Austin Journal of Surgery

Open Access

Austin Publishing Group

Special Article – Obesity Surgery in Spain

Obesity Surgery in Spain

Aniceto Baltasar*
San Jorge Clinic, 55 Oliver, Alcoy, Spain

***Corresponding author:** Aniceto Baltasar, San Jorge Clinic, 55 Oliver, Alcoy, Spain

Received: February 06, 2020; **Accepted:** March 09, 2020; **Published:** March 16, 2020

Abstract

Gastric obesity surgery (OS) from the Greek bari = weight and iatrein = cure) treats obesity and began in Spain in 1977. Its greatest development occurs after the founding of SECO (Spanish Society of Obesity Surgery) in 1997. The purpose of this work is to reflect the changes that have occurred in these 23 years.

Keywords: Morbid obesity; Bariatric surgery; SECO

Abbreviations

VBG: Vertical Banded Gastroplasty; GB: Gastric Banding; RY-GBP: Roux-en-Y Gastric By Pass;

OAGB: One Anastomosis GBP/mini GBP; BPD: Bilio-Pancreatic Diversion; ID: Intestinal Diversion; DS: Duodenal Switch; SADI: Single Anastomosis Duodenal-Ileostomy; SFG: Sleeve-Forming Gastrectomy; ABS: Adolescent Bariatric Surgery; ABS: Adolescent Bariatric Surgery; REV: Revision/Conversion of Prior Surgery; MO: Morbid Obesity; WL: Weight loss; %EWL: % Excess Weight Loss; L: Laparoscopic

Introduction

Obesity is a multifactorial epidemic ailment of environmental origin, affecting subjects from all countries. The surgical treatment represents a unique case of surgery to operate on healthy organs, which are not the cause of the disease and do not improve after the operation.

Kremen & Linner [1] and Varco & Buchwald in Minneapolis, MN teams began the malabsorptive intestinal diversion (ID) in 1954. Payne [2] and Scott [3] developed these ID techniques in the 1960s leaving only 14-4 inches (35-10 cm) as an absorptive zone and those were abandoned in the 1970s because of their serious metabolic (malnutrition) and hepatic (liver failure) complications.

Historical keynote

Cordoba (Qurtuba in Arabic) was the most civilized city in Europe in the 10th Century. Andalusia was home to the most famous physicians of the Middle-Ages, Averroes (1126-1198) and Maimonides (11351204). Sancho "*the Fat*", King of León 956-958, was deposed due to his massive obesity that unable him to ride a horse. He found safety in Pamplona, in the Navarre Kingdom 400 km from León, where his grandmother, Queen Toda, ruled. Toda's aim was to regain the kingdom of León for her grandson, but this was impossible unless Sancho the Fat lost his massive excess weight. Hasdai ibn Shaprut was a famous Jewish physician at Cordoba's Abdurrahman III's court. He travelled to Pamplona to evaluate Sancho super-super-obesity and decided that he would only treat him if he came to Cordoba. The 800-km trip was an ordeal because Sancho could not ride a horse or fit into a carriage. He remained semi-conscious for most of the trip and was carried in a special canvas tent, devised by Hasdai, between four mules. The queen, Toda (Abdurrahman III's aunt), Garcia (her son, the king of Navarre) and Sancho lived in Cordoba for 6 months, during the time that the treatment lasted. The treatment consisted of suturing Sancho's lips together and feeding him only through a straw. Sancho lost half his weight, returned to León riding a horse, and was able to regain his kingdom in 959 Baltasar (AB) [4].

First Spanish experience

Prof. Sebastián García Díaz of Seville carried out the 1st Scott-type Jejune-ileal diversion (JID) at Virgen Macarena Hospital on 11.19.1973. He began ID surgery in Spain with 12 cases [5-7] and then published 20 more, and the 1st work in English by a Spanish author [8] in 1981. His works went unnoticed for 40 years until we rescued them in 2013 [9] (Figure 1).

In 1964 Mason [10] initiates the GBP. It was a total change in strategy. Capella [11], Álvarez-Cordero [12] (both 1st SECO Honorary Members) and Fobi [13] made very important contributions to this technique as well as many other authors in the 1970s. AB [14] performed in June 17, 1977 the 1st Mason-type GBP in Spain.

Scopinaro [15], a tireless researcher and clinician, initiated

Figure 1:

Figure 2:

Citation: Aniceto B. Obesity Surgery in Spain. Austin J Surg. 2020; 7(2): 1243.

