



# Laparoscopic Splenic Flexure Mobilization Three Surgical Approaches

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# controversial topics in surgery

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**Splenic flexure mobilisation for anterior resection performed for sigmoid and rectal cancer**

**ROBIN KENNEDY & IAN JENKINS AND PAUL J FINAN**

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## Original Research Article

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# **Splenic flexure mobilization is an essential role in laparoscopic low anterior resection!**

# Laparoscopic Rectal Resection Without Splenic Flexure Mobilization: A Prospective Study Assessing Anastomotic Safety

*Jin Kim. Dong-Jin Choi. Seon-Hahn Kim*

tension upon completion. SFM has been described as being an essential step in the procedure as it avoids tension on the anastomosis during rectal resection. However, SFM has potential disadvantages, such as splenic or pancreatic injury, a prolonged period of ileus caused by upper abdominal dissection, and a protracted operative time. More-

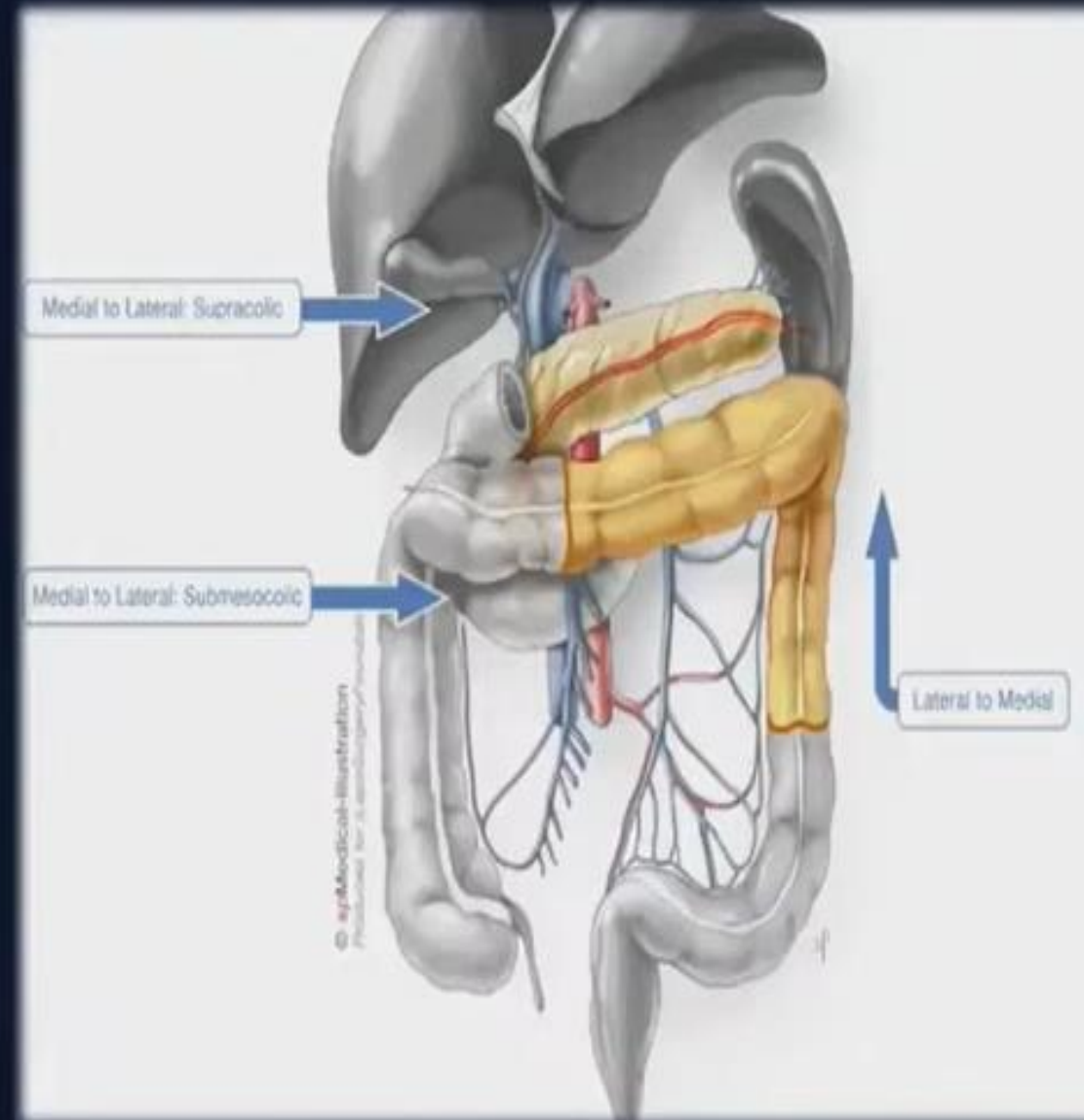
# Laparoscopic Sphincter-Preserving Total Mesorectal Excision With Colonic J-Pouch Reconstruction

