

“Nicola Scopinaro and Me”: Three Moments and a Bariatric Journey

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Nicola Scopinaro (1945–2020) just passed away: the man was amazing, his career a legend [1,2]. My “journey with Nicola” will seem tiny and frivolous to most; its only value is a testimony proving the progressive and shared conscience of the importance of a unique piece of work and a piece of art as well. This has been important to our specialty and for any kind of serious medical research. In this regard, I have been kind of suspicious for a long time, and became fully aware of having been wrong, like most of us for example in France. Do we need to apologize for that? Definitely yes, but at the same time we need to examine in detail an *opera magna* that has been a tremendous breakthrough and still is an incentive to think beyond the ordinary.

This voyage is far from over, and concerns the whole bariatric community, those who are questing for the best long-term result, as well as those (like me) who would love to overcome the antagonism between malabsorption and restriction ... but do not know how!

Nicola Scopinaro’s work today

It would be an important misunderstanding to judge it from the sole analysis of the available numbers of malabsorptive operations throughout the world: these represent indeed a minority (1.1% of all bariatric procedures in 2016) and their percentage has even been decreasing [3]. Likewise, the “Scopinaro procedure” or “true bilio-pancreatic bypass (BPD)” is often disregarded, many authors if not most pretending to share the glory of new malabsorptive concepts. It would then be foolish to ignore the historical perspective and the revolutionary aspects of BPD: one must appreciate the work of Nicola Scopinaro in the light of its beginnings (1979) [4], as opposed to what derived from polemics or other inappropriate comments, to which he indulged himself every now and then ...

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Back to 1996: the IFSO World meeting in Prague, or how a junior surgeon fell under the charm... almost

Prague 1996: The European context of bariatric surgery (lagging way behind the USA), is definitely restriction *über alles!* I had been trained for only a year to laparoscopic gastric banding, and of course like every presumptuous young surgeon, I felt entitled to judge everything else obsolete, and even stood for the option of lap-banding as a re-do in failed Mason’s gastroplasties ... a heresy of course for Nicola, who opposed me gently but steadily: “Why in God’s name suggesting a restrictive technique when another restrictive technique has failed?”. In front of this little audience (fifty surgeons, give or take), one can but notice his over-presence in the debate, from the onset till the end of the meeting, and a very assertive character ... too much to my taste, as self-confident as any young man can be, and rather persuaded that malabsorption belonged to the lost causes!

Indeed the *coup de coeur* would come one year later; at that time the charming character for me was rather Mitiku Belachew (then the most eminent promoter of the laparoscopic adjustable band), then came the US (ASMBS) meeting of Chicago 1997, and Nicola’s charm was then fully operational, when I had dinner with both of them. I was so pleased by a wonderful character, who was the kindest man to younger surgeons and eager to share with them. In the same time, he stayed adamant when presenting and arguing, particularly in front of his US colleagues, giving up nothing against gastric bypass or duodenal switch, and of course against banded gastroplasty or lap-banding. I began to grow fond of this form of *Don Quichotte* and found a certain nobility in it, while still disapproving it.

Spring 2006: contribution to a French book

Nicola was a star at the 2006 European-IFSO meeting in Lyon in 2006, and I asked him to write a chapter in a book that would summarize the state of the art in bariatric surgery (*La chirurgie bariatrique*, Springer France, 2009) [5]. I figured that his input would be an historical testimony rather

than a valuable update. My mistake, shared by many if not most of my colleagues, might have been forgiven ... but it was a big one. By and large, we have rejected most of his ideas, and loathed the essence of malabsorption, considering that the regular gastric bypass was more than enough in this respect, although for Nicola it was as mediocre an operation as the typical restrictive procedures. Yet Nicola's operation was undeniably very poorly attractive to us, who considered it a revival of the despised jejuno-ileal bypass (IJB). Moreover, Nicola was certainly not a fanatic of the "laparoscopic revolution", a true (and rare) mistake from him, but to be fair, he had never been in favor of a mainstream bariatric surgery throughout the world, what he could have called low-cost bariatric (although I never heard him using such an expression).