M. Deitel M. Belachew A. Wittgrove W. Clark

Figure 3:

Anagrams SECO-1976 SECO-2015

Figure 4:

SECO founding members

December 12.1976

San Juan. Alicante, España

1.	Aniceto Baltasar	Alcoy
2.	Juan Pujol	Barcelona
3.	Miguel A. Carbajo	Valladolid
4.	Santiago Tamames	Madrid
5.	Carlos Escalante	Santander
6.	Horacio Urquijo	Madrid
7.	Cándido Martínez	Vitoria
8.	Francisco Arlandis	Alcoy
9.	Rafael Bou	Alcoy
10.	Miguel A Calvo	Bilbao
11.	Antonio Alastrué	Badalona
12.	Eugenio Urquijo	Madrid
13.	Carlos Cerquella	Madrid
14.	Felipe de la Cruz	Madrid
15.	Mario García	Madrid
16.	Luis García Vallejo	Santiago
17.	Federico Leruite	Granada
18.	Juan Machuca	La Coruña
19.	José Mª Recio	Barcelona
20.	Carlos Masdevall	Barcelona
21.	Salvador Serrano	Burgos
22.	Tomeu Feliú	Gerona
23.	Antonio Soro	Mallorca
24.	Antonio Martín	Madrid
25.	Mariano Martínez	Zaragoza

Figure 5: SECO Founding members.

experimental and clinical gastrectomy with biliopancreatic diversion (BPD) in 1976 [16,17]. He is the leader and "father of European bariatric surgery" and participated in multiple congresses and publications. His combined mixed a technique of gastrectomy plus BPD as the most effective for treating obesity [18]. He is an Honorary SECO Member and the only foreign Outstanding Achievement Award winner (OAAW) of the American Association of Metabolic and Bariatric Surgery (ASMBS).

DBP became a very popular technique and was a commonly used in Spain. Larrad and Sánchez [19-21] published extensively on a modification of their own and other authors used this technique in Zaragoza [22-25] and Santander [26,27].

Mason [28] "father of BS" published in 1982 the vertical banded gastroplasty (VBG) in 18 patients and that was the 1st great revolution by making OS "easy and affordable". AB [29] in 1984 broadcasts a VBG in RTVE and it was 1st Spanish documentary in obesity surgery in a man with BMI-52.Laporte [30] published the 1st Spanish VBG experience in 9 cases.

Reopening of the vertical staple-line was a serious disadvantage of the VBG because it cancels out the restrictive effect of the operation. AB [31] in 1989 described the separation with staples between gastric tube and the rest of the stomach and did not have a single recanalization in 100 cases. Alcoy's Andreo [32] described the typical radiological "peanut deformity" of the VBG.

Many Spanish surgeons performed VBG [33-35]. AB [36] published his first 100 VBG cases in 1990 with excellent results, but 5 years later he reviewed the same patients and describes it as a "frustrated hope" [37,38]. Two years later this technique was abandoned.

Belachew [39,40] initiated in Belgium on 1/09/1993 the use of laparoscopy with the 1st laparoscopic adjustable gastric band (LAGB) operation and that was the 2nd revolution in bariatrics.

Favretti [41] performed on Sept 27.1995 the 1st LAGB operation in Spain at Madrid "La Paz" Hospital (Figure 3) assisted by Masdevall/AB (Figure 2).

Carbajo [42] in 1986 published the 1st 12 LAGB in Spain and Alastrué [43] compared VBG with LAGB. More than 650.000 of LAGB were done all over the world and then the technique was abandoned due to poor long-term results.

Laparoscopy changed the way of doing surgery not only in bariatrics but in all general surgery. Advances in bariatric laparoscopy, being repetitive operations and performed on healthy organs were the greatest advance in XXI century surgery.

In the 90's the American Society of Bariatric Surgery [ASBS] was the 1st national bariatric society created by Edward Mason on June 3,1983 in Iowa City, IO [44], the town he worked all his life. Deitel created Obesity Surgery, as the 1st obesity journal in 1990 [45] Figure 3.

The International Federation of Surgery for Obesity (IFSO) is founded in 1995 and the standards to report the results [46].

The Spanish Society of Obesity Surgery (SECO) was founded at Residencia Pérez Mateos, San Juan, Alicante by 26 surgeons on December 12.1976 (Figure 4-6).

SECO joined IFSO in 1998 and AB became IFSO-2002 president. He organized and preside IFSO-Salamanca-2003. Dr. A. Torres was the 2nd Spanish president of IFSO and organized IFSO-2019-Madrid, the world's largest bariatric meeting. Spain is the 2nd country to organize this congress twice.

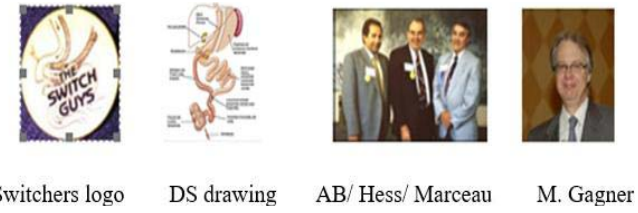
Wittgrove and Clark in October 27, 2003 [47-49] made the most significant step in performing the 1st laparoscopic gastric bypass (LGBP) in San Diego. This is the 3rd revolution of BS. AB was the San Diego 1st visitor in September 2007. Wittgrove [50], and at our

1.Dec 1997	Aniceto Baltasar Torrejón
2. May 2001	Cándido Martínez Blázquez
3.Oct 2004	José C. Fernández-Escalante
4.April 2007	Antonio José Torres García
5.April 2011	Carles Masdevall Noguera
6.April 2013	Felipe de la Cruz Vigo
7.May 2015	Juan C. Ruiz Adana Belbel
8.March 2017	José A. Ramírez Felipe
9.Sept 2019	Raquel Sánchez-Santos

Figure 6: SECO Presidents.

AB-2000 C. Martínez De la Cruz on Gastric bypass Caballero ondiabetes

Figure 7: Books published by SECO members.



