

Special Article

Beginnings of Bariatric and Metabolic Surgery in Spain[☆]Aniceto Baltasar,^{a,*} Eduardo Domínguez-Adame^b^a Unidad de Cirugía, Clínica San Jorge, Alcoy, Alicante, Spain^b Unidad de Cirugía, Hospital Universitario Virgen Macarena, Sevilla, Spain

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When bariatric and metabolic surgery initially began in Spain, it was a subject of debate, due to not knowing exactly who were the first surgeons to perform it. A study has revealed the authors of the first interventions.

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Inicios de la cirugía bariátrica y metabólica en España

R E S U M E N

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El inicio y cronología de la cirugía bariátrica en España, hasta la fecha, es un tema controvertido y nada preciso. Ha existido cierta discusión y confusión en cuanto a quién, cuándo y dónde se realizó el primer gesto quirúrgico bariátrico en nuestro país. Este artículo, tras un exhaustivo estudio de revisión histórica, pretende identificar y definir en el tiempo a estos iniciadores bariátricos, pioneros en la cirugía bariátrica.

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The beginnings of obesity surgery in Spain are obscure. On occasions, this was because the surgeon did not continue performing this type of surgery, even when it was well done. Other times, there were only a small number of cases or unsatisfactory results, which is common in the beginning of any new technique.

Obesity is a disease with multiple causes; the environmental factor is the most important in an epidemic that affects many citizens in developed countries. Its origin is neither the

stomach nor intestines, which are healthy and will not be better off after the operation. This is a unique situation in surgery: operating on organs that are not the cause of the disease and are not sick!

Rafael Alvarez Cordero, “father” of Mexican bariatric surgery and ex-president of the International Federation for the Surgery of Obesity (IFSO), commented on bariatric surgeons by saying, “At first they think, ‘They’re crazy!’, then they say, ‘That it is prohibited’, and then they accept it being

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V. HENRIKSON: Kan tunntarmsresektion försvaras som terapi mot fettsot?

Tarmresektion, utförd av olika anledning, medför ju som regel ingen förändring i pat. allmänna status. Dock anfördes i korthet ett par fall, där påtagligt gynnsam effekt både på vikt och tarmfunktion förelåg. Detsamma gäller än mer megacolonfall, där resektionen medfört en allmän förbättring även psykiskt.

Utgående från denna erfarenhet har 105 cm tunntarm resecerats på en 32-årig kvinna, lidande av fettsot, förstoppning och något som sänkt ämnesomsättning (utan myxödem) och med oförmåga att »bära» och genomföra en avmagringskur. 14 månader efter operationen är dock hennes vikt 2,2 kg *högre* än vad som åstadkommits några månader före operationen under strängt genomförd avmagringsregim, vilken dock måst avbrytas. Trots detta siffermässigt dåliga resultat är pat. subjektivt nu nöjd, känner sig frisk och rörlig, tarmfunktionen är utan anmärkning och ämnesomsättningen något högre än före operationen.

En bredare undersökning om tarmresektionernas öde efterlys, eventuellt kompletterad med djurförsök, speciellt på äldre, feta objekt.

Fig. 1 – Henrikson report.

done in only certain cases. Later, they claim, "That is nothing new", and finally, "I do it better than he does."

Who started bariatric and metabolic surgery in Spain? We do not know the answer to this question, either due to omission or death of the first surgeon who performed it, or because the Surgery Department where it was done did not continue with these procedures.

In 1952, Viktor Henrikson (Sweden)¹ performed the first intervention for intended weight loss, although without much success and in just one case (Fig. 1). He resected 105 cm of intestine in a woman who weighed 2 kg more two years later. Henrikson operated on another 2 subjects, but we have no information of their results. His publication is interesting, even if the procedure was not successful.

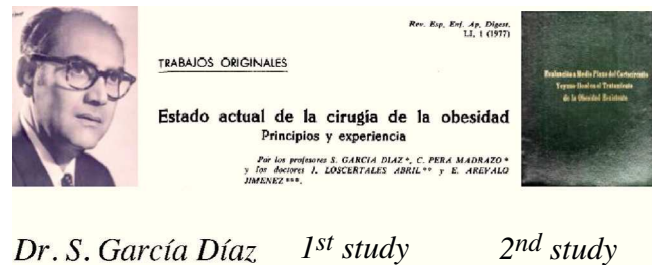
This publication preceded by two years the paper by Kremen & Linner and Varco & Buchwald, 2 different teams who performed the first intestinal bypasses in humans at the University of Minnesota in 1954.²

Metabolic surgery was also initiated in Minnesota by Buchwald and Varco³⁻⁵ with intestinal bypass of the distal third of the intestine to treat hypercholesterolemia (POSCH) and 25 years later showed its protective role in the development of atherosclerosis. This treatment was later abandoned, not because of its lack of proven effectiveness, but because of the development of nystatin in the medical follow-up for cholesterol. It is interesting to know that, 60 years later, Linner and Buchwald are still active in the world of bariatrics.

