Treatment of Fecal Incontinence 2016

Yishai Ron
Director, Neurogastroenterology & Motility
Dept. of Gastroenterology & Hepatology
The Tel-Aviv Sourasky Medical Center
Israel

Definition

- Uncontrolled passage of feces or gas over at least 1 month's duration, in an individual of at least 4 years of age, who had previously achieved control

Rao SS; American College of Gastroenterology Practice Parameters Committee. Diagnosis and management of fecal incontinence. American College of Gastroenterology Practice Parameters Committee. *Am J Gastroenterol*. 2004;99:1585–1604

Wald A. Clinical practice. Fecal incontinence in adults. *N Engl J Med*. 2007;356:1648–1655.

M adoff RD, et al. Faecal incontinence in adults. *Lancet*. 2004;364:621–632.

Epidemiology

- Reported prevalence **1.4% - 18%**
- Women > 45y**, 20%** 1/year**, 9.5%** 1/month

- 2nd cause to Institutionalize an old person
- In institutionalized patients - **50%** have **FI**

Brown Hw et al . Accidental bowel leakage in the mature women's health study: prevalence and predictors. *Int J Clin Pract*. 2012;66:1101–1108

Ditah I et al. Prevalence, trends, and risk factors for fecal incontinence in United States adults, 2005–2010. *Clin Gastroenterol Hepatol*. 2014;12:636–643.e1–2.

Goode PS, et al. Prevalence and correlates of fecal incontinence in community-dwelling older adults. *J Am Geriatr Soc*. 2005;53:629–635.

M arkland AD, et al. Incidence and risk factors for fecal incontinence in black and white older adults: a population-based study. *J Am Geriatr Soc*. 2010;58:1341–1346.

Whitehead WE, et al; Pelvic Floor Disorders Network. Fecal incontinence in US adults: epidemiology and risk factors. *Gastroenterology*. 2009;137:512–7, 517.e1.

FI Severity Scoring

- Fecal Incontinence Severity Index
- St. Marks Incontinence Score
- **Cleveland Clinic Florida Fecal Incontinence Score**
- Fecal Incontinence Quality of Life scale

Rockwood TH, et al. Patient and surgeon ranking of the severity of symptoms associated with fecal incontinence: the fecal incontinence severity index. *Dis Colon Rectum*. 1999;42:1525–1532.

Vaizey CJ, et al Prospective comparison of faecal incontinence grading systems. *Gut*. .80–44:77;1999

Jorge JM, et al Etiology and management of fecal incontinence. *Dis Colon Rectum*. 1993;36:77–97.

Rockwood TH, et al. Fecal Incontinence Quality of Life Scale: quality of life instrument for patients with fecal incontinence. *Dis Colon Rectum*. 2000;43:9–16.

Medical Management

Dietary

- Co-existence of **diarrhea** should be investigated

- Effects of **caffeine, sugar replacements, lactose** ect. - fecal urgency
- Supplemental **fibers** to thicken stool consistency
- **22% - 54 %** of patients can have improvement in FI with formal counseling from a specialist regarding dietary habits

Supportive measures

Skin care:

- Protective ointments - zinc oxide based
- Gentle soaps & wipes
- Deodorants & pads

Medications

- Adsorbents - **Kaopectate**
  absorbing excess fluid in the stool
- Antidiarrheal agents – **loperamide / diphenoxylate-atropine**
- Tricyclic antidepressants
- Opioids
- Clonidine
- **Emptying the rectum by using enemas**

Biofeedback

- **Biofeedback should be considered as an initial treatment for patients with incontinence and some preserved voluntary sphincter contraction**
- Goal: improve sensation
  coordination
  strength
- **64% - 89%** improvement in incontinence episodes

Biofeedback Training Device

Surgical Management

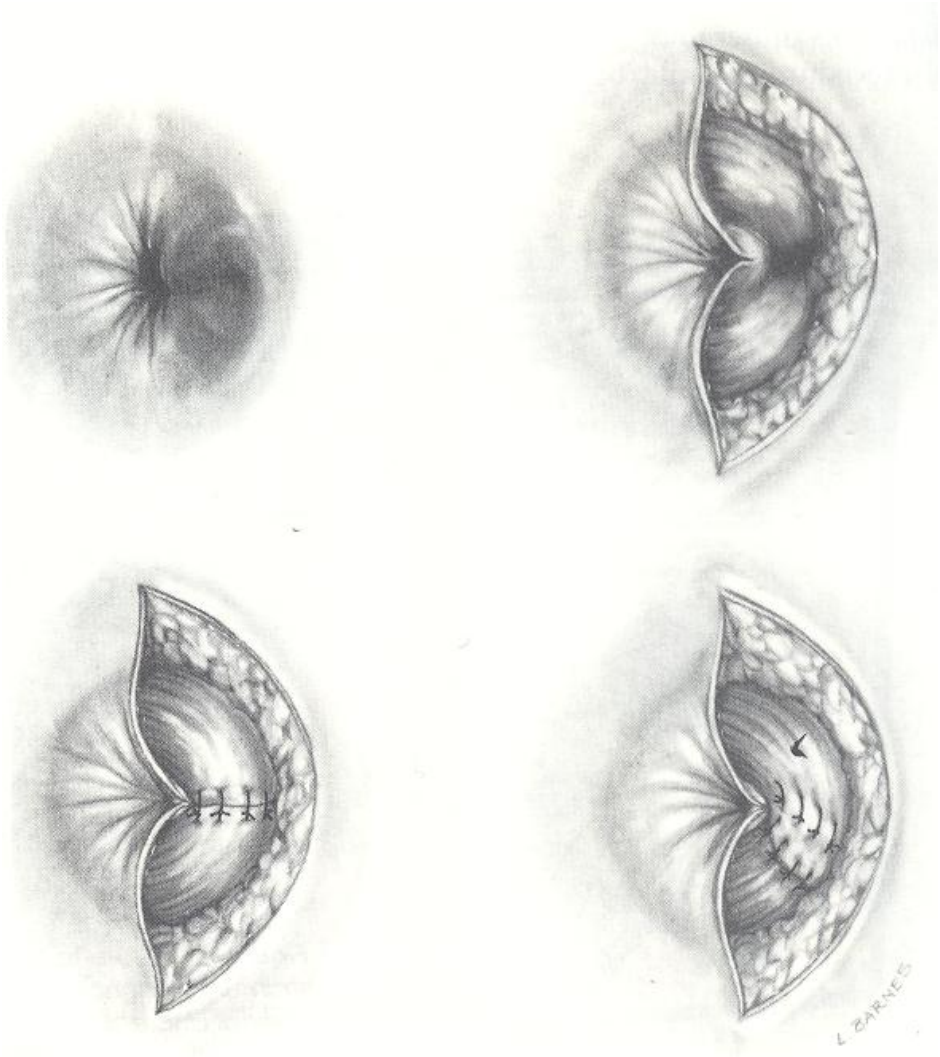
Sphincter Repair

- Sphincteroplasty for defects caused by obstetric injury good-excellent short-term results - **85%**
- After 5 years, **10% - 14%** of patients had sustained improvement
- Questionable value of sphincteroplasty, especially in women who develop incontinence decades after any obstetric trauma

Glasgow SC, et al. Long-term outcomes of anal sphincter repair for fecal incontinence: a systematic review. *Dis Colon Rectum*. 2012;55:482–490.
Bravo Gutierrez A, et al. Long-term results of anterior sphincteroplasty. *Dis Colon Rectum*. 2004;47:727–731.
H alverson AL, et al. L. Long-term outcome of overlapping anal sphincter repair. *Dis Colon Rectum*. 2002;45:345–348.
Vaizey CJ, et al. Long-term results of repeat anterior anal sphincter repair. *Dis Colon Rectum*. 2004;47:858–863.