Switchers logo DS drawing AB/ Hess/ Marceau M. Gagner

Figure 8:

Papers in OBESITY SURGERY
Jan.-Sept. 2005

Table 1. Papers in *OBESITY SURGERY* by Country, January – December 2006

Argentina	3	Germany	10	Russia	1
Australia	11	Greece	12	Saudi Arabia	2
Austria	13	Israel	10	Singapore	2
Belgium	12	Italy	25	Spain	33
Brazil	27	Korea	3	Sweden	5
Canada	8	Kuwait	1	Switzerland	12
Chile	5	Lebanon	2	Taiwan	7
China	3	Mexico	2	Turkey	3
Cyprus	1	New Zealand	4	United Kingdom	7
Czech Republic	2	Netherlands	9	USA	106
Finland	1	Poland	5		
France	24	Portugal	3	Total	374

Figure 9: SECO Spanish pubs en Obes. Surg. 2005-6.

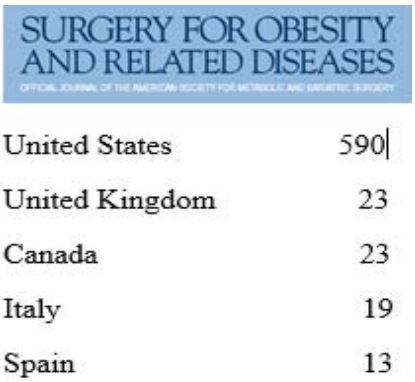


Figure 10: Spanish publications in SOARD 2014.

proposal dropped the use of the huge circular #33 port to pass the circular stapler, and use no trocar, a very important step in those early times.

We performed the 1st LGBP in Spain on 1.14.1997 [51] and presented it [52] in Bruges IFSO-1998 as the 1st European to report it on video.Serra [53] published in 1999 the 1st world hernia after LGBP. Higa [54] made fortunately the 1st LGBPs with manual sutures.

AB [55] published the 1st book in Spanish on OS in 2000. Martínez [56] from Vitoria published a bilingual BS book (Spanish and Basque) on 2001. De la Cruz [57] published in 2006 the 1st Spanish book on LGBP and carried out the 1st surgical session in León. García-Caballero [58] published a book in English on diabetes surgery (Figure 7).

In 1988, Hess [59] and Marceau [60] initiated the duodenal switch (DS), a Sleeve-forming Vertical Gastrectomy (SFVG) plus BPD and AB [61] started it on 3.17.1994.

Ren/Gagner [62] performed the 1st world LDS in October 1999 and AB on 5.10.2000 [63] the 1st LDS in Europe. (Figure 8). This difficult and controversial technique of LDS by the Switchers surgeons is rarely used today, in less than 1%.

AB [63] had a low mortality of 0.4% with LDS on 950 patients and he thinks [64] it is the most effective technique to lose weight.

There have been many technical variations in laparoscopy. In general, all viscera division is done with auto sutures. The anastomosis is done either with auto sutures or manual ones. We advocate the manual suture starting always with the sliding, self-locking sliding knot of Serra - Baltasar [65,66].

SECO members reported BS surgeries in the early years of OS and SOARD. Spain was the 2nd country with the highest number of publications after the USA in 2005 and 2006 and in 2013 was the 5th country with the highest number of publications in SOARD (Figure 9,10).

SECO members have been very active publishing in OS and SOARD (Figure 8 & 9). Among the SECO founding members there has been a high bibliographic volume (Alcoy-124, Carbajo-76, Belvitge-38, Alastrué-30, Martín-Duce-27, Martínez C.-22, Ballesta-9, Zaragoza-5). In 2003 SECO made the Salamanca Declaration on BS [67].

Laparoscopic Sleeve-Forming Gastrectomy (LSFG), the restriction part of DS, was described by several authors in 2005. AB paper on LSFG [68], is according to Ahmad [69] the 61st most cited article the bariatric literature. Angrisani [70] claims that the LSFG is today the most commonly performed operation in the world. We start the gastrectomy at the pylorus and suture the gastric anterior and posterior serosa, covering the staples, to prevent rotation of the sleeve and avoid leaks.

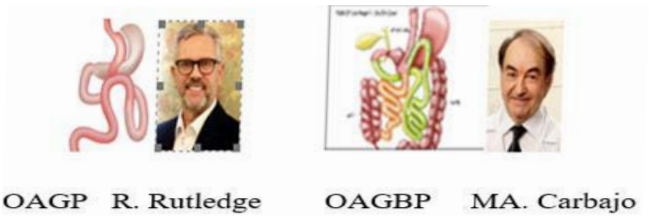


Figure 11:

Figure 12:

Rutledge described 1,274 cases of mini-gastric bypass in 2001 [71] and Spanish authors have developed two popular techniques. Carbajo [72] performs since 2004 the lesser curvature reservoir without gastric resection, the one anastomosis OAGB, a GBP with latero-lateral diversion to an intestinal loop. He presented more than 3,500 cases at the 1919 World Congress in valladolid and is today the fasters growing technique in the world (Figure 11).