Payne et al.⁶ reported extensive experience with 14-4 inch intestinal bypass (35-10 cm). Scott^{7,8} described an alternative that was used in the 1970s, but it was Mason and Ito^{9,10} who started the era of mixed restrictive and malabsorptive surgery with the gastric bypass procedure in 1965.

The First Spanish Experience

On November 19, 1973, Professor Sebastian Garcia Diaz of the University of Seville performed the first jejunoileal bypass (JIB)



Dr. S. García Díaz 1st study 2nd study

Fig. 2 – Original studies: Dr. S. García Díaz 1st publication, 2nd publication.

(as described by Scott) at the Hospital Universitario Virgen Macarena, assisted by Drs. Jose Cantillana and Antonio Jiménez. Bariatric surgery was thus initiated in Spain.¹¹⁻¹³ They first published a series of 12 cases and then another of 20 cases, as well as the first study on this topic written in English by a Spanish author.¹⁴ The second paper was awarded a prize by the Hospital de las Cinco Llagas of Seville in 1979 (Fig. 2).

According to Buchwald, the "family tree" that led to the development of this surgery (Fig. 3) included the evolution of malabsorptive surgery, as seen in the left branch, and by the 1970s there were reports of restrictive surgery and gastric bypass.

The evolution of bariatric and metabolic surgery has been spectacular since the introduction of minimally invasive approaches: laparoscopy 20 years ago, and robotics since 10 years ago. The emergence of these surgical techniques has minimized the inherent complications of laparotomy surgery.

The article by García Díaz is very interesting because it establishes a classification for obesity (hyperplastic, hypertrophic and mixed), although it is no longer used, and provides histological studies of subcutaneous and intra-abdominal fat.

The JIB surgical technique is an end-to-end anastomosis of 31 cm of jejunum with another similar section of terminal ileum (31 cm). The jejunum is closed at its proximal end and attached to the cecum to avoid intussusception and volvulus (Fig. 4). The distal end of the diverted jejunum is anastomosed to the sigmoid colon to allow for emptying.

At that time, the degree of obesity was not well described and body mass index (BMI) had not even been heard of until well into the 1990s. Operative mortality exceeded 4.5%, and decreased to 1% at the end of the 1970s.

Histological studies of jejunal bypass and liver function were extensive. Alopecia appeared along with the weight loss as well as improved general state. And the dreaded liver alterations also occurred. A common complication was excluded loop dilation due to reflux from the sigmoid colon. There was no operative mortality within the first 30 days, although there was one leak that required reoperation. Pre- and post-laparotomy hernias were common.

Severe complications included:

1. Cardiac arrest in the immediate postoperative period, which the patient recovered from.
2. Death due heart attack.
3. Liver failure and death.
4. Malnutrition that required reversion of the operation.