Sphincter Repair

- Repeat repairs are unlikely to be more successful

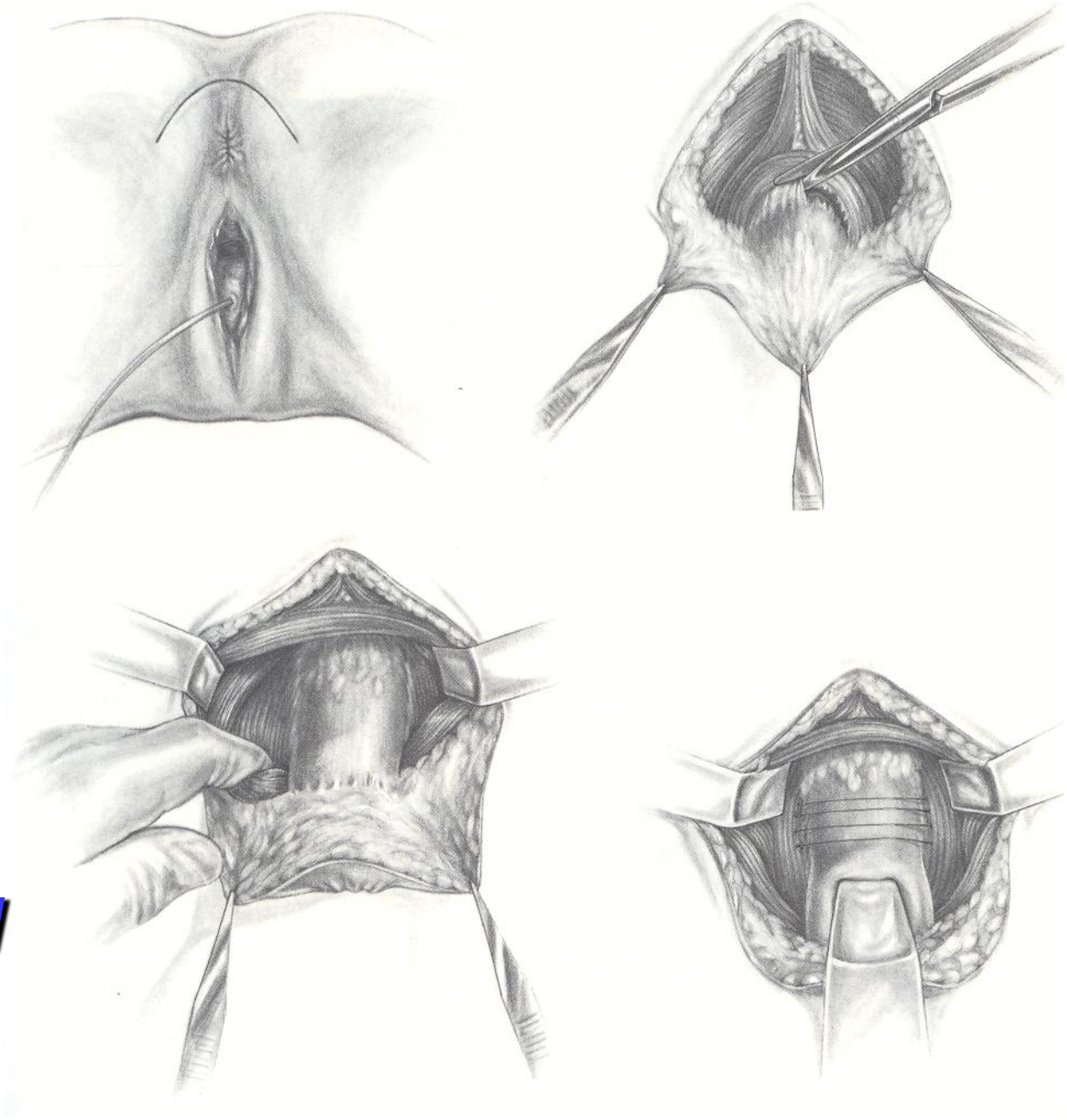


Direct Sphincter Repair
Apposition & Overlapping

Postanal Repair

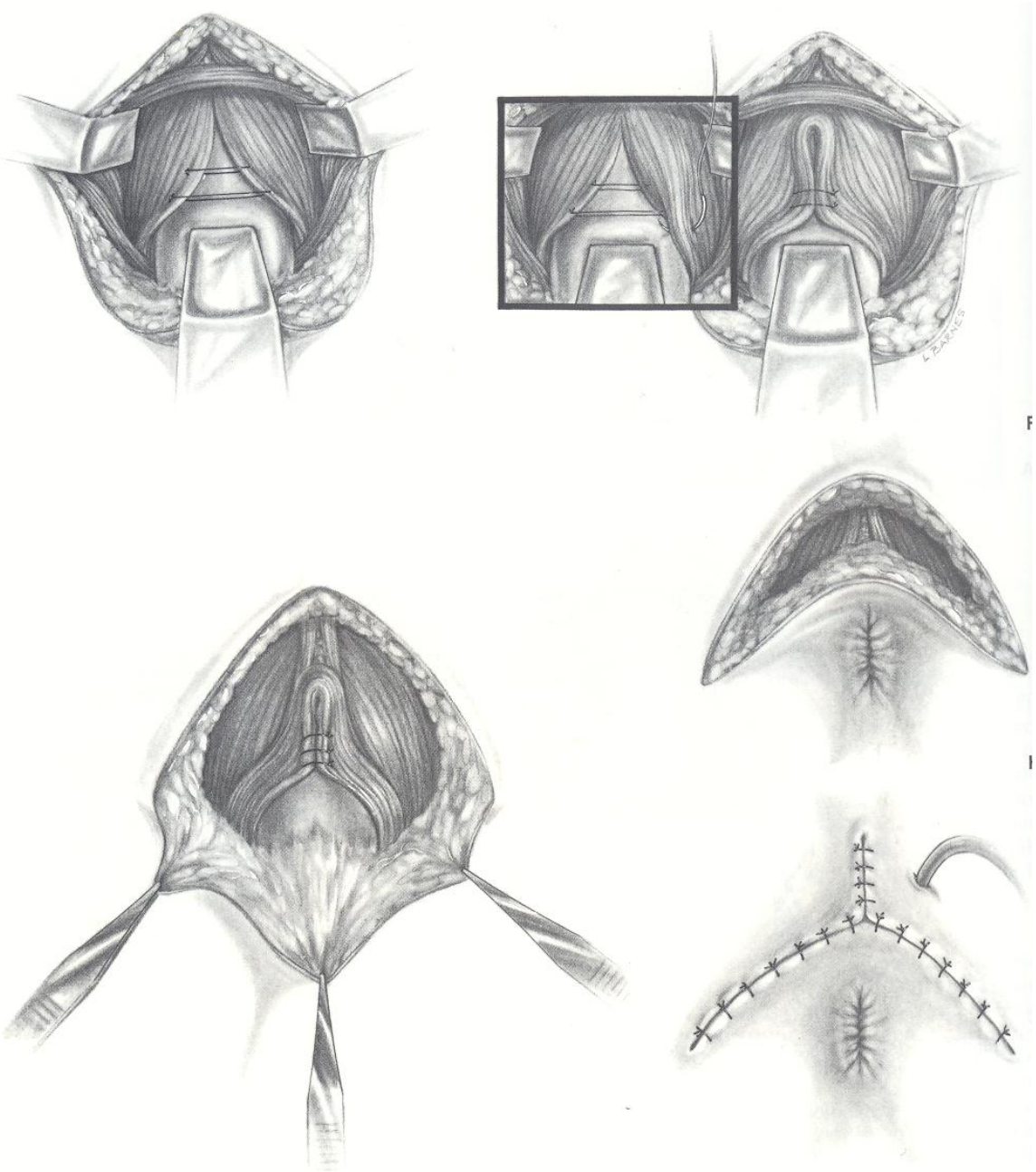
- Not recommended - has not shown any or only questionable benefit

