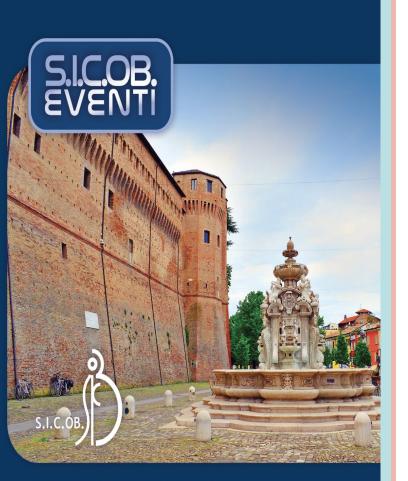


# ... e la chirurgia open?

### STEFANO CARIANI SOCIO ONORARIO S.I.C.OB

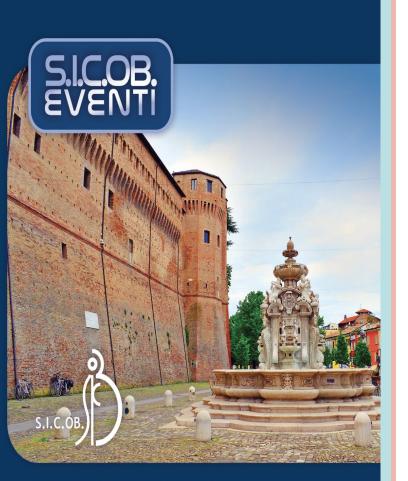
SICOB CONVEGNO EMILIA-ROMAGNA CESENA 19 - 20 Aprile 2024 PRESIDENTE: A.M. SCHETTINO RESP. SCIENTIFICI: S. CARIANI, V. CORSO, A. LUCCHI Dall'Alimento alla Chirurgia: il Trattamento Integrato dell'Obesità



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## ... e la chirurgia open?

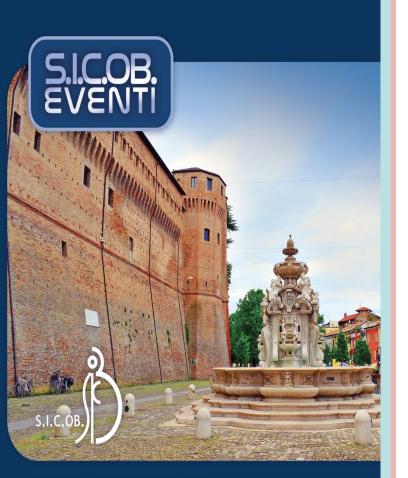
In chirurgia bariatrica, ove la tecnica laparoscopica è ormai da tempo l'approccio standard, la tecnica open può trovare indicazione in emergenza, in urgenza o nella chirurgia programmata come la redo effettuata per complicanze tardive...



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## ... e la chirurgia open?

La scelta dell'opzione open, sia come «switch» (e suo timing) che «programmata», è decisione del chirurgo ed è legata all'esperienza personale, alle condizioni cliniche del paziente e alle risorse a disposizione... variabili tra loro correlate



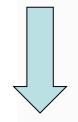
SICOB CONVEGNO EMILIA-ROMAGNA CESENA 19 - 20 Aprile 2024 PRESIDENTE: A.M. SCHETTINO RESP. SCIENTIFICI: S. CARIANI, V. CORSO, A. LUCCHI Dall'Alimento alla Chirurgia: il Trattamento Integrato dell'Obesità

## ... e la chirurgia open?

## Patient's safety



## Surgeon's skill



## **Decision making**



Decision Making in Bariatric and Metabolic Surgery 24-26 October 2013 – ROME, ITALY

## A Long Way to Reach Healing of Persistent Leak in Sleeve Gastrectomy

#### Stefano Cariani, M.D.

Researcher of Surgery at Alma Mater Studiorum Università di Bologna Responsible of Bariatric Surgery Unit S.Orsola-Malpighi Hospital – Bologna, Italy



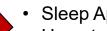
In May 2012 a young man, **underweight** (height 1.8 m weight 68 Kg - BMI 20.9) with a large **incisional hernia**, consulted me for an opinion because, after a procedure of **sleeve gastrectomy** performed in other hospital for the treatment of morbid obesity, he was **unable to eat solid foods**... and do his work



#### Patient clinical history



He met the WHO Criteria for Bariatric Surgery because of specific comorbidities



- Sleep Apnea
- Hypertension
- Chronic atrial fibrillation
- NASH with mild Liver Function Tests derangement ٠

In October 2011, in other hospital, he was submitted to a Laparoscopic Sleeve Gastrectomy



#### October 2011 P.O. stay: uneventful

The patient spent the first 24 hours in a postoperative intensive care unit.

**On P.O. day 5** the patient underwent a contrast (water soluble) study of upper G.I., which showed a normal post-sleeve gastrectomy anatomy a no delays in the progression of the contrast. The patient started to be fed back with a thin liquid diet, which was well tolerated as well as the thick liquid diet.

**On P.O. day 6** the patient was discharged with the following prescriptions:

- NSAID medication as analgesia
- PPI standard dose

Blood tests were fine allover the postoperative stay, observations have always been fine and stable.



#### On P.O. Day 7 (the Day After Discharge)

The patient accessed to the hospital because of temperature (T:38°C) and generalized abdominal pain.

A plain abdominal XRay showed free air in peritoneum

A water soluble contrast swallow didn't show any active leakage in the staple line....

A CT scan without contrast just confirmed the presence of free air and a left sided pleural effusion but, apparently, there was no collection to drain under radiological guidance

A surgical revision was carried out...