Sánchez and Torres [73] at Madrid Clinic Hospital, describe in 2005 the one anastomosis DS or SADI in English. There is gastric resection in the form of SFG and the BPD is done end-to-side at the duodenum (D1). The operation is becoming very popular all over the world. Currently they have more than 350 cases (Figure 12).

BS at Barcelona Bellvitge hospital has organized 16 consecutive bariatric courses and Torres/Sánchez another 16 annual courses at Madrid Clinic Hospital.

We founded BMI-Latina Journal (Iberoamerican Bariatric and Metabolic) www.bmilatina.com in 2011 as an a online magazine published in Spanish, English and Portuguese. Adopted by SECO in 2015, it may play a valuable role in Spanish and Portuguese speaking BS societies.

In 2009, Scopinaro, Melissas, Fried and AB create the IFSO European Chapter of the Centers of Excellence Program (ECEP). Currently, several Spanish centers and surgeons use this prestigious quality control program.

SECO members have participated in numerous local, regional, national, and international meetings and congresses, especially in Latin American societies where SECO has always been very kindly well received. In May 1998 AB organized the 1st Symposium at the meeting of the prestigious course of Prof. Moreno González, with Drs. Cowan, Fobi, Scopinaro, Clark & F.de la Cruz.

In 2003, AB inaugurated the Spring (NYC) and Fall (Chicago) with two keynote lectures at the American Congress of Surgery with on DS. AB received the IFSO-Lifetime Membership Award in June 2011 and was a nominated finalist for the prestigious ASMBS-

Figure 13:

Figure 14:

Outstanding Achievement Award at the ASMBS meeting in Orlando, Florida (Figure 13).

Diabetes Surgery

Part of the BS is dedicated to diabetes as metabolic surgery. AB [74] published a successful 1st intervention in 2004 BPD-without-SFG.

Resa and Solano [75] describe 65 cases of gastro-ileal bypass as the simplest, quickest and safest technique to treat obesity. And then Resa [76] again publishes 1512 more cases. Alhambra [77], Vidal [78], Vilarrasa [79], García [80], Cruz [81] and Torres [82] have published on the same subject.

Laparoscopic OS in children and adolescents (ABS)

OS is increasingly used in children. AB [83,84] published the 1st national SFG in 2004 on a 10-year-old boy with excellent results 10 years later.

Carbajo [85] has a case with 5 years follow-up and then in 2019 again [86] reports the more extensive experience in ABS with 39 patients treated with OAGBP with excellent results.

Vilallonga [87] reports that the overweight rate in 4–24 years-old children has increased by approximately 10% in the last 20 years. It is estimated that today, 20% of boys and teenagers and 15% of girls are overweight.

Robotics bariatric surgery

Cadiere and Favretti performed the world's 1st robotic bariatric operation at a distance in 1998. Diez and Blázquez perform the first 12 robotic Spanish bariatric surgeries in Vitoria-2013. Vilallonga (1st accredited robotics surgeon in Spain) and Fort from 2010 in the Hospital Vall d´Hebron in Barcelona develop robotic surgery [87] and performed more than 540 cases with the da Vinci (Figure 13) Surgical System® (Intuitive Surgical, Sunnyvale, CA) at the beginning

with GV and them DG robotics [88] (Figure 14).

Morales [89] performs in Seville the complex single port surgery of since 2012 and today leads the European surgery [90].

A. Lacy initiated AIS-Channel as a pioneering worldwide on-line TV transmission and made the 1st BS remote operation by cellphone G5 from Barcelona Clinic Hospital on 4.14.2019 at the WORLD-VIDEO Forum Barcelona-2019.

The biography of some members of the Spanish society [91-95] has been published in the Obes. Surg.

Surgeries performed in spain 2018

1st-Surgeries: 5.952; 2nd-Revision: 343.

Total Complications: LGBP-3.7% and LSFG-3.6%; LGBP-Leaks-1.2%, Bleeding-2.3%, PET-0.1% Re-op-2.3% Exitus-0.1% and in SFG-Leaks-1.5%, Bleeding-1.9% PET-0.1% 2.1% Deaths-0.1%. Extraordinary good results!

Private centers report multiple operations over the years with different techniques: Valladolid-4.255, Teknon-3.000, De la Cruz-2.493, Zaragoza-2.649, Alcoy-1.729.

We should publish all serious complications such as malnutrition [96], leaks [97-99], total gastrectomy's [100], liver failure [101-103], stapling of the bougie [104], emergency tracheostomy [105] and mistakes as the Journal of negatives or non-positive results (JNNPR) [106], since it is more likely to learn from negative results than positive ones.

BS is performed in public centers in all regions of Spain with very low leakage and complication rates. But it is not yet performed on an outpatient basis.

If OM is an epidemic pathology and if CB is the best solution, it should be accessible to more subjects. Duncan [107] performs ambulatory BS, and this will be the 4th great bariatric revolution. They have two-teams. Team A uses 2 operating rooms, 2 anesthesiologist nurses, 2 scrub nurses and an operating room technician as an assistant while team B have visiting and prospective patients. Team A and B switch duties in the afternoon cases. Operative times of 22´. The surgeon passes from OR-1 to OR-2 with the patient already anesthetized. He changes gloves and do 5 patients in total in the morning. In the afternoon, surgeon-B operates while team-A have consultations. Total 10 patients per day. 50 cases per week, 2, 2000 cases per year. No overnight stay. All morning patients are discharged before 14 hours. There is no hospitalization.