- 33-50% success rates

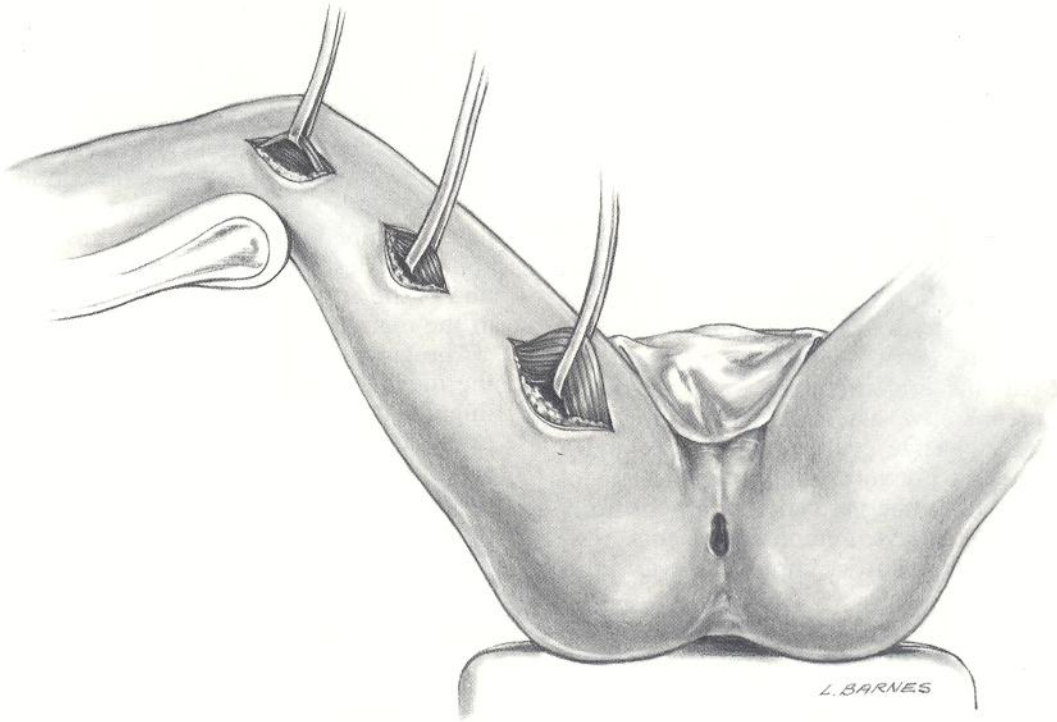


Park`s postanl Repair - I

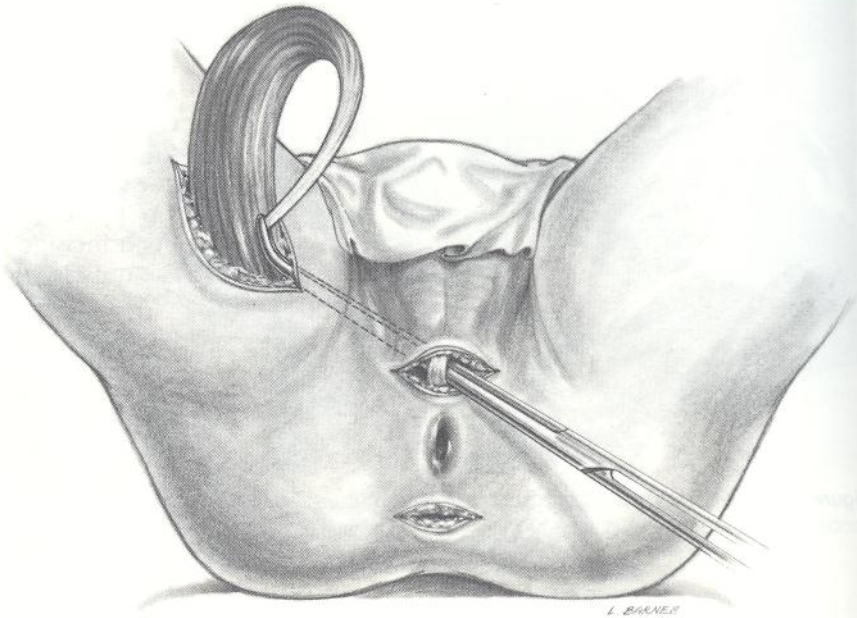
Park`s Postanal Repair - II

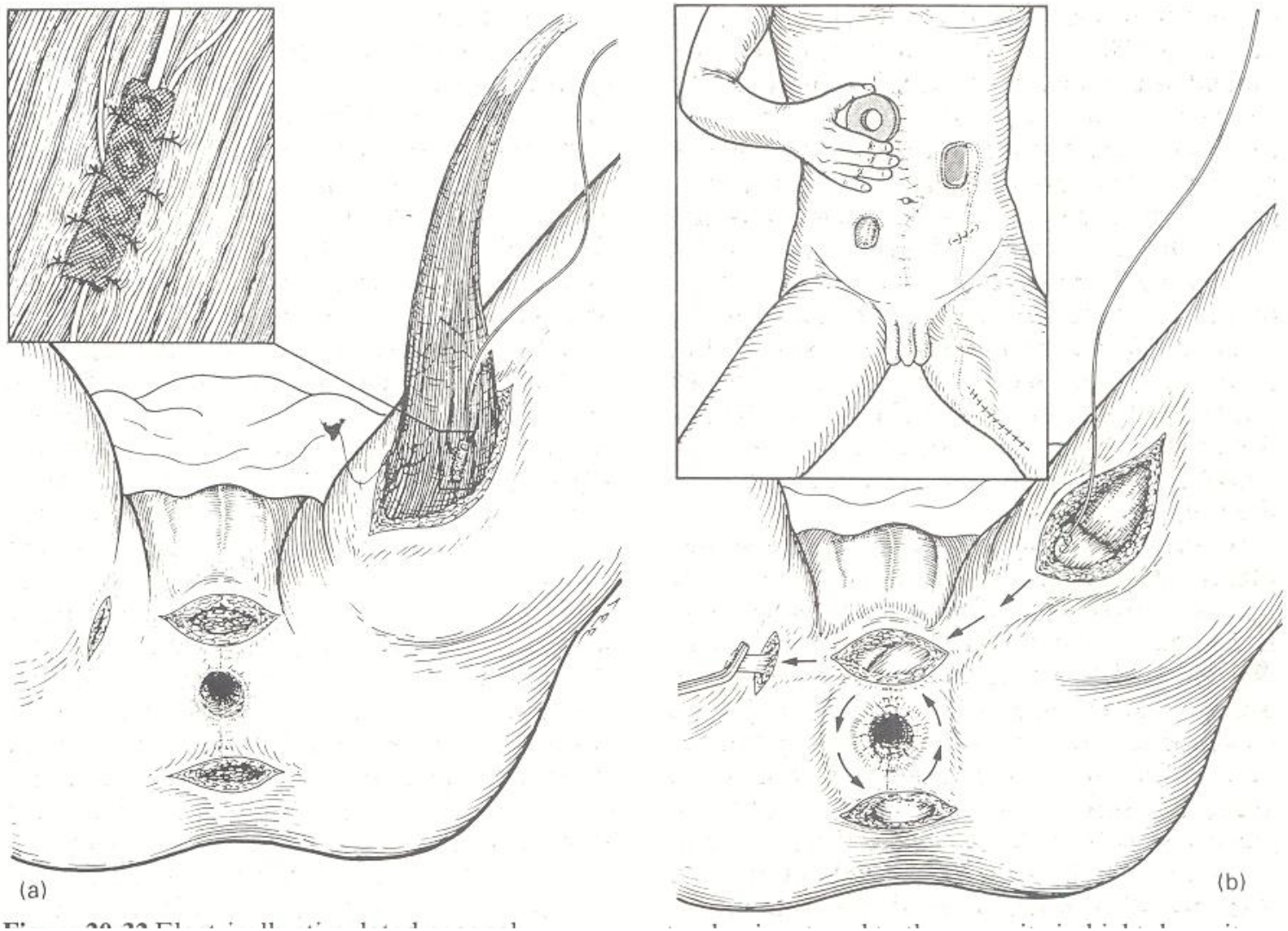


42-85% success

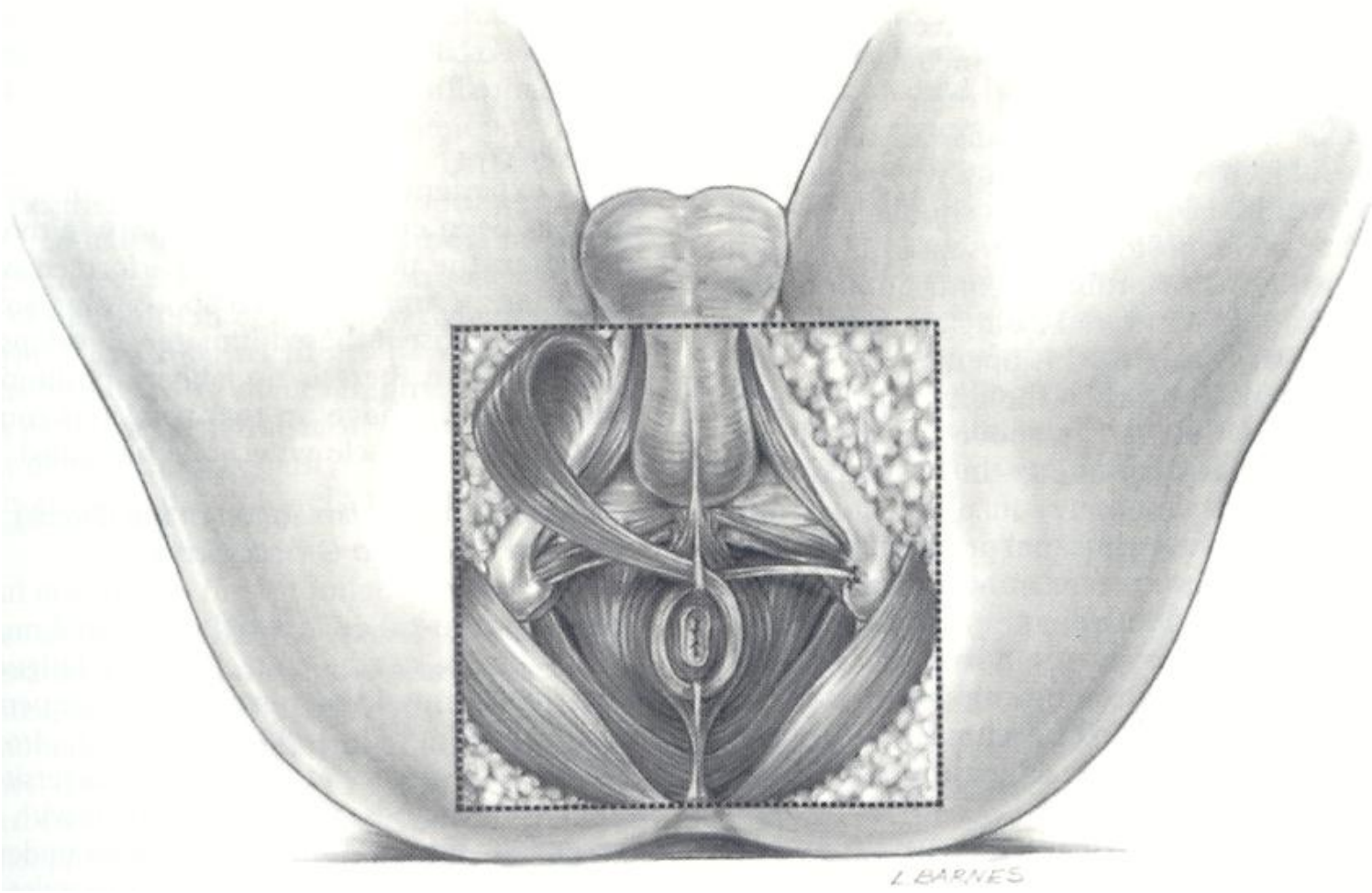


Gracilis Muscle Transposition





Stimulated Gracilis Muscle Transposition



Gracilis Muscle Transposition
Final Results

Injection of Bulking Agents

- May help to decrease episodes of passive fecal incontinence
- Role for patients with **mild incontinence**
- **Injection sites** - intersphincteric space vs. submucosal
- **Techniques** - ultrasound guided vs. blind
- Results of these studies (24) have been inconsistent and difficult to interpret owing to the multiple compounds and injection techniques that have been used
- **No** study evaluated the **long-term benefits** of these therapies