## *Five-Year Results*

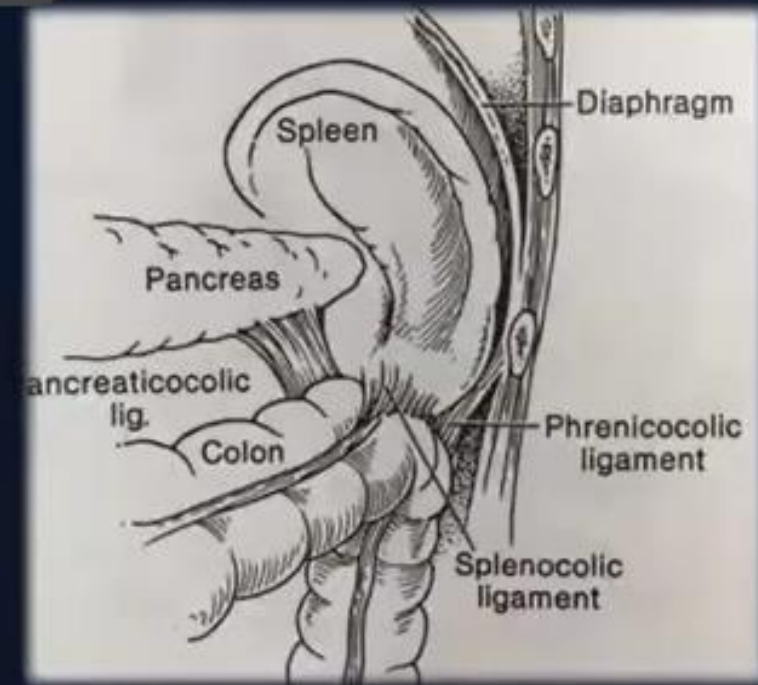
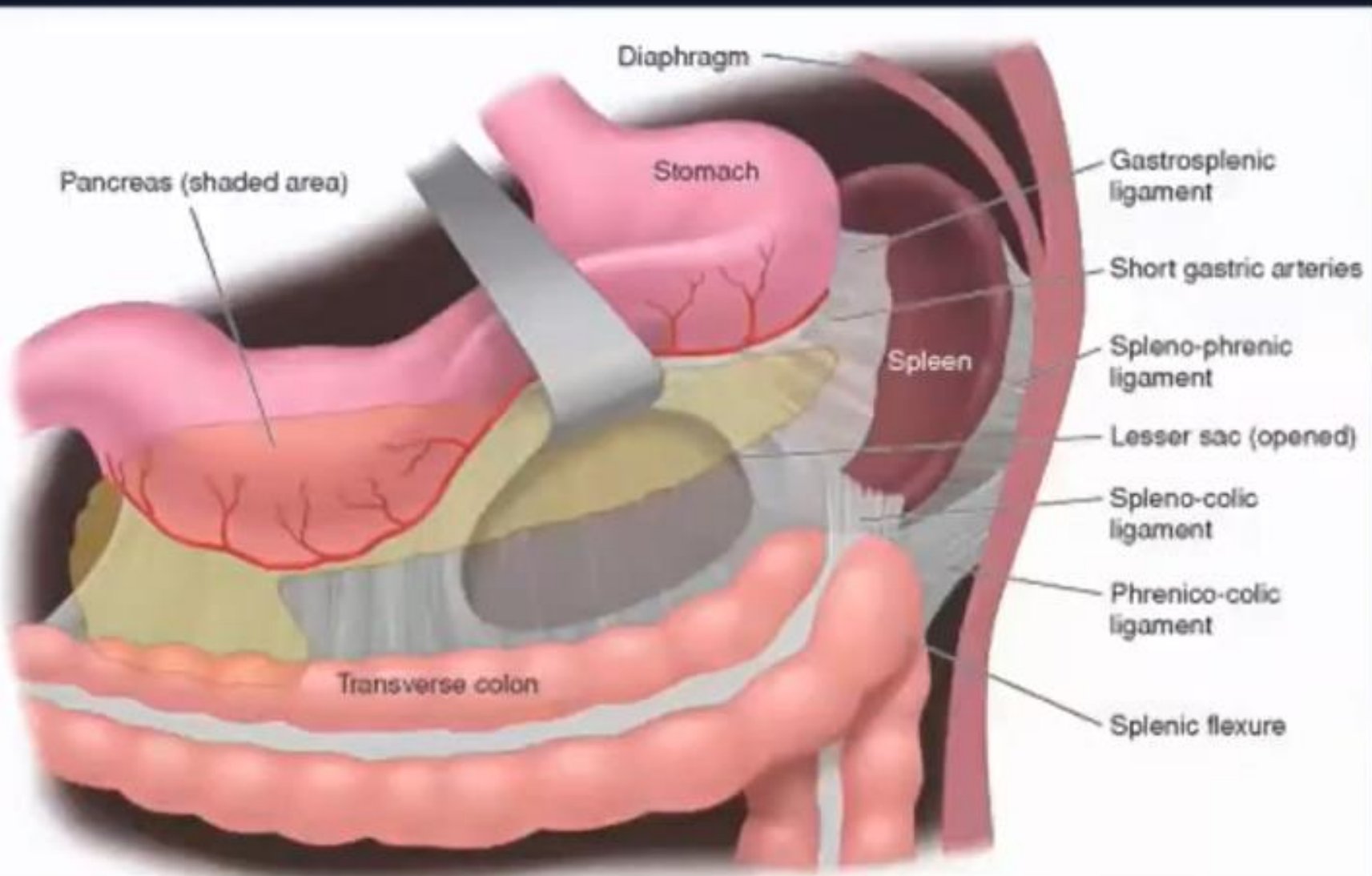
# Splenic Flexure