#### **First Revisional Surgery**

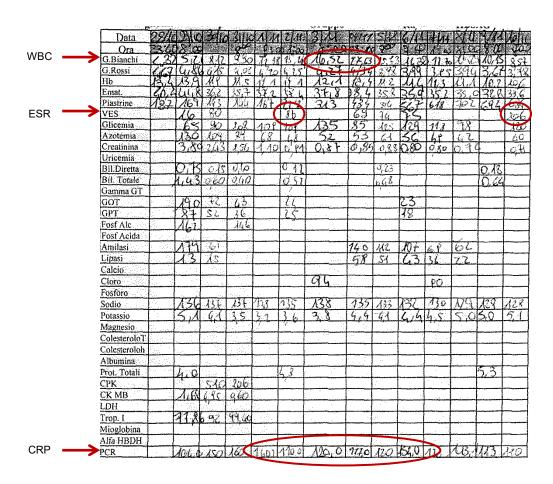
Upper midline incision. Presence of a diffuse peritonitis with purulent fluid which was washed out.

The proximal 1/3 staple line showed a small disruption of 2 mm in size. The surgical management was consistent with:

- 1. Stitching the defect
- 2. Graham omental patching
- 3. Fibrin glue sealing
- 4. Double abdominal drain
- 5. NGT left in place



#### Postoperative course of revisional surgery



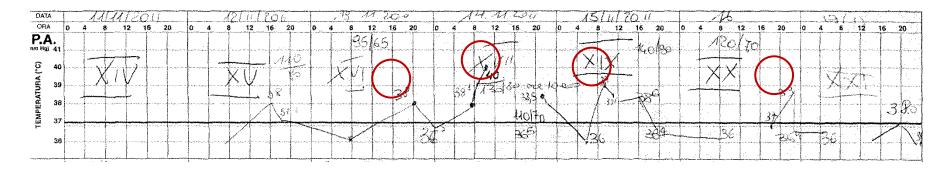
A positive trend was experienced within the second postoperative day, both as clinical and lab response...



But, after 3 days spiking temperature relapsed and inflammatory markers got worse



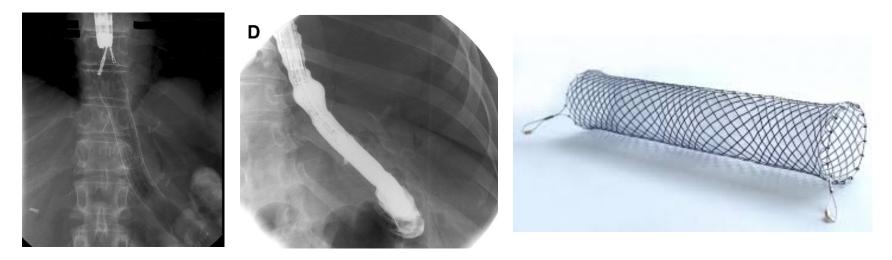
#### Postoperative course of revisional surgery



A complex broad spectrum antibiotics was established and cultural tests on the fluid drained were negative, but spiking temperature didn't relief...



#### Postoperative course of revisional surgery



#### Treatment

**On P.O. Day 25**, a self expandible metal stent was placed from the distal oesophagus, over the leak, to the distal sleeve...



#### Postoperative course of revisional surgery

The clinical response was good, as well as the inflammatory markers surveillance.

Unfortunately, the starvation necessary until that period exacerbated a reactive pancreatitis, despite the TPN...

Moreover, an infection of the central venous catheter determined a prolonged hospital stay.

The patient was discharged with the stent in place on **P.O. Day 49**, with the plan of removing the stent after 6 weeks...



Never ending story...

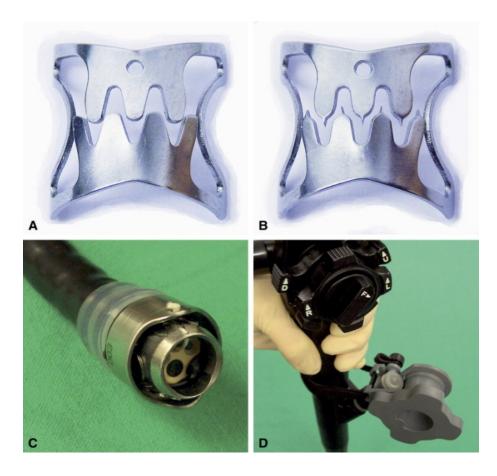
After 10 days, the patient experienced a new hospital admission because of the stent dislocation and consequent gastro-cutaneous fistula...

#### Treatment

The stent was removed, ...but the gastric leak promptly determined a septic state of the patient, that required a new urgent treatment...



#### ...trying a new endoscopic solutions



Before changing the self expandible stent another gastroscopy was performed... the endoluminal gastric defect seemed to be small enough, so a metal clip (OTSC) was used to try to close the defect...



#### ...and coming back to the first choice

The OTSC was effective in closing the defect for only 3 days... than the **sepsis relapsed** and a new self expandible metal stent was placed to control the symptoms...

After 12 days the sepsis was under control and the patient was discharged taking liquid diet.

After 6 weeks, the patients was well. In **April 2012** the stent was removed as an outpatient in the endoscopic unit of the hospital.

#### One month later (may 2012), the patient turned to our Obesity Surgery Center. He had available the reports of what happened but not radiological or endoscopic images.



The patient was underwent to **barium swallow** and **upper endoscopy** to know the post-surgical anatomy.

Both instrumental investigations **not evidenced a gastric fistula**, but have found :

- A. the **OTSC remained**, partially included into the gastric wall
- B. an **initial stricture in the esophagus** where the previously metal stent was anchored
- C. an **initial stricture and twist of the slee**ve in mesogastric position, but easily passable with the endoscope