Injection of Bulking Agents

Substances:

- Polytetrafluoroethylene paste – 1993
- Autologous fat
- Synthetic bovine dermal collagen
- Teflon
- **Silicone (PTQ)**
- carbon beads
- stabilized hyaluronic acid

Injection of Bulking Agents

- Little evidence was present to support the use of perianal bulking injection for FI

- Hyaluronic acid dextranomer gel (NASHA Dx) - 2011
- Decrease in symptoms in 52% of patients at 6 months and at 36 months

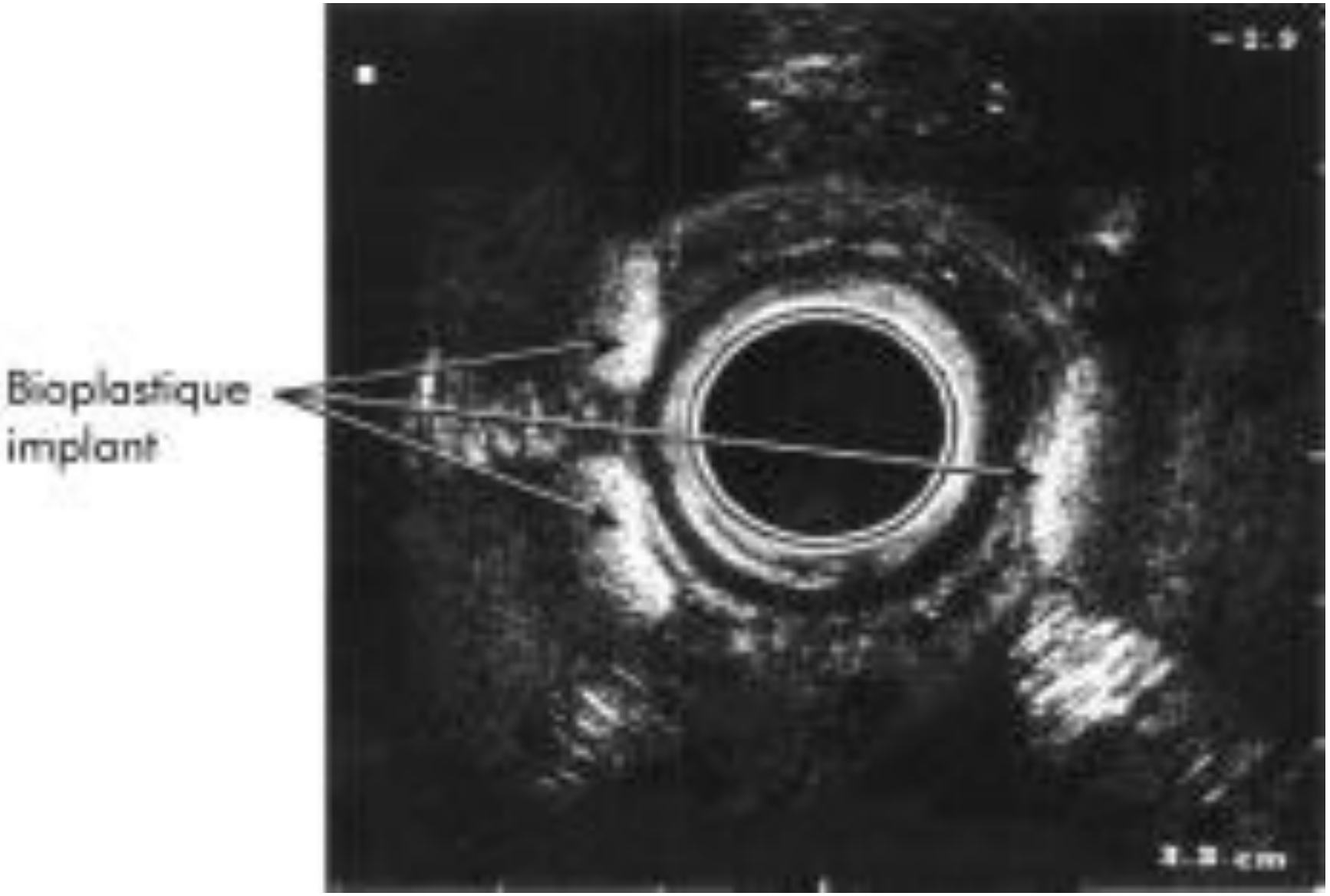
Maeda Y, et al. Perianal injectable bulking agents as treatment for faecal incontinence in adults. *Cochrane Database Syst Rev. 2010:CD007959*

Graf W, et al; NASHA Dx Study Group. Efficacy of dextranomer in stabilised hyaluronic acid for treatment of faecal incontinence: a randomised, sham-controlled trial. *Lancet.* 2011;377:997–1003.

