

Eight patients out of 800 cases (1%) required reoperation due to complications like:

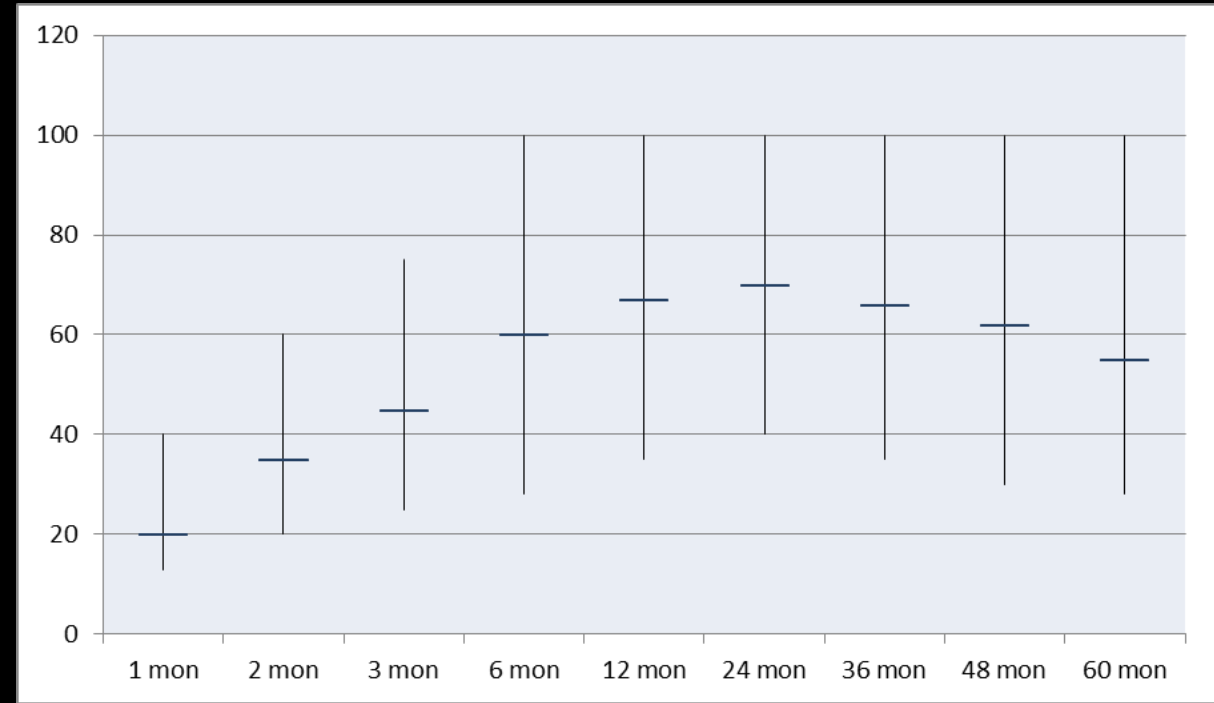
micro perforation,
obstruction and vomiting



EWL OF LGP METHODS



RANGE OF EWL DURING 5 YEARS



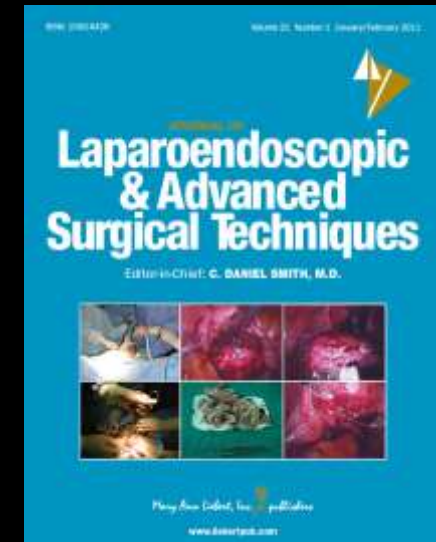
COMPARING 1 ROW TO 2-RW PLICATION



J Laparoendosc Adv Surg Tech A. 2015 Mar;25

Predictors of weight loss after laparoscopic gastric plication: a prospective study