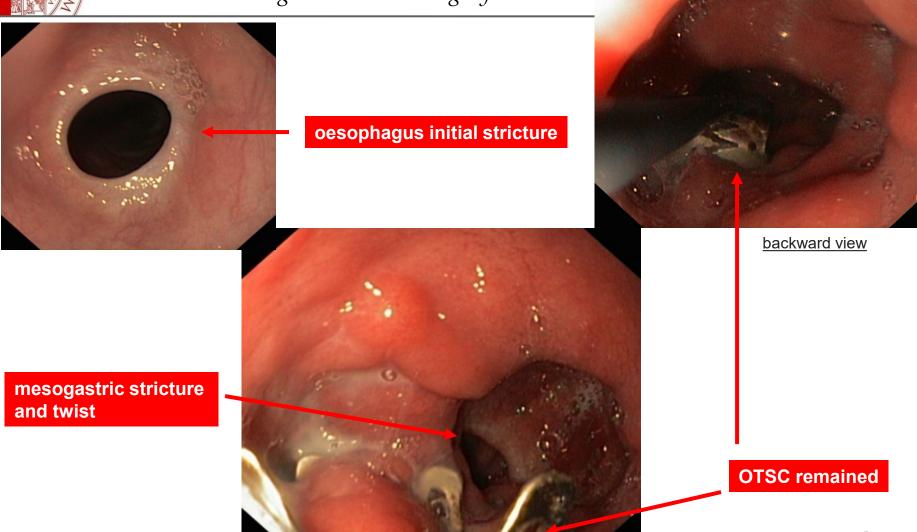


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OTSC remained	esophagus initial stricture	mesogastric stricture and twist
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In view of the troubled medical history of the patient and on the basis of the investigations carried out, where:

- the gastric dehiscence seemed to be healed
- the OTSC was inside the stomach and actually not removable endoscopically
- the initial esophageal stricture was clinically irrelevant
- the mesogastric stricture with twist could improve over time

I have not recommended surgical treatment, but I have suggested to assume gradually thicker liquids up to soft diet then to solid diet, with a close **follow-up**, but...



...after 6 months, spent in reasonably good health with varied diet with creamy foods, suddenly the patient was hospitalized for a thoracic and abdominal pain localized in the left upper part, following a fever episode.

#### A never ending story ... the return of an old problem?

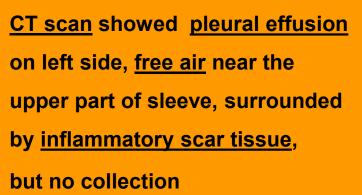
At the time of admmission the patients had:

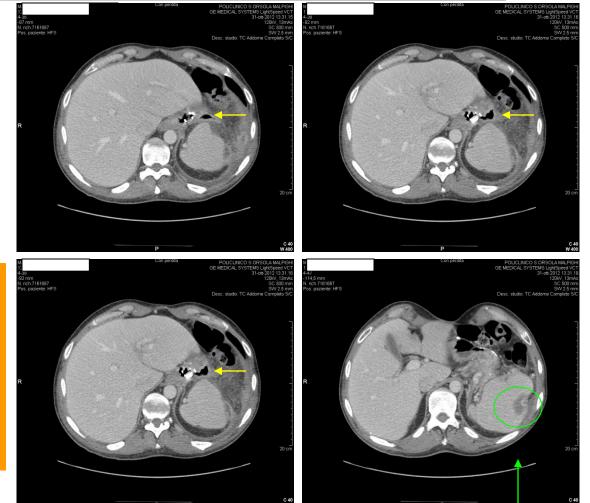
- thoracic and abdominal pain localized in the left upper part
- no vomit or alterations of canalization
- no fever
- normal blood test, excluding increased CRP (16.86)

#### CT scan ad water soluble contrast swallow were performed...









#### splenic hematoma?





The water soluble contrast swallow confirmed a **minimal gastric fistula** (ø 2 mm) just where the OTSC was positioned



Faced with the dilemma of whether to make a conservative treatment or refer the patient to surgery at high risk, considering the situation of non-current clinical sepsis, **I have managed him conservatively** with antibiotics, TPN and PPI standard dose.

Blood tests were fine allover the hospital stay and CRP was normal after six days...observations have always been fine and stable.

A CT scan was performed after seven days showed no free air, only scar tissue near the stomach...



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CT scan performed after seven days: no free air, no collection

ALMA MATER STUDIORUM <u>~</u> UNIVERSITÀ DI <u>B</u>OLOGNA



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CT scan performed after seven days: no free air, no collection



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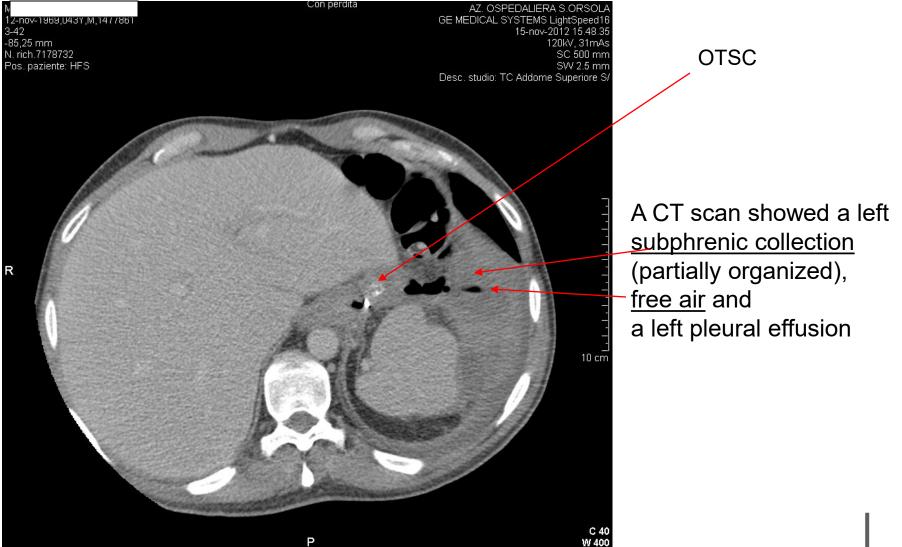
CT scan performed after seven days: no free air, no collection

splenic hematoma?