References

1. Kremen AJ, Linner JH, Nelson CH. An experimental evaluation of the nutritional importance of proximal and Distal small intestine. Ann Surg. 1954; 140:439–448.
2. Payne JH, de Wind L, Schab CE, Kern WH. Surgical treatment of morbid obesity. Sixteen years of experience. Arch Surg. 1973; 106: 431–437.
3. Scott HW, Law DH, Sandstead H H, LanierVC, Younger RK. Jejunoileal shunt in surgical treatment of morbid obesity. Ann Surg. 1971; 171:770–781.
4. Baltasar A. More than 1,000 years ago, Sancho the Fat lost his Kingdom. Obesity Surgery, 14, 1138García Díaz S. Indicaciones del tratamiento quirúrgico en la obesidad mórbida. Rev. Quir Española. 1975; 2: 165-172.
5. García Díaz S, Pera C, Loscertales J. Trabajos originales. Estado actual del tratamiento de cirugía de la obesidad. Rev Esp Enf del Ap. Digestivo. 1977; 51: 1-25.
6. García Díaz S, Pera C, Loscertales J, et al. Avances en cirugía. Barcelona. Editorial Salvat. 1979: 209-224.
7. García Díaz S, García G. Medical and surgical indications for treatment of morbid obesity. World Journal of Surgery. 1981; 5: 795-799.
8. Baltasar A. Domínguez-Adame E. Inicios de la cirugía bariátrica y metabólica en España. Cir. Esp 2013; 91: 407-416.
9. Mason EE, Ito C. Gastric bypass in obesity. Surg Clin N Amer. 1967; 47: 1345.
10. Capella R, Capella J, Mandac H. Vertical Banded Gastroplasty-Gastric Bypass: preliminary report. Obesity Surgery. 1991; 1: 389-395.
11. Álvarez-Cordero R, Aragon V. Post-operative Complications in a Series of Gastric Bypass Patients. Obes Surg 1992; 2: 87-89.
12. Fobi MAL. Why silastic ring vertical banded gastric bypass for treatment of obesity? Obes Surg. 1991; 1: 423-426.
13. Baltasar A, Del Río J, Bengochea A. Bypass gástrico en la obesidad mórbida. Revista clínica española 1980; 157: 395-399.
14. Scopinaro N, Gianetta E, Civalleri D, Bonalumi U, Bachi V. Biliopancreatic bypass for obesity: II. Initial experience in man. Br J Surg. 1979; 66: 619-620.
15. Scopinaro N, Gianetta E, Civalleri D, Bonalumi U, Bachi V. Two years of clinical experience with bilio-pancreatic bypass for obesity. Am j Clin Nutr. 1980; 33: 50614.
16. Scopinaro N, Gianetta E, Civalleri D, Bonalumi U, Bachi V. Partial and total biliopancreatic bypass in the surgical treatment of obesity. Inf J Obesity. 1981; 5: 421-429.
17. Scopinaro N: Why the Operation I Prefer is Biliopancreatic Diversion (BPD). Obes Surg. 1991; 1: 307-309.
18. Sánchez C, Larrad N. Analysis of Weight Loss with the Biliopancreatic Diversion of Larrad: Absolute Failures or Relative Successes? Obes Surg 2002; 12: 249-252.
19. Larrad A, Sánchez C. Indicadores de calidad en cirugía bariátrica y criterios de éxito a largo plazo. Quality indicators in bariatric surgery and criteria for long-term success Cir Esp. 2004; 75: 301-304.
20. Larrad A, Sánchez C, Cuadros P, et al. Course of Metabolic Syndrome following the Biliopancreatic Diversion of Larrad. Obes Surg. 2007; 17: 202-210.
21. Larrad A, Sánchez C, Cuadros P. Short, Mid- and Long-Term Results of Larrad Biliopancreatic Diversion. Obes Surg. 2007; 17: 202-210.
22. Elía M, Ariba's D, Gracia J, Artigas C. Results of bilio-pancreatic diversion after five years. Obes Surg. 2004; 14: 766-772.
23. Gracia J, Martínez M, Aguilella V, Elia M, Royo P. Postoperative morbidity of biliopancreatic diversion depending on common limb length. Obes Surg. 2007; 117: 1306-1311.
24. Aguilella V, Royo P, Jiménez A. Bielsa MA, Arribas D, Elia M, et al.Obesity surgery results depending on technique performed: long-term outcome. Obes Surg. 2009; 19: 4323-4328.
25. Gracia JA, Elía M, Aguilella V, Ramirez JM, Martinez J, Bielsa MA, et al. Metabolic syndrome after bariatric surgery. Results depending on the technique performed. Obes Surg. 2011; 21: 179-185.
26. Domínguez A, Olmedo F, Ingelmo A, Gómez M, Escalante C. Bypass bilio-pancreático. Cir Esp. 2004; 75: 251-256.
27. Palomar R, Fernández G, Domínguez A. Effects of Weight Loss after Biliopancreatic Diversion on Metabolism and Cardiovascular Profile Obes Surg. 2005; 15: 794–798.
28. Mason E. Vertical banded gastroplasty for obesity. Arch Surg. 1982; 117: 191-194.