- Between 2000 and 2011
- Nine independent variables %EWL \geq 80% at 24 months in 330 patients:
 - age at surgery,
 - gender,
 - preoperative body mass index,
 - preoperative comorbidities,
 - marital status (single versus married),
 - employment status (employed versus unemployed),
 - family support
 - the experience of pain or gastroesophageal reflux
 - participation in support groups following LGP (yes or no)
- Importance of motivation



Surg Obes Relat Dis. 2014 Nov-Dec;10(6):1135-9

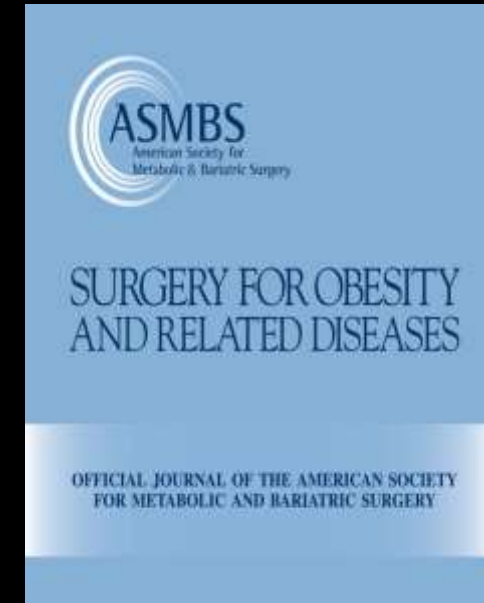
Laparoscopic gastric plication in morbidly obese adolescents: a prospective study

12 cases (F/M= 9/3)