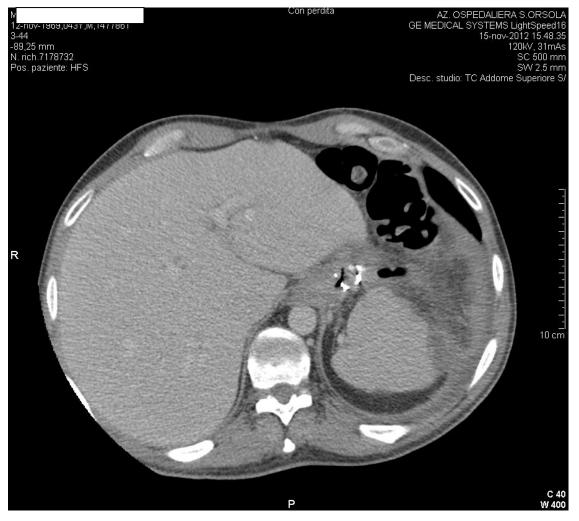


# So, the patient started to be fed with a liquid diet, which was well tolerated up to 5 days later (<u>12 days after admission</u>), when the patient <u>experienced fever (38.5°C) an abdominal pain...again.</u>









The hypothesis to make a drain the under radiological guidance was rejected for the position and the consistency of the «collection»...



...I decided to go ahead with surgery.

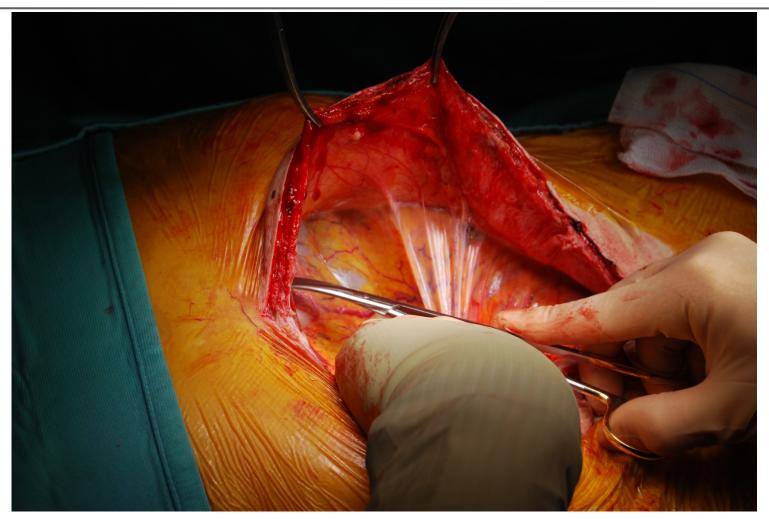
In a case like this, the **primary endpoint** was to remove gastric fistula and the **secondary** to mantain a bariatric procedure.

So, the nex question was: what kind of surgery will be effective? A surgical drainage, a gastric reconstruction, a conversion to RYGB or a total gastrectomy?

I did not know...I did know only it was surgery with high risk of complications and more, but it must be done ...and this is what I said to the patient for his consent

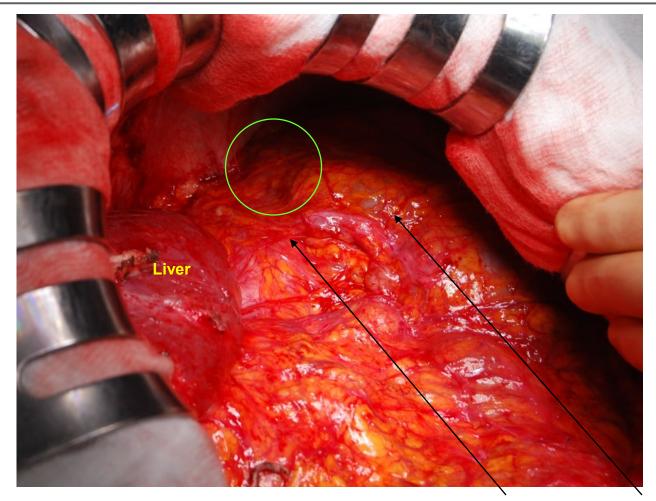
After 15 days of preparation with TPN, antibiotics and PPI, the **patient was submitted to surgery** 





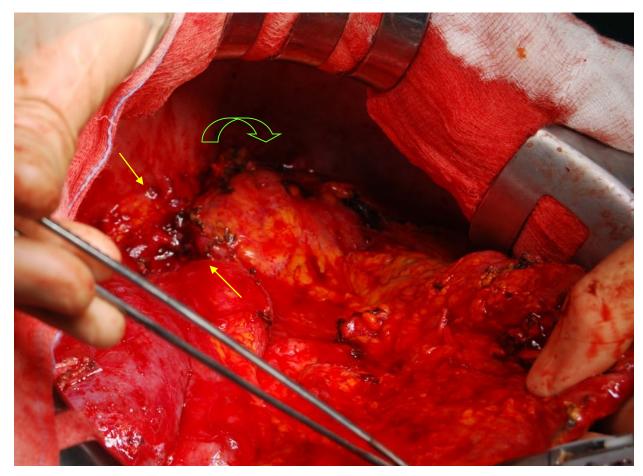
Re-laparotomy on the previous incision (incisional hernia) ad lysis of adhesions spread





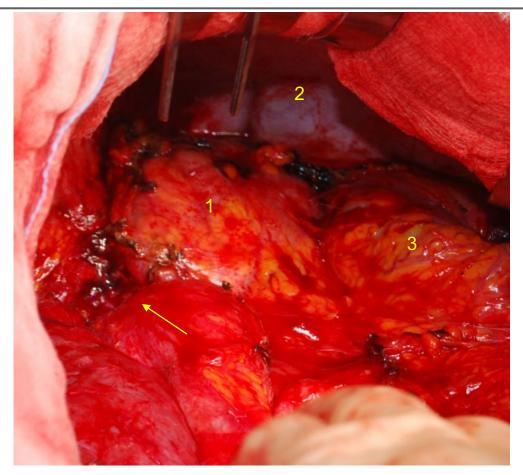
The subphrenic abscess was posteriorly between the stomach and bowel