29. Baltasar A. “JJ Soriano más moral que el alcoyano”. RTVE Vivir cada día. www.youtube.com/watch?v=pQtW3H9B_kg.

30. Laporte E, Badosa F, Masdevall C. La gastro plastia para el tratamiento de la obesidad. Cir. Esp. 1985; 38: 621–625.

31. Baltasar A. Modified vertical gastroplasty. Technique with vertical division and serosal patch. Acta Chir. Scand. 1989; 155: 107-112.

32. Andreo L, Lasierra R, Baltasar A, et al. Evaluación radiológica de la gastroplastia vertical anillada. Radiología. 1988; 30:303–8.

33. Alastrué A, Rull M, Casas D et al. Gastroplastia vertical anillada. Experiencia de un grupo multidisciplinario en 65 pacientes. Metodología y técnica quirúrgica. Resultados antropométricos. Cir Esp. 1991; 50: 50-58.

34. Alastrué A, Formiguera J, Rull M, Casas D, Escudero LE, Del Moral P, et al. Cirugía bariátrica: gastroplastia vertical anillada. Obesidad mórbida y super obesidad. Resultados antropométricos. Complicaciones técnicas y reintervenciones a largo plazo. Rev Endocrinol. 1992; 38: 365-375.

35. Arribas D, Martínez M, Elía M, Diago VA. Vertical banded gastroplasty: Is it a durable operation for morbid obesity? Obes Surg. 2004; 14: 536-538.

36. Baltasar A, Tomás, Marcote. Cirugía bariátrica. Experiencia con 100 pacientes operados. Cir Esp 1991; 50: 271.275.

37. Baltasar A, Bou R, Del Río J, B M, Escriva C, Miro J, et al. Cirugía bariátrica: resultados a largo plazo de la gastroplastia vertical anillada. ¿Una esperanza frustrada? Cir Esp 1997; 62:175-9. 21.

38. Baltasar A, Bou R, Arlandis F, Martinez R, Serra C, Miro J, et al. Vertical banded gastroplasty at more than five years. Obes Surg 1998; 8: 29-34.

39. Belachew M, Lagrard TH, Defrebreuren M, Laparoscopic adjustable silicone gastric banding in the treatment of morbid obesity. Endoscopy. 1994; 8: 1354-1356.

40. Belachew M, Legrand M, Vincent V. Laparoscopic Placement of Adjustable Silicone Gastric Band in the Treatment of Morbid Obesity. How to Do It. Modern Surgery Technical Innovations. Obesity Surg. 1995; 5: 66-70.

41. Favretti F, Cadiere GB, Segato G, Bruyns G, Laparoscopic Adjustable Silicone Gastric Banding. Technique and Results Obes Surg. 1995; 5: 364-371.

42. Carbajo MA, Martín JC, Blanco J. Banda ajustable por laparoscopia (Lapband) en el tratamiento de la obesidad grave. Experiencia preliminar Cir Esp. 1998; 63: 185-188.

43. Alastrue A, Rull M, Cases D. Evaluación de dos técnicas restrictivas en cirugía bariátrica. Gastroplastia vertical anillada (GVA) vs bandeleta hinchable (Lapband). Valoración a los dos años. Cir Esp. 1996; 60: 181-187.

44. Scott HW. A tribute to Edward E Mason. The 1st Annual Edward E. Mason Founders lecture. Obes Surg. 1991; 1: 13-19.

45. Blommers T. The ASBS first nine years. Obes Surg. 1992; 2: 115-7.

46. Mason E, Amaral J, Cowan G, Deitel E. Standards for reporting results. Obes Surg. 1994; 4: 56-65.

47. Wittgrove A, Clark W, Tremblay L. Laparoscopic gastric bypass. Roux-en-Y. Preliminary report. Obes Surg. 1994; 4: 353–7.

48. Wittgrove A, Clark W. Laparoscopic gastric bypass. Roux-en Y. Experience with 27 cases with 3-18 months follow up. Obes Surg. 1996; 6: 54–7.

49. Wittgrove A, Clark W, Schubert K. Laparoscopic gastric bypass. Roux-en Y. Technique and results in 75 patients with 3-30 months follow up. Obes Surg. 1996; 6: 500–4.

50. Wittgrove A. Chapter 21. Laparoscopic gastric bypass. Circular stapler technique. In Obesity Surgery Principles and Practice. Pitombo C, Jones KB, Higa KD, Pareja JC, Albany. New York McGraw Hill Medical. 2007; 221-224.

51. Baltasar A, Bou R, Miró J, Serra C. Bypass gástrico por laparoscopia. Cir Esp. 2000; 67: 556–9.

52. Baltasar A, Bou R, Bengochea M, et al. Lap Roux-Y gastric bypass. V-18. Obes Surg. 1998; 8: 393.

53. Serra C, Baltasar A. Internal hernias and gastric perforation after laparoscopic gastric bypass. Obes Surg. 1999; 9: 546.

54. Higa K, Boone K, Ho T. Complications of the Laparoscopic Roux-en-Y Gastric Bypass: 1,040 Patients - What Have We Learned? Obes Surg. 2000; 10: 509-513.