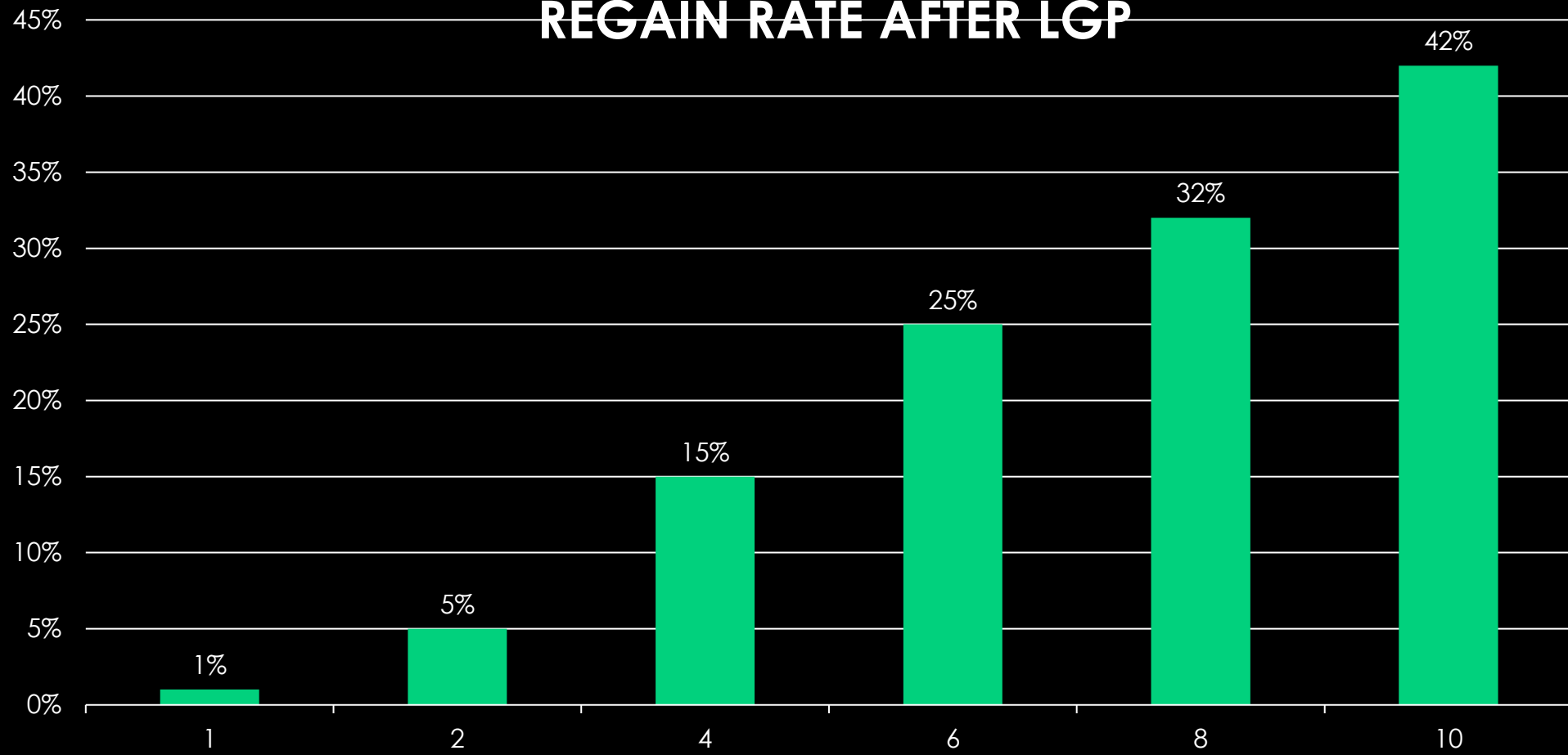
Mean age 13.8 ± 1 year

Mean BMI 46.0 ± 4 kg/m²,

Mean %EWL $68.2 \pm 9.9\%$ after 2 years



REGAIN RATE AFTER LGP





LGP & ESG

- Name: Endoscopic midportion partial plication (like Anterior plication)
- General Anesthesia
- Any hole in abdominal wall
- Actually the remaining space is more than 200cc
- Very short duration of hormonal cascade
- Expensive
- Obesity Class one (30 -35) or Class two (35-40)??

SLEEVE GASTRECTOMY AT THE FIRST AND NOW

- GHRELIN SECRETION?

Mainly in the stomach and duodenum,

Also in the jejunum, lungs, pancreatic islets, gonads, adrenal cortex, placenta, and kidney

Locally in the brain

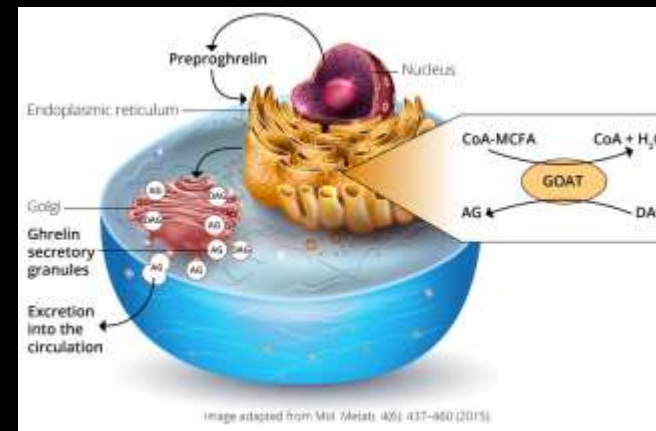
- LOSS OF APPETITE:

INTRALUMINAL PRESURE

- DILATION OF SLEEVE

AFTER 5 YEARS TO **250 CC**

- PERMANENT RESTRICTION?



Obes Surg. 2017 Oct 17.

Comparison of Short-Term Effectiveness and Postoperative Complications: Laparoscopic Gastric Plication vs Laparoscopic Sleeve Gastrectomy.

70 patients, 35 patients LSG, 35 LGP
randomized clinical trial (IRCT2013123012294N5)

From 2012 to 2015

Two-year follow-up rate was 100%.