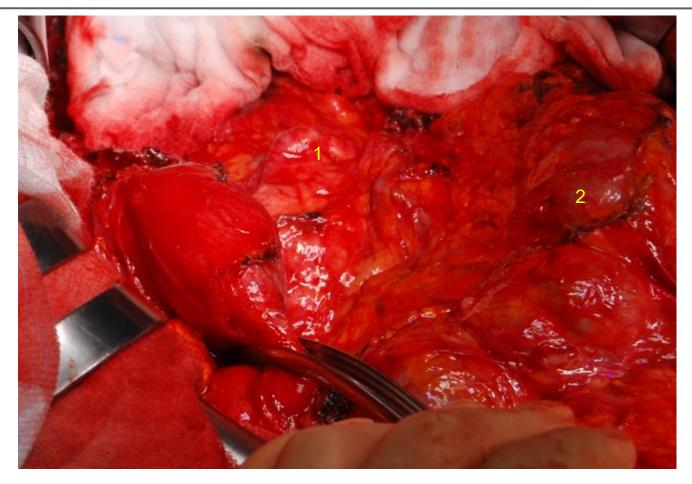
Abscess was drained and adhesiolysis between the sleeve and bowel completed The area of gastric fistula was exposed





Fistula 1 Posterior wall of abscess 2 Spleen 3 Bowel
All tissues of the area were involved in a severe scarring process





Hydropneumatic test of sleeve was performed. The chronic inflammation of gastric wall of about 2 cm<sup>2</sup> was near 4 cm down of oesophago-gastric junction. <u>The upper part of sleeve was dilated and lower part narrow.</u>

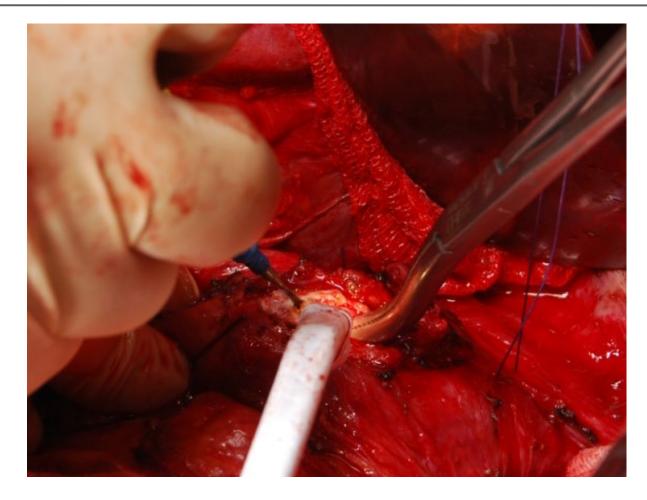
1 Pancreas 2 Bowel





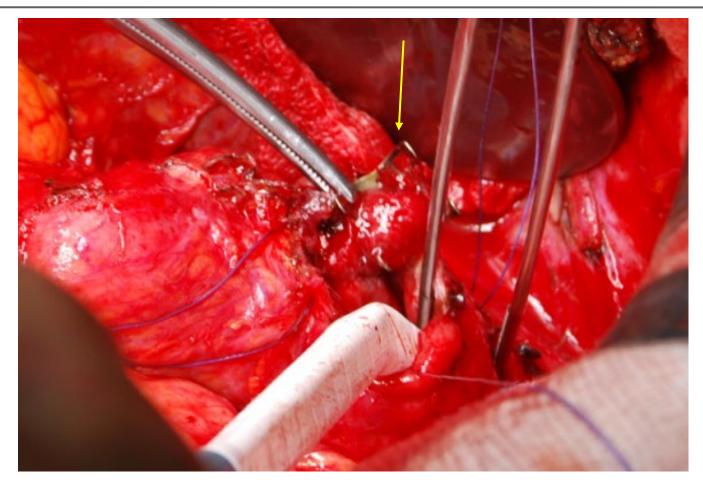
The upper and lower part of gastric wall with flogosis and fistula were delimited by two stitches and lesion was marked around with electric scalpel





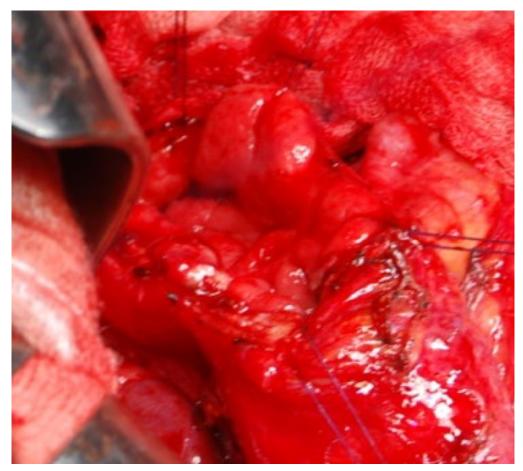
The gastric wall with flogosis was removed with electric scalpel...





...and included OTSC wedged in the scar





The chronic fistula on the gastric staple-line was resected leaving a full-thickness defect of about 3 cm in diameter, with gastric wall in good condition



At this point, as the upper portion of the sleeve was large enough I could have also **rebuild it**, but I would have created a high-pressure system with a high risk of leakage still, because the lower part of the sleeve was little more than a centimeter of inside diameter and... I didn't expect to have better luck than previous surgeon with trying to seal the defect just with stitches...so, I'm gone head with anothe bariatric procedure such as gastric bypass

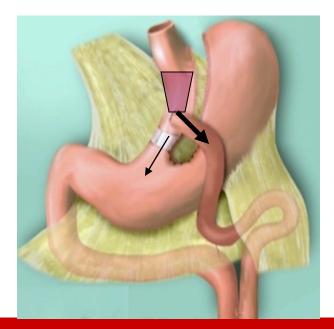


Then, I have considered that any other section and dissection performed on the stomach or nearby (e.g. to convert to a standard RYGB) would be potentially a site for complications, especially in a condition of malnourishment and chronic inflammation.

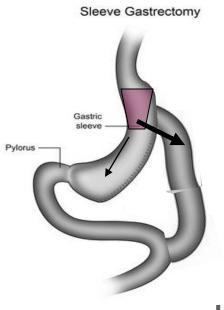
Also, I was faced with a situation anatomically very similar to what occurs when you perform a gastric bypass with explorable stomach, such as the RYGB on VBG...