## Techniques:

- Lateral to medial
- Medial to lateral - Supracolic
- Medial to lateral - Submesocolic



# Anatomy



THE CASE FOR

# Routine

Six arguments a  
proponent would make.

- 1 **Reach when it matters** – length for a tension-free low pelvic or coloanal anastomosis
- 2 **Well-perfused bowel** to the anastomosis, not colon stretched to its limit
- 3 **Frees a high tie** – margin and nodal yield without losing reach
- 4 **Protective in diverticular disease** – associated with *lower leak* (Rudasill 2025)
- 5 **Elective beats rescue** – safer than a late takedown in a hostile pelvis
- 6 **Quick & reproducible** in the MIS era – a standard, teachable step

THE CASE FOR

# Selective

Six arguments – and  
the numbers behind them.

- 1 **No leak benefit in rectal cancer** – 21.8% vs 20.3%, *HR 0.82* (Rutegård 2023)
- 2 **+32 minutes** of operative time across ~13,000 patients (Balciscueta 2018)
- 3 **~1.1% splenic injury** (1.5% open); one in five injured spleens is *lost*
- 4 **Omission is non-inferior** when reach is already adequate
- 5 **Only ~34% were mobilised** in practice – with equivalent leak (Rutegård 2023)
- 6 **Leak is multifactorial** – not driven by flexure takedown (Emile 2024)

# A watershed, by design



- The splenic flexure is the colon's **watershed** — where SMA and IMA territories meet
- The **marginal artery** is weakest here — **Griffiths' point**, tenuous or absent in a minority
- So after a high tie, *reach and perfusion are one problem*



# Complete Versus Partial Mobilization of Splenic Flexure During Laparoscopic Low Anterior Resection for Rectal Tumors: A Comparative Study

cases because SFM is a difficult step in both conventional and laparoscopic procedures and may require a longer operation time, repositioning of the patient, and longer incision or additional port insertion.<sup>1,4-7</sup> In their practice, SFM has been

Consequently, a recent review has shown that routine SFM seems to reduce anastomotic leakage after low anterior resection for rectal cancer because SFM is advocated to provide tension-free anastomosis and adequate proximal margin.<sup>10</sup>



# LAPAROSCOPIC SPLENIC FLEXURE MOBILIZATION: TECHNICAL ASPECTS, INDICATION CRITERIA AND OUTCOMES

of emergency or elective patients to the hospital.

Routine or selective indications of SFM I

ce of controversy among surgeons. Mo:

of the total time) and on the low risk of complications such as splenic injury. As the associated morbidity is extremely rare, the only disadvantage of SFM is its learning curve. Thus, most

colon for anastomosis<sup>8</sup>. Additionally, SFM provides a chance to obtain a more vascularized colonic end at the anastomosis, an effect that may compensate some ischemia due to the inferior mesenteric artery high ligation.

# **Laparoscopic Mobilization of the Splenic Flexure as the First Step of Restorative Colorectal Resection**

**Cătălin Copăescu, Loredana Bărbulescu, Victor Tomulescu**

No-matter the strategy of taking down of the splenic flexure, medial-to-lateral, lateral-to-medial or the supramesocolic one, the procedure was still technically demanding and time consuming (4). Thus, its need for colorectal

mosing thickened sigmoid colon, to facilitate the use of a J-pouch and especially to achieve a safe anastomosis without tension (7.8).