Autumn 2018: bariatric history revisited

The return of favor of the malabsorptive principle came with strong arguments, including those shared with the metabolic principle. There is no need to emphasize them here. For me personally, the illumination came in a reverse mode. Over-viewing the history of bariatric surgery since its inception, and preparing a book after a modest TV interview, I came across the very beginnings of these procedures, notably the jejuno-ileal bypass and it is more than an awful perception among both public and medical audience. It was only partially compensated by the emergence of gastric bypass, then banded gastroplasty, that were initiated by Edward Mason. Meanwhile, we had been oblivious to the fact that restoration of the bariatric credit came from our friend Nicola as well. I remembered the incipit of his 2009 chapter [5]:

When 36 years ago, my father, knowing I was seeking an entirely new way, brought me the founding paper of Mason on gastric bypass (1967), I knew that this would be my elective field. I thought at that time that preventing a patient from eating through an intervention that created an obstacle to food ingestion would not deliver satisfactory long-term results, and that the only way that made sense was acting upon intestinal energy. A few months later, I had read a few hundreds of publications dealing with malabsorption and its physiology. IJB was not the solution from the start. Yet I decided to try it in five patients, and on the same time experimented in dogs the operation that, so it seemed, would solve the problems of IJB...

Nicola's style, made of panache and pride, and little concessions, was there, he would not change this through his entire life.

Let us summarize the clever intuitions that Scopinaro had in his prime: 1. IJB delivers an indiscriminating malabsorp-

tion through a sheer shortening of the small bowel, hence a short common channel, where the blend of alimentary input and biliopancreatic secretions takes place; 2. It includes a blind loop that is excessive; 3. It does not reverse the adaptive changes of the small bowel (through hyper-absorption). The most delicate to calculate was the common channel: for Nicola, and this has elicited fierce discussions, a common channel above 60 cm is insufficient in terms of weight loss; if less than 40 cm, it is obviously life-threatening (because of proteins and liposoluble vitamins deficiencies). Moreover, a considerable increase in absorption capacities occurred within a few months because of the great inflow of non-digested food in the terminal ileum and colon, whereas BPD entailed a selective malabsorption, essentially of fats and starches. For Nicola, increasing the length of the common channel did not make much sense: it would increase the absorption of fats and biliary acids, but did not improve the protein absorption, except if widely increased. He also advocated a large gastrectomy in most cases.

The current spin-offs represent direct or indirect tributes to the BPD: SADI, duodenal switch (BPD-DS), even the Omega-Bypass in many respects, etc. It would be a mistake to address the opposition of Nicola to those spin-offs as an expression of bitterness, let alone a contempt for less reliable methods. If he fought step by step, while not disregarding the necessities of further experiments, it was because none of these alternatives satisfied him sufficiently after all due calculation in terms of energy expenses and food absorption balance. It is a pity that very few specialists of digestive physiology could really find the ways of a fruitful dialogue with probably too adamant a pioneer.

Did we truly realize the blast that Scopinaro's ideas have initiated? When he made his statement, it seemed the most logical because it solved an ill-equation posed by IJB, or, according to Nicola himself, a wrong answer to a good question. In the same momentum, it demonstrated that isolated food restriction was vain. Do we understand better today and are we ready to accept the consequences of his proposition? Observing how most surgeons deal with it, I am not sure: BPD or BPD-DS is either an indication in very severe cases (for example BMI > 60), or the ultimate stage when other procedures failed (like sleeve gastrectomy nowadays), and eventually not what Nicola wished. Granted, he was considering an operation for the elite (the happy few), but without pre-condition. Let us be clear: Nicola was fully aware that his concepts should not be applied indiscriminately, but he considered them universal. We reach a paradox here, because we are not ready to pay the price for those principles now. Will we be eventually? Meanwhile, we remain indefinitely expecting simpler solutions ... that never come! How can we cope with these contradictions and act decently? If we stay "among us, surgeons", we would not. A recent proof of that is eloquent: a few weeks

ago, there was a debate in the Lancet [6], involving proponents of metabolic surgery basically with no condition in diabetic patients during the COVID pandemic, as opposed to other physicians, in favor of a more selective approach, including drug treatments. But it is never too late to find a common ground.