The RYGB on VBG technique differs from the standard RYGB by leaving a small communication, between the gastric pouch and the gastric remnant, avoiding definitive gastric exclusion. The distal outlet does not reduce the effectiveness of gastric bypass, while traditional endoscopy provided a valid examination of the bypassed stomach, duodenum and biliary tract. In the long-term RYGB-on-VBG outcomes, similar to those obtained with standard RYGB, were good both in terms of weight loss and rate of complications, also in redo-surgery.

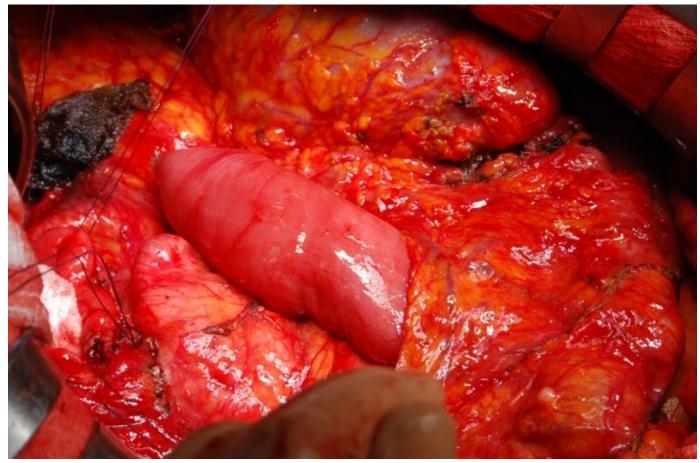


With a small gastro-gastric outlet distal to wide gastro-jejuno anastomosis, the high pressure in the gastric pouch after a swallow determines the passage of the chyme into the alimentary limb



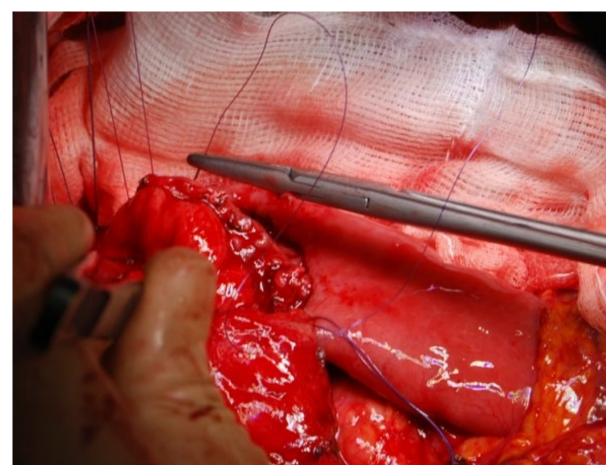


#### So, I decided to perform a RYGB on SG, without distal gastric section..



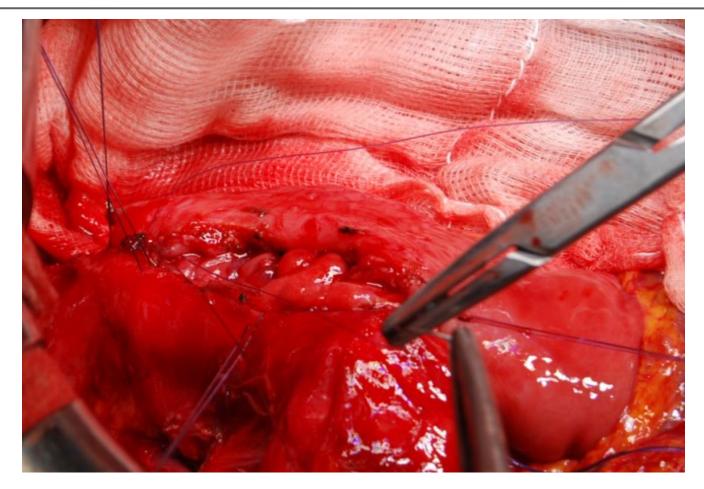
The retrocolic alimentary limb of 150 cm (biliary limb will be of 30 cm)





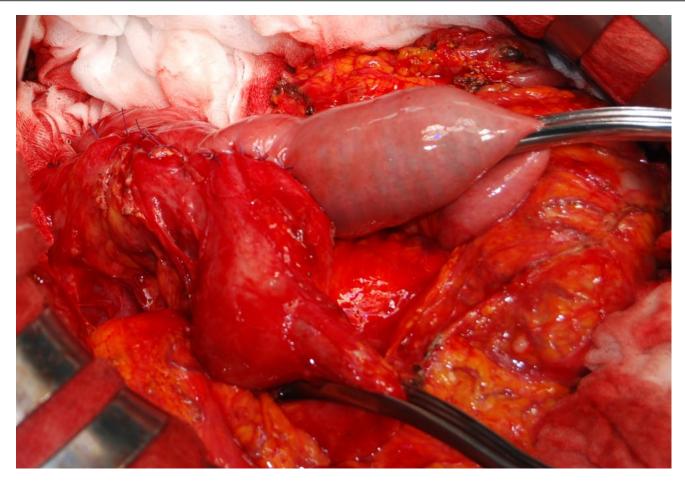
The gastric defect was used for make a side to side gastro-jejuno anastomosis, hand sewn with two rows. The posterior wall...