55. Baltasar A. Obesidad y cirugía. Cómo dejar de ser obeso. Libro de Editorial Arán. 2000.

56. Martínez C, Martínez G. Bypass gástrico laparoscópico. Vitoria. 2001.

57. De la, Cruz F, la Cruz JL. Bypass Gástrico por Laparoscopia. Laparoscopic Gastric Bypass. Obes Surg. 2006; 16: 112.

58. García Caballero M, Tinahones F, Cohen R. Cirugía de la diabetes mellitus tipo 2 el gran descubrimiento de la cirugía bariátrica. Nutr Hosp. 2010; 25: 693-694.

59. Hess DS, Hess DW. Biliopancreatic diversion with a duodenal switch. Obes Surg. 1988; 8: 267–82.

60. Marceau P, Biron S, MD, Bourque A. Biliopancreatic Diversion with a New Type of Gastrectomy Obes Surg. 1993; 3: 29-35.

61. Baltasar A, Bou R, Marcote E, Arlandis F, Serra C, Miro J, et al. Hybrid bariatric surgery. Biliopancreatic diversion and duodenal switch. Obes Surg. 1995; 5: 419–23.

62. Ren CJ, Patterson E, Gagner M. Early results of laparoscopic biliopancreatic diversion with duodenal switch a case series of 40 consecutive patients. Obes Surg. 2000; 10: 514-523.

63. Baltasar A, Bou R, Miró J, Perez N. vances en técnica quirúrgica. Cruce duodenal por laparoscopia en el tratamiento de la obesidad mórbida: técnica y estudio preliminar. Cir. Esp. 2001; 70: 102-104.

64. Baltasar A, Pérez N, Bou R, et al. A switch to the Duodenal Switch. Glob J Obes Diabetes Metab Syndr 2019, 6: 001-009.

65. Serra C, Pérez N, Bou R, Baltasar A. Sliding Self-Locking First Stitch and Aberdeen Knots in Suture Reinforcement with Omentoplasty of the Laparoscopic Gastric Sleeve Staple line. Obes Surg. 2014; 24: 1739–1740.

66. Baltasar A, Bou R, Serra R, Bengochea M and Pérez N. Use of self-locking knots in running intestinal bariatric sutures. Glob Surg, 2015; 2: 100-101.

67. Recomendaciones de la SECO para la práctica de la cirugía bariátrica (Declaración de Salamanca). Cir Esp. 2004; 75: 312-4.

68. Baltasar A, Serra C, Pérez N. Laparoscopic sleeve gastrectomy. A multi-purpose operation. Obes Surg. 2005; 15: 1124–8.

69. Ahmad SS, Ahmad SS, Kohl S. The Hundred Most Cited Articles in Bariatric Surgery. Obes Surg. 2015; 25: 900–9.

70. Angrisani L, Santonicola A, Iovino P, Vitiello A, Higa K, Himpens J, et al. IFSO Worldwide Survey 2016. Primary, Endoluminal, and Revisional Procedures. Obes Surg. 2018; 28: 3783–3794.

71. Rutledge R. The Mini-Gastric Bypass. Experience with the First 1,274 Cases Obesity Surgery. 2001; 11: 276-280.

72. Carbajo M, García M, Toledano M. One anastomosis gastric bypass by laparoscopy results of the first 209 patients. Obes Surg. 2004; 15: 398-404.

73. Sánchez-Pernaute A, Miguel Rubio MA, Torres A, et al. Proximal Duodenal–Ileal End-to-Side Bypass with Sleeve Gastrectomy. Proposed Technique. Obes Surg. 2007; 17: 1614–1618.

74. Baltasar A. Historical note. First diabetes metabolic operation in Spain Integr Obesity Diabetes. 2015.

75. Resa J, Solano J, Fatás A, Blas JL, Monzon A, Garcia A, et al. Laparoscopic Biliopancreatic Diversion: Technical Aspects and Results of our Protocol. Obes Surg. 2004; 14: 329-333.

76. Resa J, Lagos J, Pérez A, Fatas A, Solano J, Monzon A, et al. Laparoscopic Gastro ileal Bypass with Single Anastomosis. Analysis of the First 1512 Patients. Laparoscopic Gastroileal Bypass with Single Anastomosis. Obes Surg. 2019.

77. Alhambra M, Molina M, Prior M, Manzano G, Calanas A, Galvez M A. Variations in diabetes remission rates after bariatric surgery in Spanish adults according to the use of different diagnostic criteria for diabetes. BMC Endocrine Disorders. 2017; 17: 51.

78. Vidal J, Ibarzabal A, Romero F, Delgado S, Momblan D, Flores L, et al. Type 2 diabetes mellitus and the metabolic syndrome following sleeve gastrectomy in severely obese subjects. Obes Surg. 2008; 18: 1077-1082.

79. Vilarrasa N, Rubio MA, Miñambres I, Flores L, Caixas A, Ciudin A, et al. Long-term outcomes in patients with morbid obesity and Type 1 Diabetes Undergoing Bariatric Surgery Obes Surg. 2017; 27: 856–863.