In 2009, I published (in French) a review that pretended to be original and stood against the common separation between restriction and malabsorption, probably this was more relevant at that time than today, when pure restrictive principles are not trendy anymore [7]. I was in favor of replacing this separation by another one, that would rather insist

The debate on limb lengths and the mechanisms of malabsorption

One of the major ambiguities in this debate is that it mixes different categories of bypass, and there are many of them! When an author does so willingly, this has a serious background. Many consider that there are no real differences between Roux-en-Y gastric bypass and BPD. It would be only a matter of degree. In a recent review, Mahawar counted the major variations in the literature: 35-250 cm for alimentary limbs and 35-250 cm for bilio-pancreatic limbs, the latter standing for a genuine bilio-pancreatic bypass, whatever the length of the common limb [8]! His opinion was that 100-200 cm of bypassed small bowel was enough to promote the metabolic effects of any bypass. Although legitimate and open for discussion, this approach reveals a mindset that sort of denies the very originality of Scopinaro's input or mixes it within the general progress of gastric bypass. Likewise, in a review of malabsorptive principles 2009, Prachand and Alverdy [9] addressed these principles in a larger way than solely bowel limb measurement, which of course are submitted to large variations, insisting that this should be rather done in terms of proportions, and cited other mechanisms of action that had been more recently identified : preservation of the pylorus, intestinal adaptation (that Scopinaro had nonetheless pointed out at the outset of his research), the role played by intestinal flora and its meta-genomics neuro-hormonal effects, etc.

For many authors, modern malabsorption has two additional principles [11]: 1) A single anastomosis, 2) The preservation of the pylorus. This comes down to the denomination "Single-anastomosis pylorus-preserving bariatric procedures". The limb length is here relatively an accessory. This return of favor is certainly the consequence of the great number of patients having had a sleeve gastrectomy for more than 10 years and who suffer from weight regain in the mid- and in long-term. This makes perfect sense, sleeve having been conceived as the initial step before a duodenal switch.

on the degrees of aggressiveness, hence opt for lighter techniques (such as lap-banding) or endoscopic techniques, which were then promised to a greater success. Alas, we are still waiting for this success ... I do not back down and formally discard this opinion, but of course I would express it with far more nuances for the time being.

I shall end this personal review with a warmer note. However stiff he could appear sometimes appear, Nicola was not only a perfect gentleman, but the kindest man on earth. We used to make fun of Nicola's constant habit to take pictures of all of us, especially during dinners! Almost all the time he would gently reply: "Well, believe me, you will be begging me for these pictures in a few years".

He wanted to encompass bariatric surgery in all its aspects, especially what drove the men behind it. He wanted to be the head of the family for sure, a family that struggled very much in its beginnings and had to earn respect sometimes in a hard way, and for that we both admired and respected him very much.

By the way, how did Nicola Scopinaro invent the BPD?

It is useful to consider the creative process that conducted a young Italian surgeon (34 years at the time of his *princeps* publication) to imagine a viable alternative to the jejuno-ileal bypass, that he perceived as a dead-end, albeit at that time the Mason gastric bypass was no more in its infancy, being out there for more than 10 years (1967).

Like other pioneers, Kremen with the IJB and Mason with the gastric bypass, Scopinaro brought out clinical, biological and experimental arguments, and even anthropological ones (considering diet habits in areas of Italy). Like his predecessors, he studied many items: gastric volume (claiming to maintain a certain proportion), energy balance, protein output, and even conducted experiments on overfeeding later on. Checking on the account he gave of the successive experiments [12], he would proceed through no less than six stages, a tad imprecise in time, naturally drawing controversy. His original intuition was that the IJB principle was a good one but was too short in terms of common or in-continuity channel, and too long and detrimental in terms of excluded bowel (blind loop). Hence, he had to re-calculate from scratch and create a second limb, less to implement an Y, that was actually performed approximately at the same time by Griffen (let us remember that Mason's original bypass did not use the Roux-en-Y configuration), but to divide food track from the bilio-pancreatic outflow: the purpose was nutritional and not the preservation from reflux.