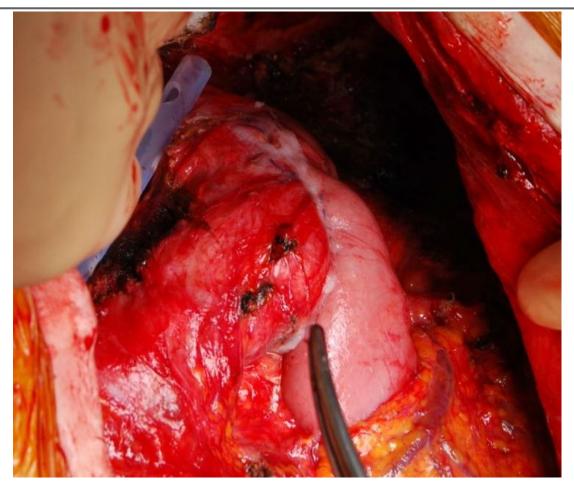
...and the anterior wall





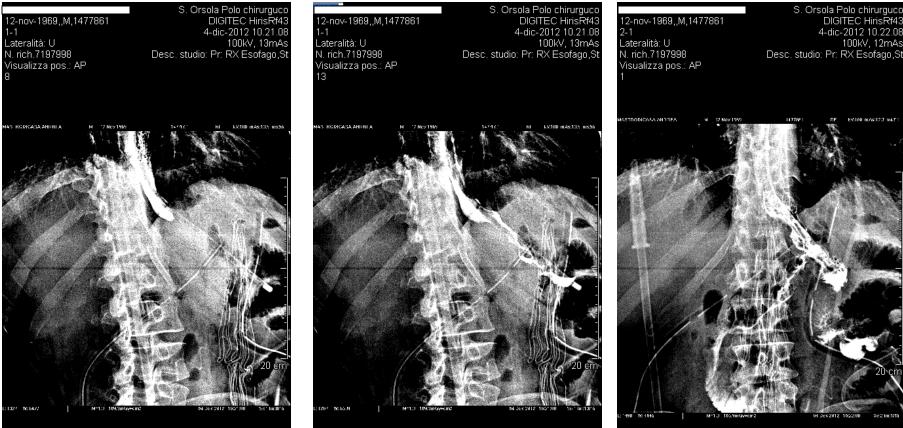
Hydropneumatic test of anastomosis was performed...





...then also fibrin glue was applied and two tubular drains were left



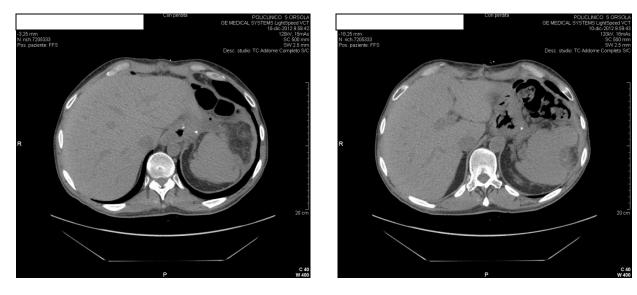


**On P.O. day 3** the patient underwent a contrast (water soluble) study of upper G.I., which showed no leakage and the vast majority in the progression of the contrast across the gastro-jejuno anastomosis



# Who would have thought!

The postoperative stay was uneventful...



A CT scan was performed a day before discharge: no free air, no collection

The patient was discharged in POD 11





After 1 month from the procedure a barium swallow was performed:the wast majority of barium passed throw the gastro-jejuno anastomosis, like in traditional RYGB. The patient was well...

Rel X Ray Exp: 238	C 1514 W 1086	Rel X Ray Exp: 252	C 1651 W 741	Rel X Ray Exp: 180	C 1409 W 1059

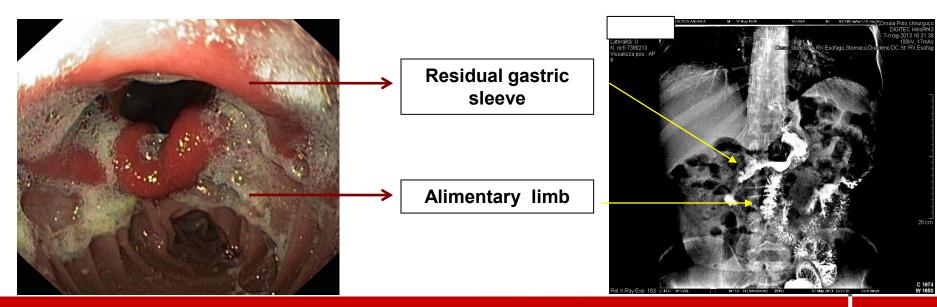


# The case not closed...

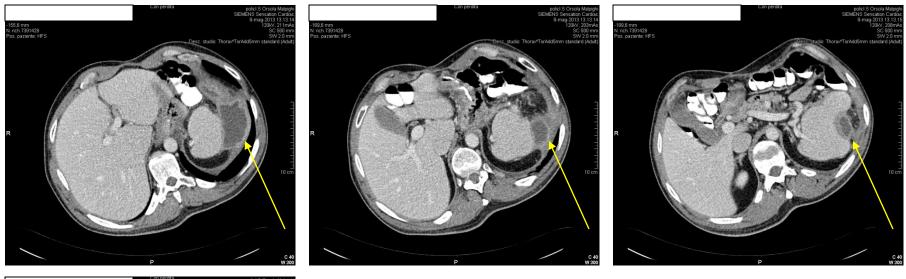
**May 2013**, after 5 months from last surgery, the patient relapsed spiking temperature and abdominal pain, so a new hospital admission was assessed

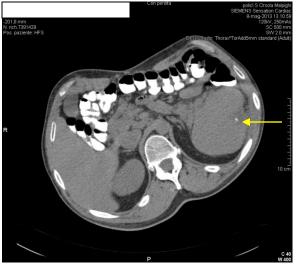
Plain abdominal RX was unremarkable, as well as full blood count, except CRP wich was raised to 17,0

A barium swallow and an OGD didn't show any complication from the previous surgery



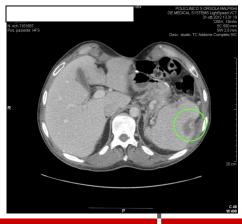




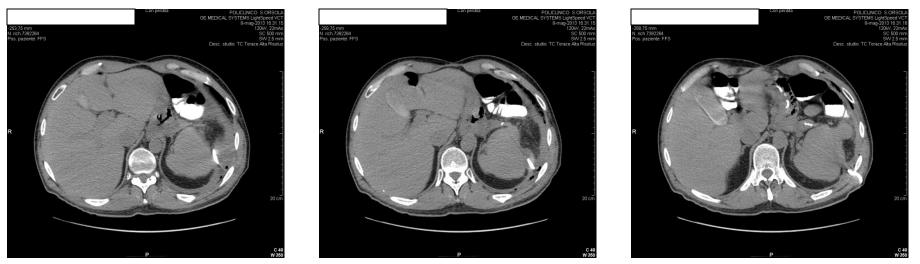


An abdominal **CT scan** showed the presence of a **collection** on the external aspect of the spleen of about 7 cm in diameter, maybe caused by an old hematoma untreated in course of last surgery...