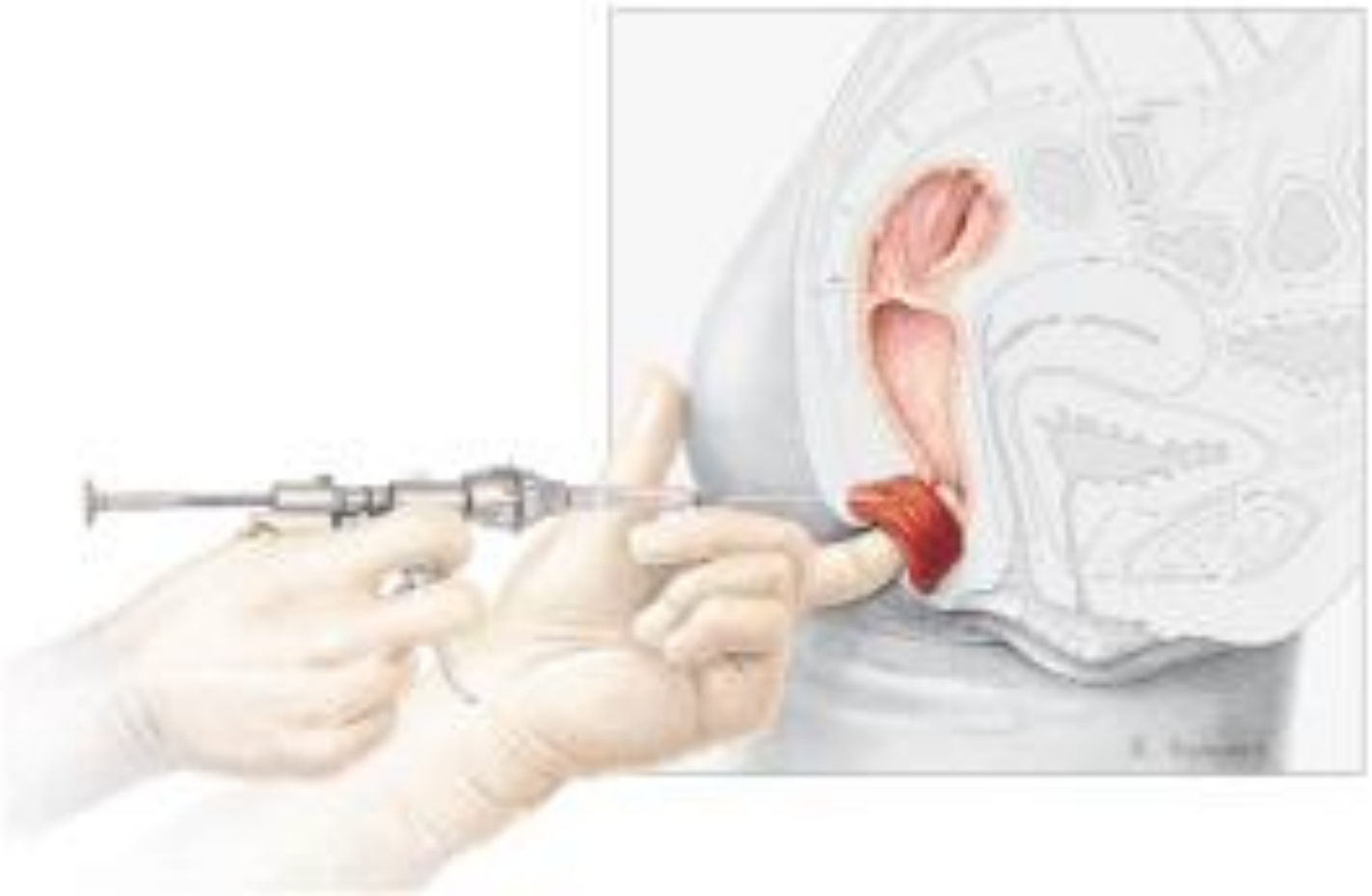
Danielson J et al. Efficacy and quality of life 2 years after treatment for faecal incontinence with injectable bulking agents. *Tech Coloproctol.* 2013;17:389–395.

Maeda Y, et al. Perianal injectable bulking agents as treatment for faecal incontinence in adults. *Cochrane Database Syst Rev. 2013;2:CD007959.*

Injectable Bulking Agents


Bioplastique
implant

Injection Technique



Radiofrequency Energy Delivery

Significant sphincter muscle remodeling marked by:

- Increased smooth muscle / connective tissue ratio
- Increased collagen I compared with collagen III content
- Decrease in the number of interstitial cells of Cajal

Radiofrequency Energy Delivery

SECCA procedure:

- 220 patients. 10 studies
- 12m, 55% - 80% responders some improvement in CCF scores

Efron JE. The SECCA procedure: a new therapy for treatment of fecal incontinence. *Surg Technol Int. 2004;13:107–110.*

Felt-Bersma RJ, et al. Temperature controlled radiofrequency energy (SECCA) to the anal canal for the treatment of faecal incontinence offers moderate improvement. *Eur J Gastroenterol Hepatol. 2007;19:575–580.*

Kim DW, et al. Radiofrequency energy delivery to the anal canal: is it a promising new approach to the treatment of fecal incontinence? *Am J Surg.* .18–197:14;2009

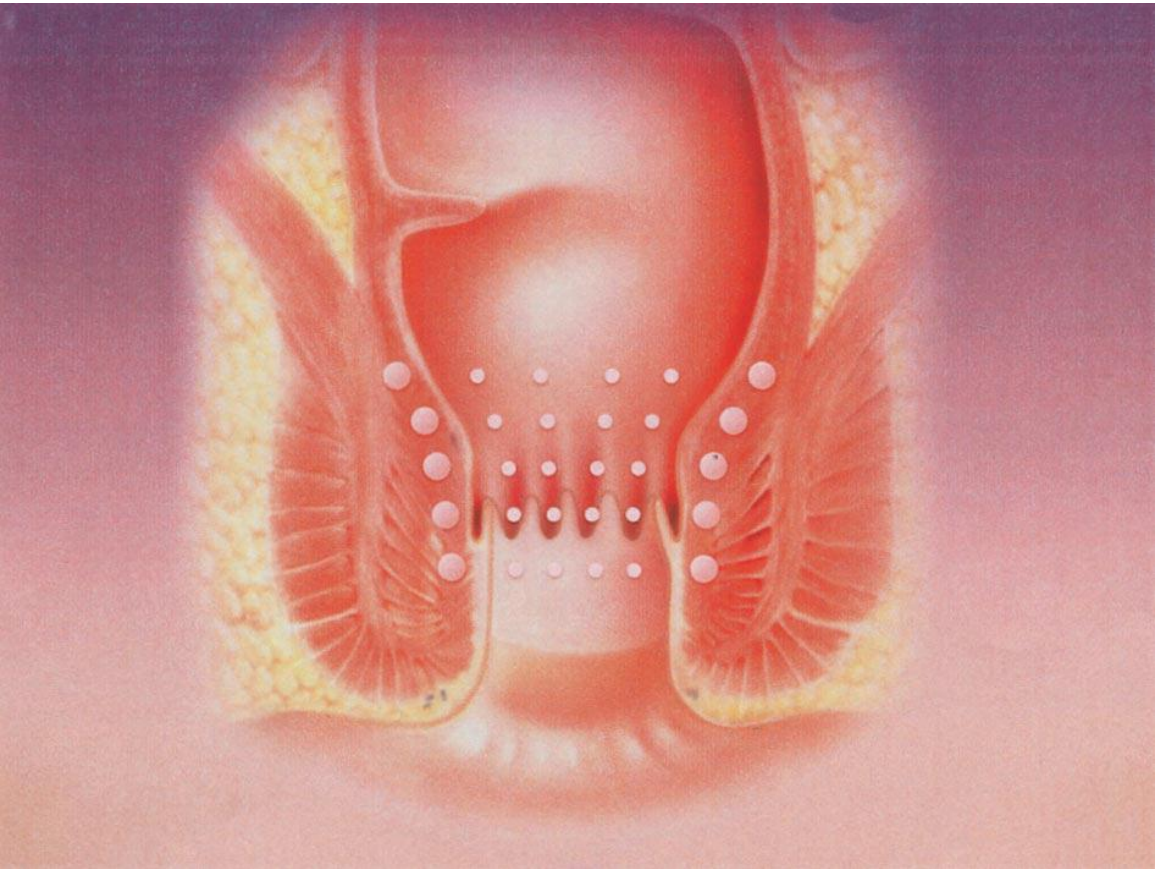
Lefebure B, et al. Temperature-controlled radio frequency energy delivery (Secca procedure) for the treatment of fecal incontinence: results of a prospective study. *Int J Colorectal Dis. 2008;23:993–997.*

Ruiz D, et al. Does the radiofrequency procedure for fecal incontinence improve quality of life and incontinence at 1-year follow-up? *Dis Colon Rectum.* .1046–53:1041;2010

T akahashi-Monroy T, et al. SECCA procedure for the treatment of fecal incontinence: results of five-year follow-up. *Dis Colon Rectum. 2008;51:355–359.*

F rascio M, et al. The SECCA procedure for faecal incontinence: a review. *Colorectal Dis.* .172–16:167;2014

The SECCA Procedure



Sacral Neuromodulation

First-line surgical option for incontinent patients with and without sphincter defects

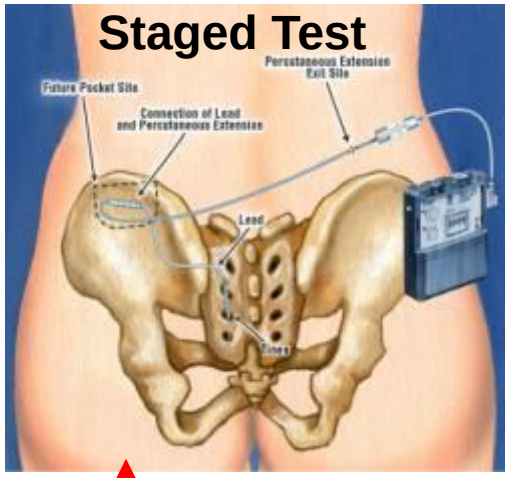
Modulate rectal sensation by:

- Activating or deactivating chemical mediating receptors
- Stimulating the afferent pathway
- Changing brain activity relevant to the continence mechanism