No statistically significant differences in preoperative BMI

Postoperative: any significant difference in BMI (all p values > 0.05)

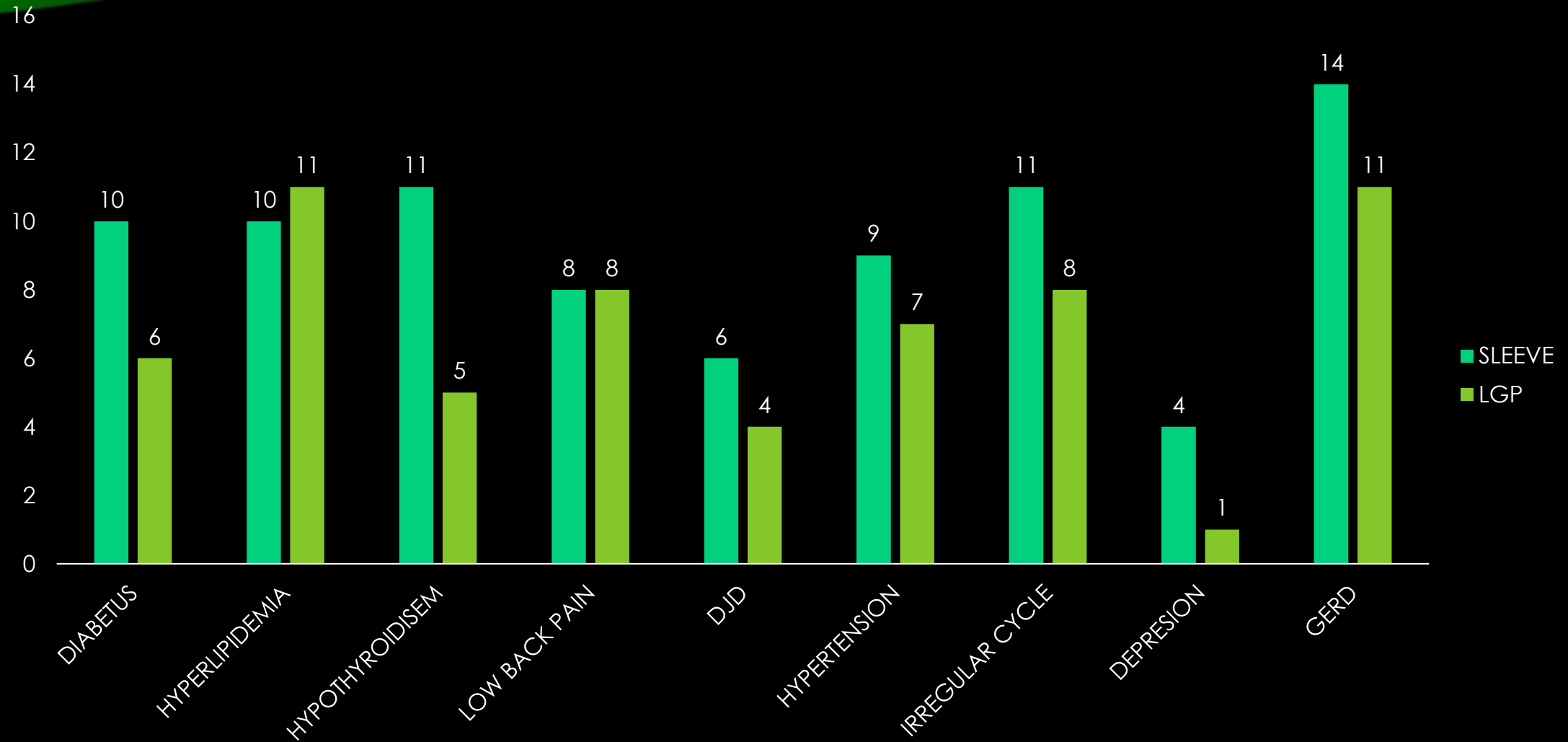
LSG patients were readmitted more than LGP patients (seven cases vs one case, p value = 0.024).
Postoperative complications such as nausea and vomiting, hair loss, iron deficiency, vitamin D deficiency, and cholelithiasis were not different between the two groups.