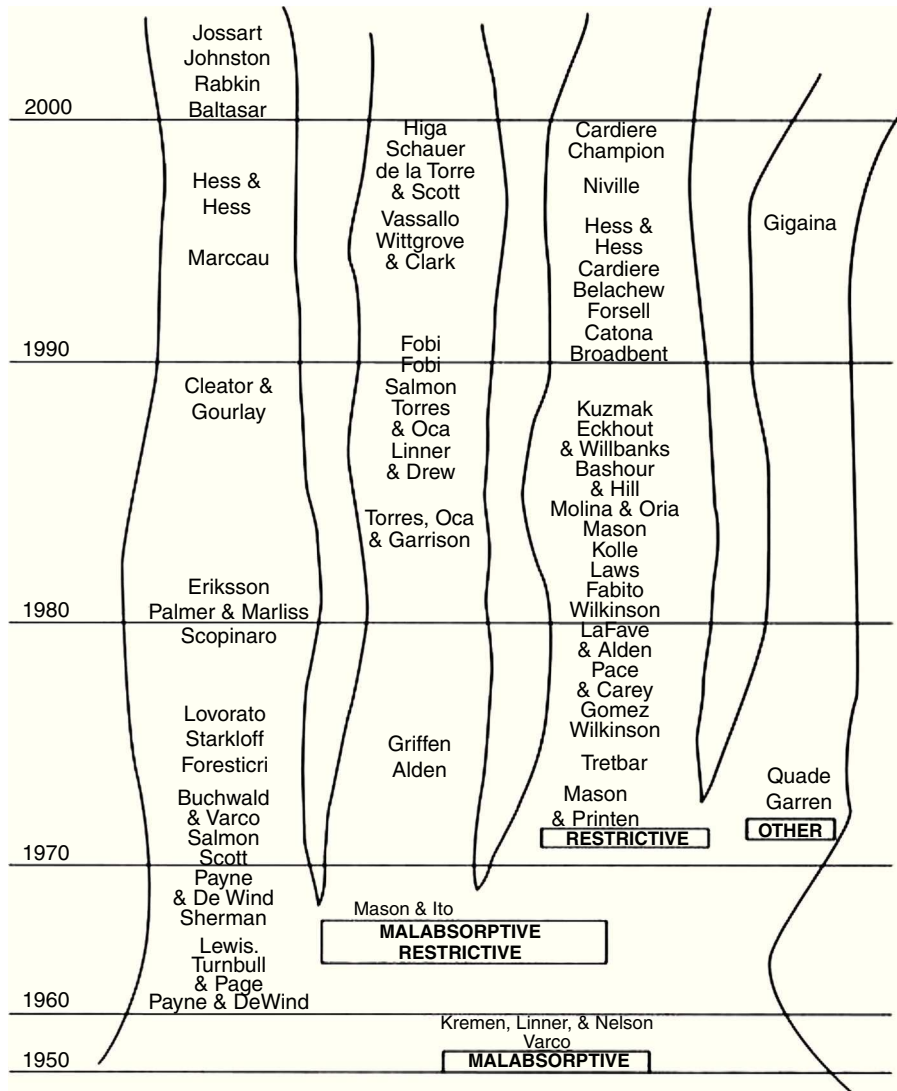
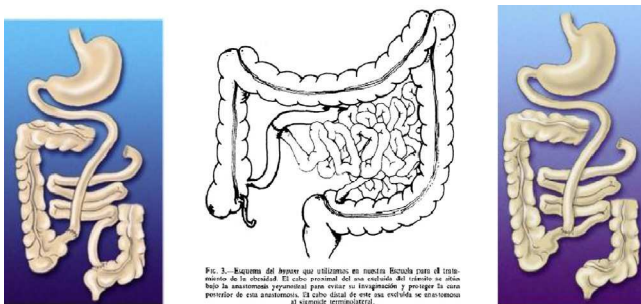


Fig. 3 - Pedigree chart of bariatrics, according to Buchwald.

All these complications were related with this type of bypass, causing them to be abandoned in favor of restrictive surgery.

Afterwards, in 1976, there were 2 pioneering experiences with JIB that were isolated and never published, but accepted.



Scott Scott Payne

Fig. 4 - Malabsorptive techniques by Scott and Payne.

These were carried out by Dr. Mariano Martínez, of Hospital Clínico in Zaragoza and Dr. José Sánchez Ortega and Dr. Carles Masdevall at the Hospital Universitario in Bellvitge (Barcelona) in March, 1976 (Fig. 5).

On June 6, 1977, Baltasar¹⁵ did the first Mason gastric bypass and reported¹⁶ the first Spanish experience with the diversion of the distal third of the intestine as metabolic surgery for hypercholesterinemia. Laporte¹⁷ published the first Spanish experience with vertical banded gastroplasty and González-González et al.¹⁸ published a review of bariatric surgery development in Spain.

The multiple complications of jejunioileal bypass led to its being abandoned. In the US, there was a misunderstanding that the Scopinaro biliopancreatic diversion was just another pure malabsorptive operation and many hospitals either did not know about it or rejected it. And the thinking was that all patients with pure intestinal diversion should be reoperated in order to avoid urinary, hepatic, or other complications.

Although intestinal bypass was questioned, some authors outside our country continued to justify its use. Våge¹⁹ in Norway observed that, after a 25-year follow-up of 36 patients



Fig. 5 – Mariano Martínez, J. M. Sánchez Ortega, Carles Masdevall, Radiology at Bellvitge.

with ileal bypass, 10 were reverted, gained weight and 50% died; 23 patients continued with the bypass and 5 regained weight. But, they maintained a reduced weight for 25 years, and only 2 developed osteoporosis, with no serious clinical consequences except flatulence, foul odor of bowel movements and controllable diarrhea.