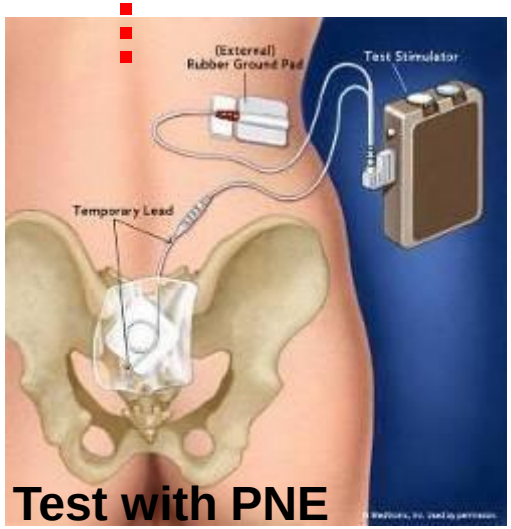
Lundby L, et al. Relief of fecal incontinence by sacral nerve stimulation linked to focal brain activation. *Dis Colon Rectum. 2011;54:318–323.*
M ichelsen HB, et al. Six years of experience with sacral nerve stimulation for fecal incontinence. *Dis Colon Rectum.* 421–53:414;2010

Sacral Neuromodulation

Test your Patients before Implant



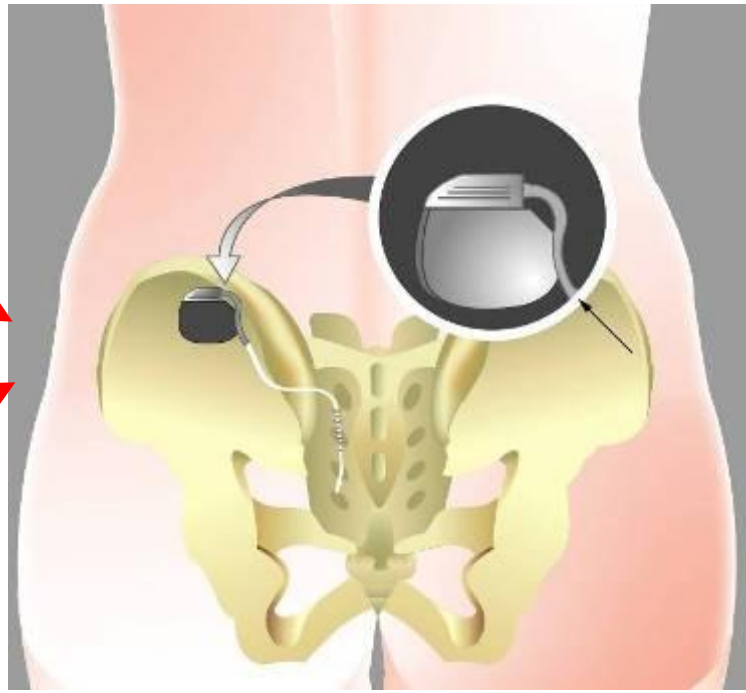
If inconclusive



Test with PNE

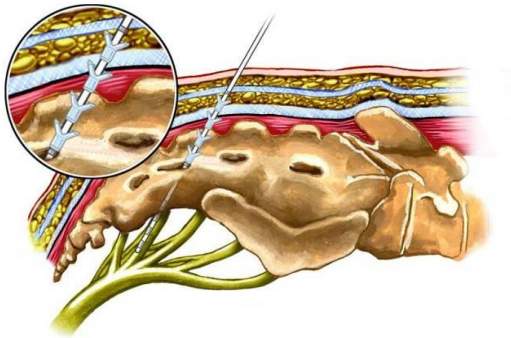
If successful

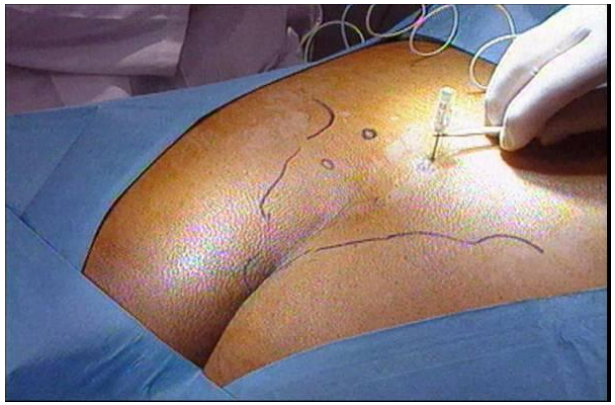
If successful

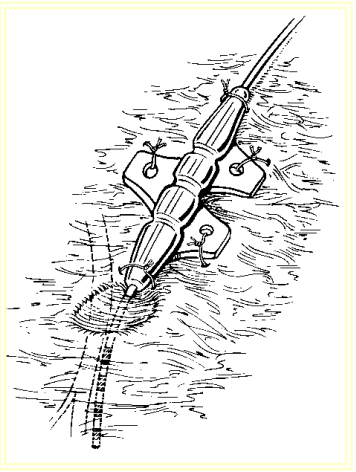


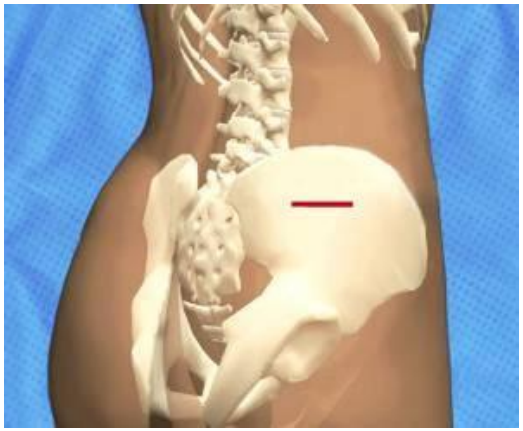
Test

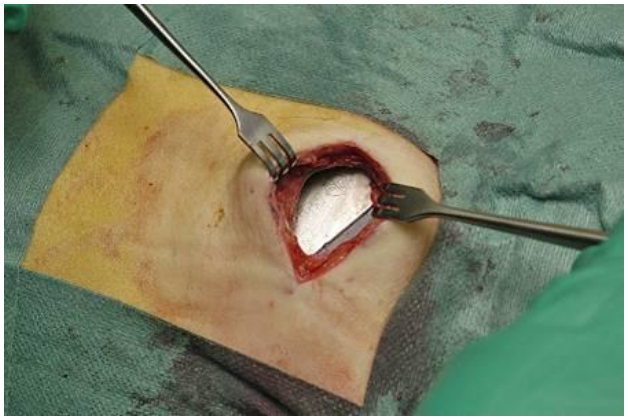
Implant

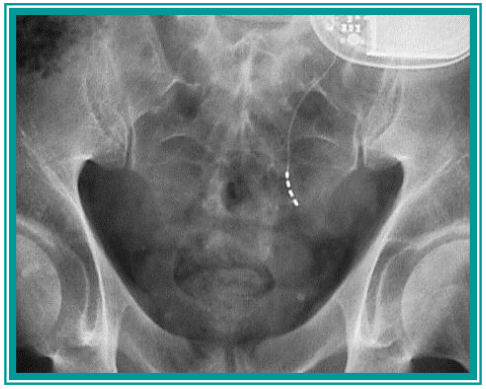












Sacral Neuromodulation

Sacral Neuromodulation

Per protocol (stage 2):

- **Short term** (0–12m) ≥50% improvements in weekly FI episodes - **79%**
- **Long-term** (> 36m) ≥50% improvements in weekly FI episodes - **84%**

ITT analysis – (stages 1+2):

- **Short term** (0–12m) ≥50% improvements in weekly FI episodes – **63%**
- **35%** of patients achieve 100% continence at long-term follow-up

Thin NN, et al. Systematic review of the clinical effectiveness of neuromodulation in the treatment of faecal incontinence. *Br J Surg. 2013;100:1430–1447*
Hull T, et al; SNS Study Group. Long-term durability of sacral nerve stimulation therapy for chronic fecal incontinence. *Dis Colon Rectum. 2013;56:234–245*

Sacral Neuromodulation

- **Good safety profile**

- Infection rate - **10.8%**
- At 5y, **24.4%** of patients required at least 1 revision or replacement

Hull T, et al; SNS Study Group. Long-term durability of sacral nerve stimulation therapy for chronic fecal incontinence. *Dis Colon Rectum. 2013;56:234–245*

Sacral Neuromodulation

- Sphincter injury - CCF incontinence scores from 16.5 ⟶ 3.8
- Success has been reported in patients with **defects of up to 120^0**

- Sphincter defect, pudendal neuropathy, or a Hx of a previous sphincter repair did not decrease the efficacy of SNM

Percutaneous Tibial Nerve Stimulation

- Electrical stimulation to the posterior tibial nerve in multiple successive treatments
- Median decrease of **4** points from pretreatment CCF scores
- Median change of **4** episodes per week in short-term follow up