#### CT scan of November 2012







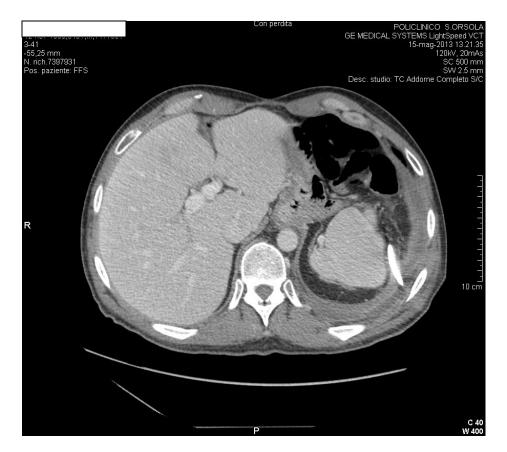
Fortunately, the collection was accessible by interventional radiologist, and the patient was submitted to a **percutaneous drainage under CT guidance and antibiotic treatment** 

Immediately before 50 ml of **pus and clotted blood** were drained, the patient developed an **anaphylactic reaction to paracetamol** (given because of mild pain)

After a proper resuscitation, a CT scan showed no further damages to spleen or other abdominal organs, but a small pneumothorax which was kept under surveillance



The patients was immediately well....



After 5 days from the procedure, a CT scan confirmed that the fluid aspect of the collection was completely drained

The tube was then removed and the patient discharged after 2 days



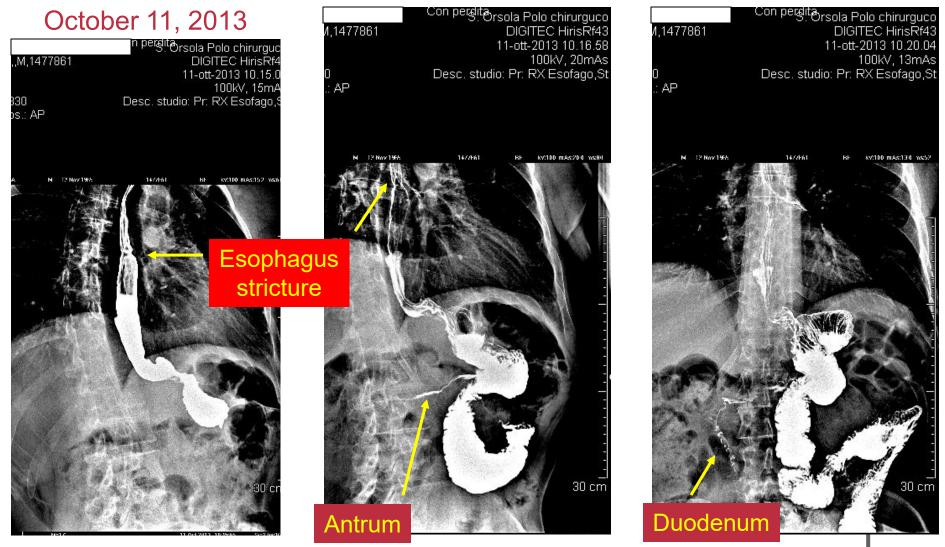
# Last medical follow-up: October 11, 2013

#### 11 month after last surgery and 2 years after first bariatric procedure:

- the barium swallow showed a normal post-surgical anatomy
- the blood tests was normal
- the patients was able to eat all kind of food with no gastric symptoms
- the patient was **normal weight** (height 1.8 m weight 83 Kg BMI 25.5)
- the patient reported only some episode of dysphagia and salivation with eating hard foods ... The initial esophageal stricture is becoming clinically relevant

#### A string of previous conservative treatment...never ending story





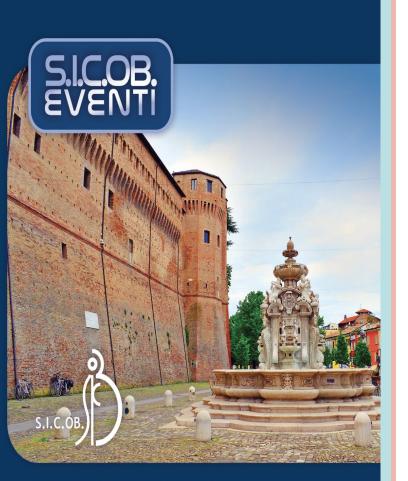


## Conclusions

Complications after bariatric surgery could require rescue procedures and could be resolved with the application of non-standardized approaches, but the experience has taught me that the most important thing is to treat the complication early and definitively with the fewest number of procedures, since each can be a source of new complication.

What drove my decision has always been to give the right priority to the problems that the patient complained of, avoiding further risks. Once focused the right problem to treat, I looked for a possible complete solution which could be effective on other issues.

At the end the patient was treated for the chronic fistula with the intent to avoid further weight regain and, even if the procedure was not standard, has been achieved a good result.



SICOB CONVEGNO EMILIA-ROMAGNA CESENA 19 - 20 Aprile 2024 PRESIDENTE: A.M. SCHETTINO RESP. SCIENTIFICI: S. CARIANI, V. CORSO, A. LUCCHI Dall'Alimento alla Chirurgia: il Trattamento Integrato dell'Obesità

# ... e la chirurgia open?

In chirurgia bariatrica talvolta può essere salvavita e/o garantire maggiore efficacia e conservatività sugli organi bersaglio.

La chirurgia open richiede specifica esperienza dell'operatore sul tratto gastro-enterico superiore, esperienza che il chirurgo ad indirizzo bariatrico dovrebbe acquisire...