Model 1: A bilio-pancreatic limb (BPL) of 30 cm, a common limb (CL) of 100 cm, and an alimentary limb (AL) of about

600 cm. The CL is too long, the AL as well, with too much absorption, weight loss is unsatisfactory.

Model 2: CL 75 cm, BPL increased to 100–200 cm, AL shortened to 300–400 cm. Weight loss is still unsatisfactory.

Model 3: Half of the small intestine is moved in the BPL, CL stays the same. Results in terms of weight loss and protein absorption have improved.

Model 4: CL 50 cm, a sufficient and necessary measure for Nicola, but this is too small for his contradictors.

Model 5: AL 200 cm, not enough for protein absorption.

Model 6 finally: AL 250 cm, a safe haven at last ... or not? On one hand, some still frown and remain suspicious of malnutrition and other deficiencies; on the other hand, most surgeons who acknowledged malabsorption prefer the variation of Hess and Marceau (duodenal switch), saving the pylorus and opting for a sleeve gastrectomy, later on becoming a huge success, and more importantly opt for a larger provision of common channel, up to 100 cm. This would not be recognized by Nicola (too long), besides it was (and still is) too short for some patients ...

If we also take into consideration Nicola's suggestion of customizing the size of the gastrectomy, according to individuals, areas of Italy, or over the time, this was puzzling! Whatever the arguments, and despite the fact that his successors still paid tribute to him, Nicola hanged on, fearing neither contradiction nor combat: faithfulness to the principles was not his least quality.

Links of interests: No link of interest

References

1. Shikora S (2016) Nicola Scopinaro, biography. *Obes Surg* 26:1153–4
2. Angrisani L (2020) In memory of Nicola Scopinaro: a great friend and mentor. *Obes Surg* 30:4693–4
3. Angrisani L, Santonicola A, Iovino P, et al (2018) Bariatric surgery worldwide and endoluminal procedures: IFSO worldwide survey 2016. *Obes Surg* 18:3783–94
4. Scopinaro N, Gianetta E, Civalleri D, et al (1979) Bilio-pancreatic bypass for obesity: II. Initial experience in man. *Br J Surg* 66:618–20
5. Scopinaro N (2009) Les principes de la malabsorption en chirurgie bariatrique. In: Dargent J (ed) *Chirurgie de l'obésité*. Springer-Verlag, Paris, pp 33–42
6. Rubino F, Cohen RV, Mingrone G, et al (2020) Bariatric and metabolic surgery during and after the Covid-19 pandemic: DSS recommendations for management of surgical candidates and postoperative patients and prioritisation of access to surgery. *Lancet Diabetes Endocrinol* 8:640–8
7. Dargent J (2010) Malabsorption contre restriction en chirurgie de l'obésité : un débat dépassé ? *Obésité* 4:176–80
8. Mahawar KK, Kuar P, Parmar C, et al (2016) Small bowel limb length and Roux-en-Y gastric bypass: a systematic review. *Obes Surg* 26:660–71
9. Prachand VN, Alverdy JC (2009) The role of malabsorption in bariatric surgery. *World J Surg* 33:1989–94
10. Topart P, Becouarn G (2015) Revision and reversal after bilio-pancreatic diversion for excessive side-effects or ineffective weight loss: a review of the current literature on indications and procedures. *Surg Obes Relat Dis* 11:965–72
11. Martini F, Paolino L, Mazano E, et al (2016) Single-anastomosis pylorus-preserving bariatric procedures: review of the literature. *Obes Surg* 26:2503–15
12. Scopinaro N (2012) Principles of malabsorptive bariatric procedures. In: Karcz K, Tomusch O (eds) *Principles of metabolic surgery*. Springer-Verlag, Berlin, pp 239–46