Thin NN, et al. Systematic review of the clinical effectiveness of neuromodulation in the treatment of faecal incontinence. *Br J Surg. 2013;100:1430–*

Artificial Bowel Sphincter

- **59%** of devices were still functional at 5-year follow-up

ABS is generally reserved for:

- Patients in whom all other treatments have failed
- extensive sphincter destruction $>180^0$
- Congenital malformations
- Neurogenic incontinence from spinal cord injury
- Postsurgical significant bowel dysfunction with intact anal canal anatomy

Hong KD, et al. Longterm outcomes of artificial bowel sphincter for fecal incontinence: a systematic review and meta-analysis. *J Am Coll Surg.* 2013 ;217:718–725

Melenhorst J, et al. The artificial bowel sphincter for faecal incontinence: a single centre study. *Int J Colorectal Dis. 2008;23:107–111.*

Ruiz Carmona MD, et al. Long-term results of artificial bowel sphincter for the treatment of severe faecal incontinence: are they what we hoped for? *Colorectal Dis. 2009;11:831–837.*

Wong MT, et al. The artificial bowel sphincter: a single institution experience over a decade. *Ann Surg. 2011;254:951–956.*

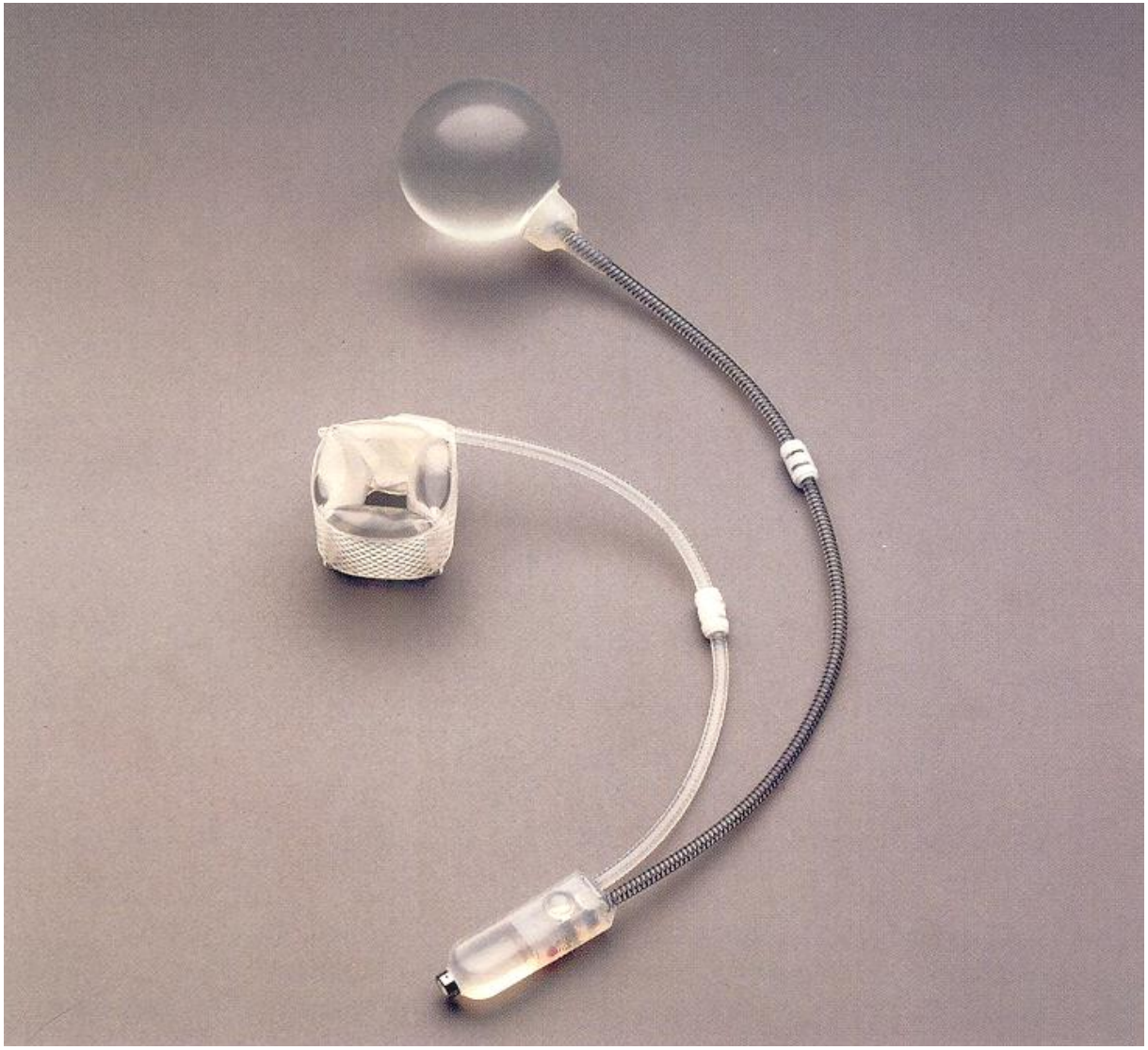
Artificial Bowel Sphincter

High rate of complications:

- Infections (acute and chronic)
- Device erosions
- Anorectal ulcerations
- Device malfunction secondary to leaking of fluid from the device
- Device migration
- Pain
- Constipation

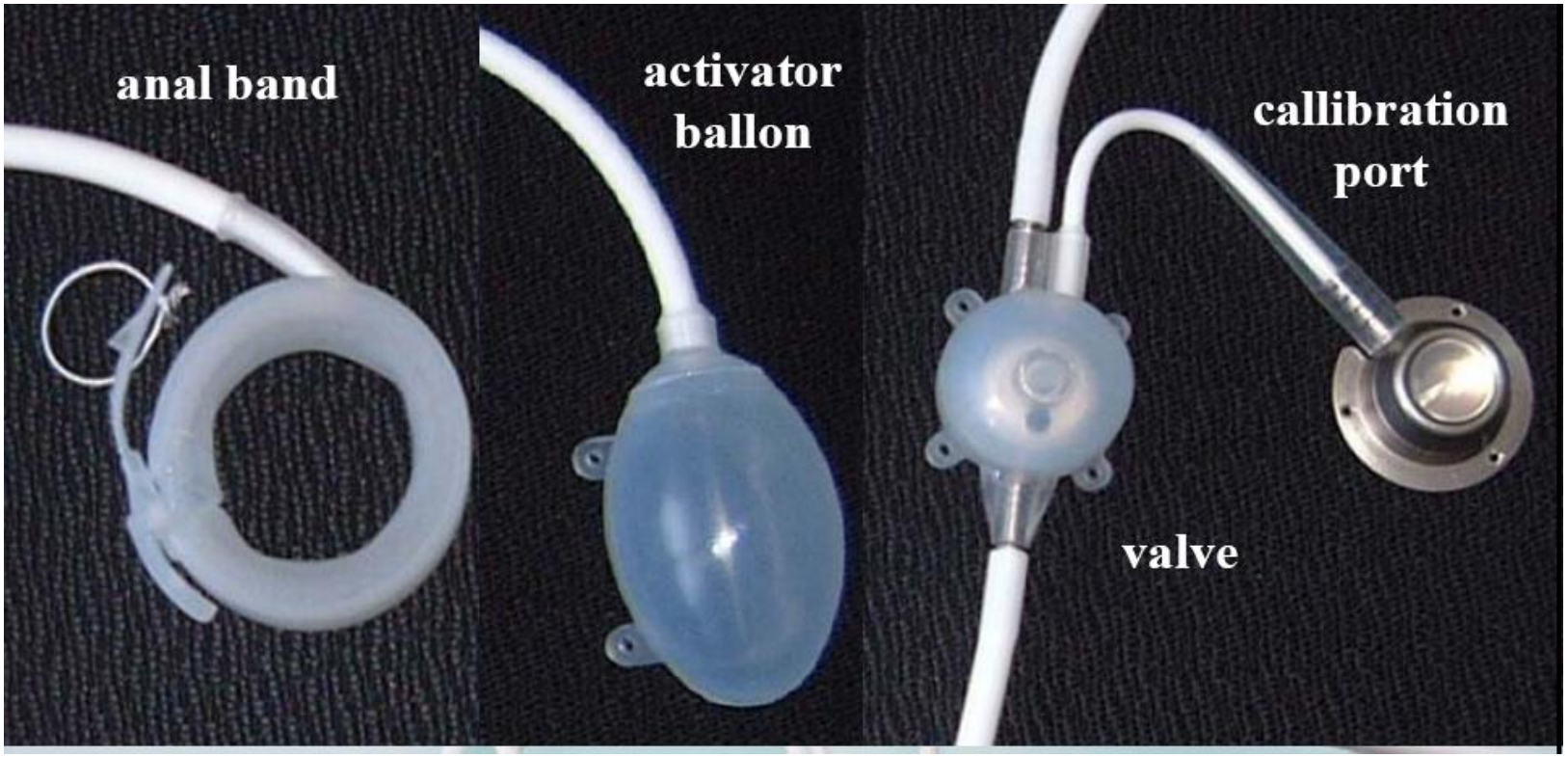
Wexner SD, et al. Factors associated with failure of the artificial bowel sphincter: a study of over 50 cases from Cleveland Clinic Florida. *Dis Colon Rectum.* .1557–52:1550;2009