There was one death in the LGP group due to pulmonary thromboembolism.

LGP showed to be efficient regarding %EWL and %TWL reduction in short-term follow-ups with comparable postoperative complications to LSG.



COMORBIDITIES OF TWO GROUPS

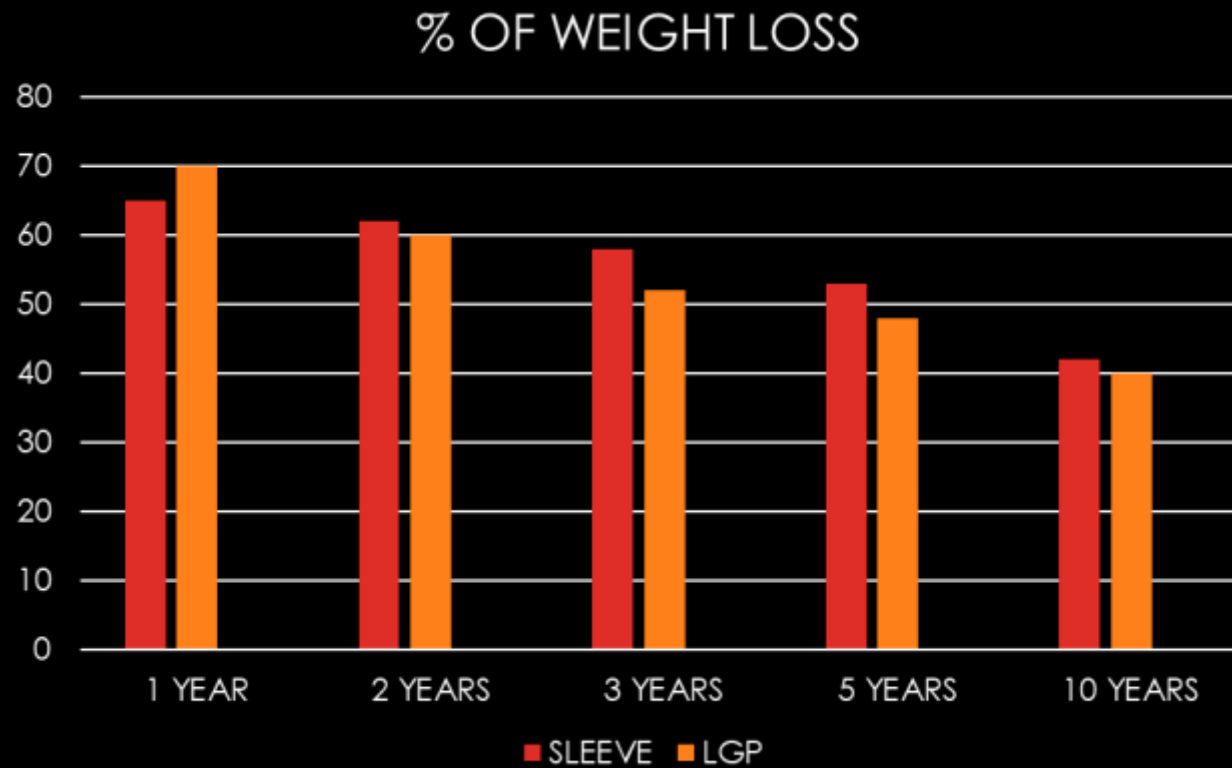


WEIGHT LOSS AFTER LGP AND SLG

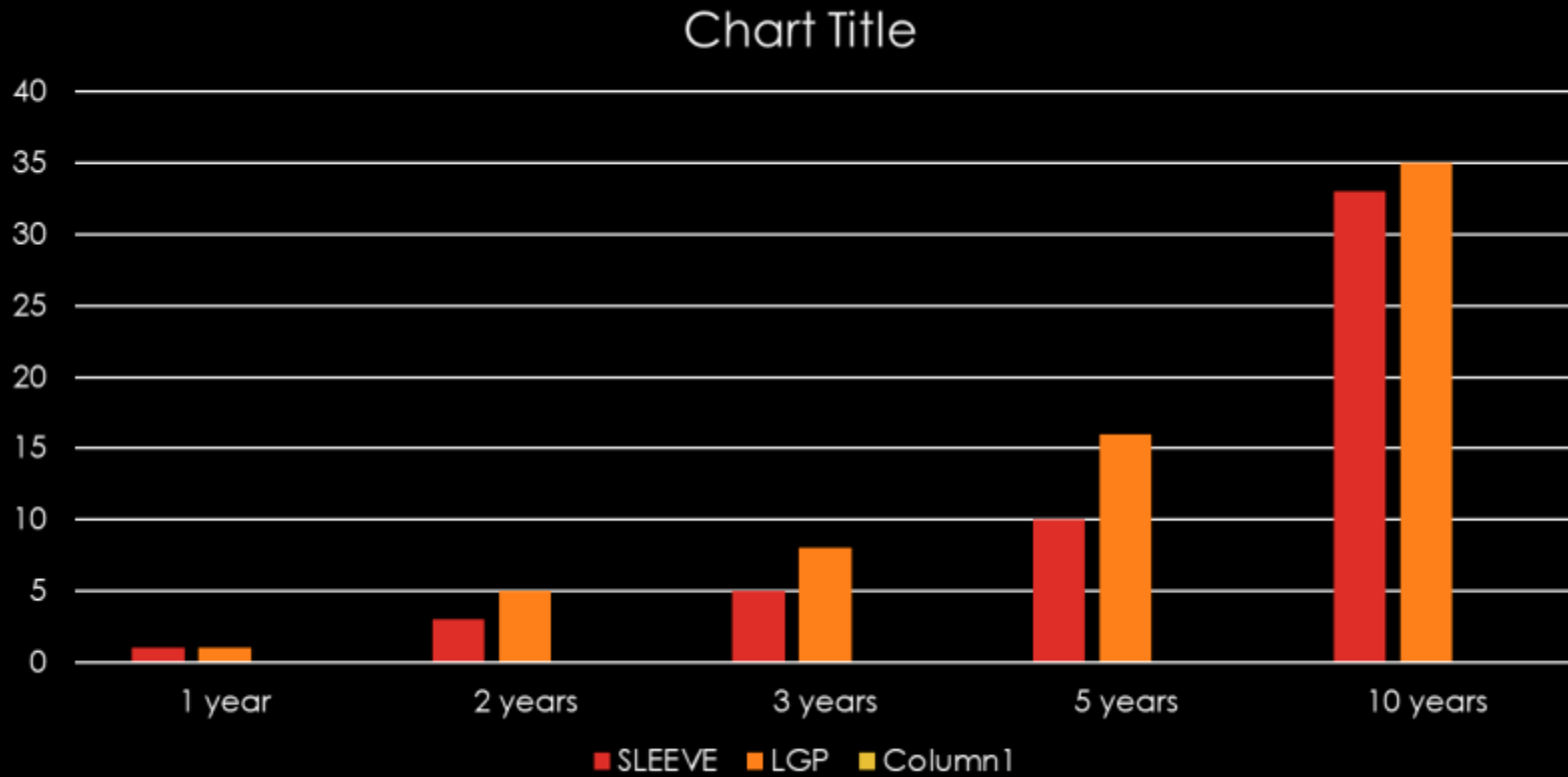


— SLEEVE — LGP

EFFICACY OF PLICATION AND SLEEVE



REGAIN AFTER SLEEVE AND PLICATION



DAMAVAND MOUNTAIN

THANK YOU