Several studies filtered already that complete and not partial SFM offers better outcomes for the patients (9) while the lateral-to-medial approach is associating a significantly higher rate of intraoperative complications than the medial or anterior one (10).

the described surgical procedures are technically complex thereby overcoming the learning curve may not be an easy process. Moreover, if the

ORIGINAL ARTICLE



# Arterial anatomy of the splenic flexure using preoperative three-dimensional computed tomography

higher risk of intraoperative bleeding

its blood supply has rarely been investigated. Fukuoka et al. reported six types of blood supplies to the splenic flexure, which were the MCA, A-MCA, and LCA of main feeder vessels [13]. However, in the present study, the branching

# Effect of splenic flexure mobilization performed via medial-to-lateral and superior-to-inferior approach on early clinical outcomes in elective laparoscopic resection of rectal cancer

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Abdullah Böyük<sup>1</sup>, Ulaş Aday<sup>2</sup>, Barış Gültürk<sup>1</sup>, Ahmet Bozdağ<sup>1</sup>, Ali Aksu<sup>1</sup>, Nizamettin Kutluer<sup>1</sup>

aorta. On the other hand, we believe that complete SFM reduces the complications, particularly those related to anastomosis. In our study, only 1 patient

Research Paper

# How Much Colonic Redundancy Could Be Obtained by Splenic Flexure Mobilization in Laparoscopic Anterior or Low Anterior Resection?

Bong-Hyeon Kye<sup>1</sup>, Hyung-Jin Kim<sup>1</sup>, Hyun-Sil Kim<sup>1</sup>, Jun-Gi Kim<sup>2</sup>, Hyeon-Min Cho<sup>1</sup>✉

considered more difficult in laparoscopic colorectal resection than in open surgery and is usually done only in selective cases [5]. According to a mail-in

SFM during LA or LAR resection is a safe and feasible option. We think that we can gain about 27 cm redundancy of the colon by SFM. If high IMV ligation is performed, one can gain approximately 5 cm more than low IMV ligation performed. SFM and high IMV ligation provided an approximately 30 cm re-

The obtained redundancy of the colon in the high ligation group ( $29.54 \pm 7.17$  cm) was more than that in low ligation group ( $24.94 \pm 6.07$  cm;  $P < 0.0001$ ).

## Selective sPlenic flExure mobilization for low colorEctal anastomosis after D3 lYmph node dissection (SPEEDY) trial: a study protocol

It was demonstrated that routine SFM is not necessary during anterior resection for rectal cancer. A recent

SFM was associated with wider margins and a decreased rate of inadequate nodal staging in patients undergoing

Gachabayov *et al*,<sup>[3]</sup> laparoscopic SFM was associated with increased rate of surgical site infection and operative time without a clear decrease in AL rate; however, authors



# How to do it: Splenic flexure mobilisation via medial trans-mesocolic approach

sion free anastomosis for gastrointestinal continuity (1). There are three techniques described in literature to perform splenic flexure mobilization, which can be characterized into anterior approach, medial approach, and lateral approach (2). In each

approach, the primary aim is to divide the peritoneal ligaments that connect the left colon to surrounding structures including the gastrocolic ligament, splenocolic ligament, phrenocolic ligament and pancreaticocolic ligament.

Splenic flexure mobilization may be performed routinely, selectively, or not at all

## Review

## Open Access



# The role of splenic flexure mobilization in laparoscopic rectal surgery for rectal cancer

Tao-Wei Ke, Christian Ross Geniales, William Tzu-Liang Chen

the study of Marsden *et al.*<sup>[1,2]</sup>, in which many surgeons favor routine mobilization of the flexure at an early stage in the operation, particularly for low rectal cancers. It is often considered helpful to carry out this SFM is one of the essential, challenging and technically demanding step during laparoscopic rectal cancer surgery. The use of SFM for CRC surgery remains a contentious issue<sup>[5,6,8]</sup>, but safe dissection of the splenic flexure to fully mobilize the descending colon is mandatory not only for oncologic resection but also for safe anastomosis<sup>[4,9-11]</sup>. The definition of SFM is different among several studies with some describing the

socolic ligaments. It is crucial to differentiate a partial splenic flexure from the complete SFM. In partial SFM, it is limited only to the division of splenocolic and phrenicocolic ligaments while a complete SFM includes not only the division of splenocolic and phrenicocolic ligaments (partial mobilization) but the division of gastro-colic and pancreaticomesocolic attachments. This can be technically accomplished either

Several of these studies mentioned a variety of possible risk factors owing to the technical difficulty of such a procedure. The presence of comorbidities such as hypertension and diabetes mellitus, increased BMI, increased American Society of Anesthesiologist score, previous neoadjuvant chemo radiotherapy have been linked to the technical difficulty of performing SFM due to the risks that accompany it. However, the results did not reach statistical significance leading to the conclusion that the benefits of the step in all laparoscopic rectal surgeries far outweighs the risk<sup>[4-6,8-10,12,14-16]</sup>. One common intraoperative complication

The team of colorectal surgeons in CMUH adopted the method of doing a mandatory SFM. Incorporating SFM in all laparoscopic rectal surgeries will enable the team to overcome the learning curve involved in this very technical procedure.





**THANK YOU!**