Mundy L, et al. Systematic review of safety and effectiveness of an artificial bowel sphincter for faecal incontinence. *Br J Surg. 2004;91:665–672*



AMS Artificial Sphincter

Artificial Bowel Sphincter



Creation of a Stoma

- **83%** of patients with FI who had a permanent colostomy - significant improvement in lifestyle
- **84%** of the patients would choose to have the stoma created again

Tan EK, et al. Surgical strategies for faecal incontinence–a decision analysis between dynamic graciloplasty, artificial bowel sphincter and end stoma. *Colorectal Dis. 2008;10:577–586*

Colquhoun P, et al. Correlating the Fecal Incontinence Quality-of-Life Score and the SF-36 to a proposed Ostomy Function Index in patients with a stoma. *Ostomy Wound Manage. 2006;52:68–74.*

Norton C, et al. Patients' views of a colostomy for fecal incontinence. *Dis Colon Rectum. 2005;48:1062–1069*

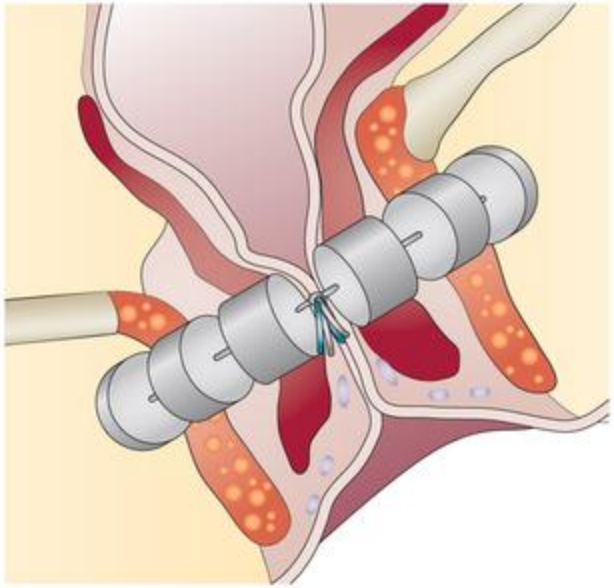
Magnetic Sphincter

- String of titanium beads with a magnetic core that is implanted to encircle the anus
- Preliminary evaluations from pilot studies - fairly good efficacy despite lower closing pressure

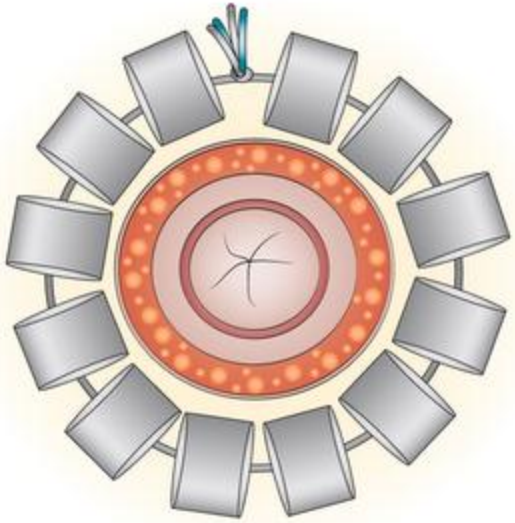
Wong MT, et al. The magnetic anal sphincter versus the artificial bowel sphincter: a comparison of 2 treatments for fecal incontinence. *Dis Colon Rectum.* .779–54:773;2011

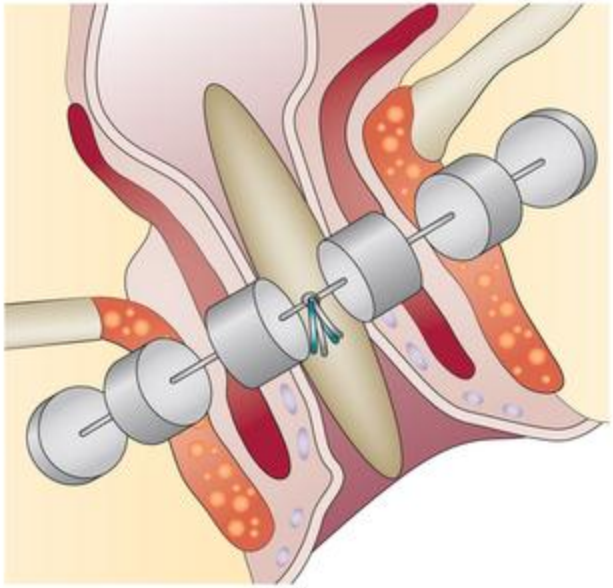
Wong MT, et al . Does the magnetic anal sphincter device compare favourably with sacral nerve stimulation in the management of faecal incontinence? *Colorectal Dis. 2012;14:e323–e329.*

L ehur PA, et al. Magnetic anal sphincter augmentation for the treatment of fecal incontinence: a preliminary report from a feasibility study. *Dis Colon Rectum. 2010;53:1604–1610*

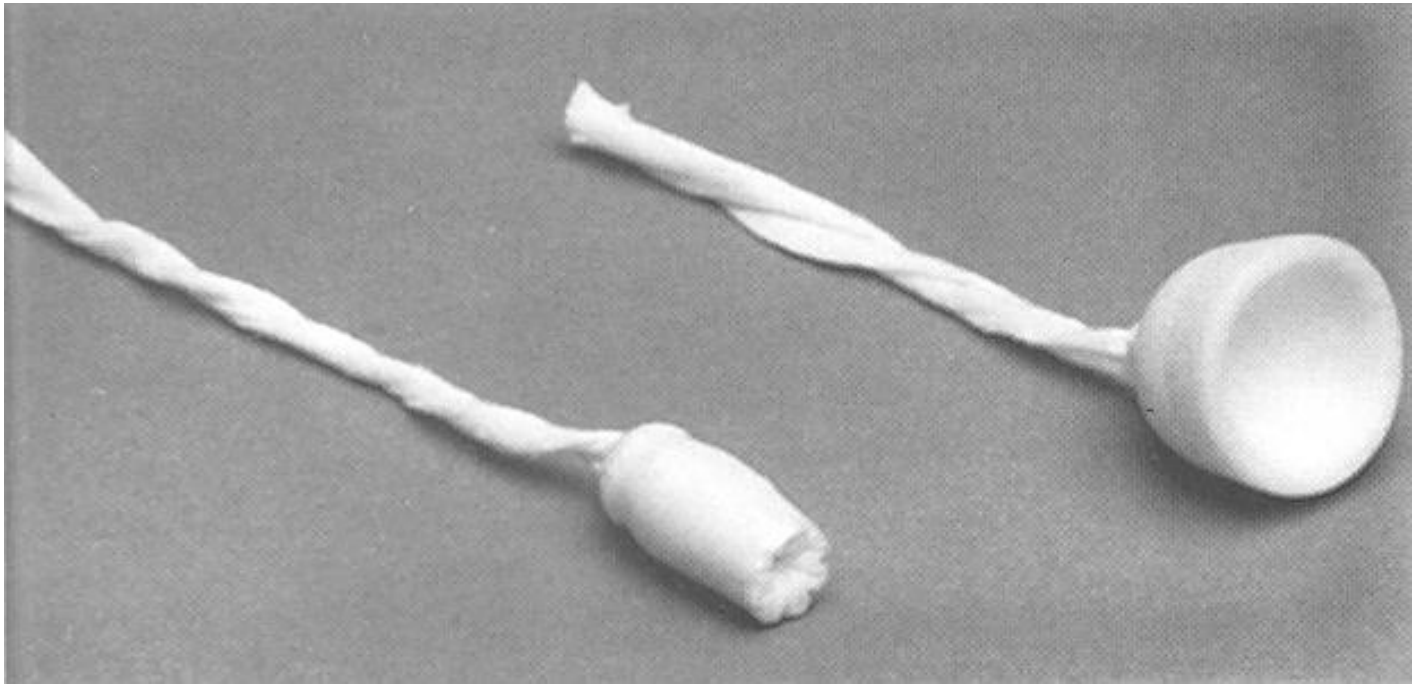


Implanted around anal canal
to maintain closure





Expands to allow stool passage,
then reapproximates



Anal continence plug