Recently, Moustarah²⁰ has confirmed that duodenal switch without gastrectomy, in other words pure malabsorptive surgery, is as good in surgery by stages of super obese patients as vertical gastrectomy without biliopancreatic diversion.

Conclusion

Bariatric and metabolic surgery in Spain was implemented by pioneering surgeons. With this article, we have intended to identify these surgeons and when and where the surgical techniques were applied. This is not about evaluating results, but instead ascertaining the acts and approaches that laid the groundwork for the development and standardization of the bariatric surgical treatment process in our country. This article is meant to recognize these bariatric pioneers in Spain, to whom we are in debt.

Conflict of Interests

The authors have no conflict of interests to declare.

REFERENCES

- Henrikson V. Kan tunnfarmsresektion forsvaras som terapi mot fettsot? *Nordisk Medicin*. 1952;47:744.
- Kremen AJ, Linner JH, Nelson CH. An experimental evaluation of the nutritional importance of proximal and distal small intestine. *Ann Surg*. 1954;140:439-48.
- Buchwald H. Lowering of cholesterol absorption and blood levels by ileal exclusion: experimental and preliminary clinical report. *Circulation*. 1964;29:713-20.
- Buchwald H, Moore R, Varco R. Ten years clinical experience with partial ileal bypass in management of hyperlipidemias. *Ann Surg*. 1974.
- Buchwald H, Williams SE, Watts SP, Nguyen PA, Boen JR. Overall mortality in the program of the surgical control of the hyperlipidemias (POSCH). *J Am Coll Surg*. 2002;195:327-31.
- Payne JH, de Wind L, Schab CE, Kern WH. Surgical treatment of morbid obesity. Sixteen years of experience. *Arch Surg*. 1973;106:431-7.
- Mason EE, Ito C. Gastric bypass in obesity. *Surg Clin N Am*. 1967;47:1345.
- Mason EE, Ito C. Gastric bypass. *Ann Surg*. 1969;170:329-36.
- Scott HW, Law DH, Sandstead HH, Lanier VC, Younger RK. Jejunioleal shunt in surgical treatment of morbid obesity. *Ann Surg*. 1971;171:770-81.
- Scott HW, Dean R, Skul H. Results of jejunioleal bypass in 200 patients with morbid obesity. *SGO*. 1977;661-73.
- García Díaz S. Indicaciones del tratamiento quirúrgico en la obesidad. *Rev Quir Esp*. 1975;2:165-72.
- García Díaz S, Pera Madrazo C, Loscertales Abril J, Arévalo Jiménez E. Trabajos originales. Estado actual de la cirugía de la obesidad. *Rev Esp Enf Ap Digestivo*. 1977;51:1-25.
- García Díaz S, Pera Madrazo C, Loscertales Abril J, Arévalo Jiménez E. Cirugía de la Obesidad. *Avances en Cirugía n.º 2*. Barcelona: Editorial Salvat; 1979: 209-24.
- García Díaz S, García Fernández G. Medical and surgical indications for treatment of morbid obesity. *World J Surg*. 1981;5:795-9.
- Baltasar A, del Río J, Bengochea M. Bypass gástrico en la obesidad mórbida. *Rev Clin Esp*. 1980;157:395-9.
- Baltasar A, Marcote E, Bou R, Bengochea M, Arlandis F. Exclusión ileal parcial en la hipercolesterinemia. A propósito de tres operaciones. *Cir Esp*. 1991;6:4475-8.
- Laporte E, Badosa F, Masdevall C. La gastroplastia para el tratamiento de la obesidad. *Cir Esp*. 1985;38:621-5.
- González-González JJ, Sanz-Alvarez L, García Bernardo C. La obesidad en la historia de la cirugía. *Cir Esp*. 2008;84:188-95.
- Våge V, Solhaug J, Berstad A, Svanes K, Viste A. Jejunioleal bypass in the treatment of morbid obesity: a 25-year follow-up study of 36 patients. *Obes Surg*. 2012;12:312-8.
- Moustarah F, Simon Marceau S, Lebel S, Biertho L, Hould FS, Marceau P, et al. Weight loss after duodenal switch without gastrectomy for the treatment of severe obesity: review of a single institution case series of duodeno-ileal intestinal bypass. *Can J Surg*. 2010;53:S51.