80. García M, Tinahones FG, Cohen R. McGraw-Hill Interamericana de España S.L.1ª ed., 1ª imp. 2011.

81. Cruz M, Rubio MA, Calle L. Remisión de diabetes mellitus tipo 2 a largo plazo tras cirugía bariátrica Tesis. Hospital Clínico. 2017.

82. Torres A, Sánchez A, Rubio MA. Metabolic surgery for obesity a critical account ISSN. 1575-0922, Vol. 60, Nº. Extra 1, 2013.

83. Baltasar A, Serra C, Bou R. Sleeve Gastrectomy in a 10-year-old Child. Obes Surg 2008; 18: 733–736.

84. Baltasar A. Nine years follow up of the 1st Adolescent Bariatric Surgery in Spain Nine years follow up of the 1st Adolescent Bariatric Surgery in Spain. J J Obesity. 2017; 3: 026.

85. Carbajo M, Vázquez R, Aparicio R. 12-year old adolescent with super morbid obesity, treated with laparoscopic one anastomosis gastric bypass (LOAGB/BAGUA). A case report after 5-year follow-up. Nutr Hosp. 2015; 31: 2327-2332.

86. Carbajo MA, González G, Jiménez JM, Leon E L, Solorzano J, Castro MJ, et al. A 5-Year Follow-up in Children and Adolescents Undergoing One-Anastomosis Gastric Bypass (OAGB) at a European IFSO Excellence Center (EAC-BS). Obes. Surg. 10.1007/s11695-019-03908-2.

87. Vilallonga R, Moreno JM, Yeste D, Initial Approach to Childhood Obesity in Spain. A Multisociety Expert Panel Assessment. Obes Surg. 2017; 27: 997–1006.

88. Vilallonga R, Fort JM, Caubet E, González O, Armengol M. Robotic Sleeve Gastrectomy Versus Laparoscopic Sleeve Gastrectomy a Comparative Study with 200 Patients. Obes Surg. 2013; 23: 1501–1507.

89. Morales S. Bypass gástrico por puerto único detalles técnicos. De un nuevo abordaje. Cir Es. 2015; 90: 6: 100-106.

90. Morales-Conde S, Peeters A, Meyer YM. European association for endoscopic surgery (EAES) consensus statement on single-incision endoscopic surgery. Surg Endosc. 2019; 33: 996-1019.

91. Shikora S, Torres A. Baltasar. Biography. Obes Surg. 2016; 26: 477–478.

92. Rafael Álvarez Cordero biography. Obes Surg. 2016; 26: 1997–1998.

93. Torres AJ. Biography. Obes Surg. 2017; 27: 2383-84.

94. Baltasar A. Rafael Capella biography. Obes Surg. 2017; 27: 1129.

95. Baltasar A, Luque-de-León E. Carbajo MA. Carbajo biography. Obes Surg. 2018; 28: 889–891.

96. Baltasar A, Bou R, Bengochea M, Serra C. Malnutrición calórico-proteica. Tres tipos de alargamiento de asa común. BMI-Latina. 2011; 5: 96-97.

97. Baltasar A, Bou R, Bengochea M. Fatal perforations in laparoscopic bowel lengthening operations for malnutrition. Surg Obes Relat Dis. 2010; 6: 572–574.

98. Bueno J, Pérez N, Serra C. Fistula pancreato-cutánea secundaria a pancreatitis postoperatoria tras cruce duodenal laparoscópico. Cir. Esp. 2004; 76: 184–6.

99. Serra C, Baltasar A, Andreo L, Perez N, Bou R, Bengochea M, et al. Treatment of Gastric Leaks with Coated Self-expanding Stents after Sleeve Gastrectomy. Obes Surg. 2007; 17: 866-872.

100. Serra C, Baltasar A, Pérez N, Andreo L, Bou R, Bengochea M, et al. Total Gastrectomy for Complications of the Duodenal Switch, with Reversal. Obes Surg. 2006; 16:1082-1086.

101. Castillo J, Fábrega F, Escalante C. Liver Transplantation in a Case of Steatohepatitis and Subacute Hepatic Failure after Biliopancreatic Diversion for Morbid Obesity. Obes Surg. 2001; 11: 640–642.

102. Baltasar A. Liver failure and transplantation after duodenal switch. Surg Obes Relat Dis. 2014; 10: 93-96.

103. Mayo MA, Pacheco JM, Pérez D. Caso clínico Fallo hepático fulminante a largo plazo en pacientes sometidos a bypass gástrico por obesidad mórbida Nutr Hosp. 2015; 32: 430-434.

104. Baltasar A, Bou R, Serra C. Grapado de la sonda en gastrectomía vertical laparoscópica. BMI-latina. 2013; 3: 4-7.

105. Baltasar A, Bou R, Bengochea M. Intubación Difícil y Traqueotomía en el obeso mórbido Baltasar A. BMI. 2013; 3: 4.

106. Baltasar A. Prevenir y Deshacer entuertos en cirugía. Journal of negative or non-positive results. 2019; 4: 252-264.

107. Duncan T, Tuggle K, Larry Hobson L, et al. PL-107. Feasibility of laparoscopic gastric bypass performed on an outpatient basis. Surg Obes Relat Dis. 2011; 7: 339–354.