Optimal pathway for management of Low Anterior Resection Syndrome

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Is there an optimal pathway for management of low anterior resection syndrome?

Unfortunately, despite the growing interest, management of LARS is often empirical and symptom-based, using existing therapies for faecal incontinence, faecal urgency and rectal evacuatory disorders.

- ***Little is known about the pathophysiology of low anterior resection syndrome (LARS), and evidence concerning the management of patients diagnosed with this condition is scarce***

The guidance covers all aspects of LARS management, from pathophysiology, to assessment and management. Given the lack of sound evidence and the often poor quality of the studies, most of the recommendations and conclusions are based on the opinions of the experts

Introduction

- Bowel function is significantly affected after rectal surgery.
- In the past, evidence suggested that a colostomy might be associated with worse quality of life compared with anal continence but bowel dysfunction is common after anatomical preservation of the sphincters.
- The spectrum of such dysfunction is broad, and can include incontinence, constipation and clustering of stool, all of which have a negative impact on health-related quality of life.
- This wide range of complaints has been collated into a pragmatic definition, i.e. low anterior resection syndrome (LARS).
- Named after the surgical procedure commonly responsible for this clinical picture

Introduction

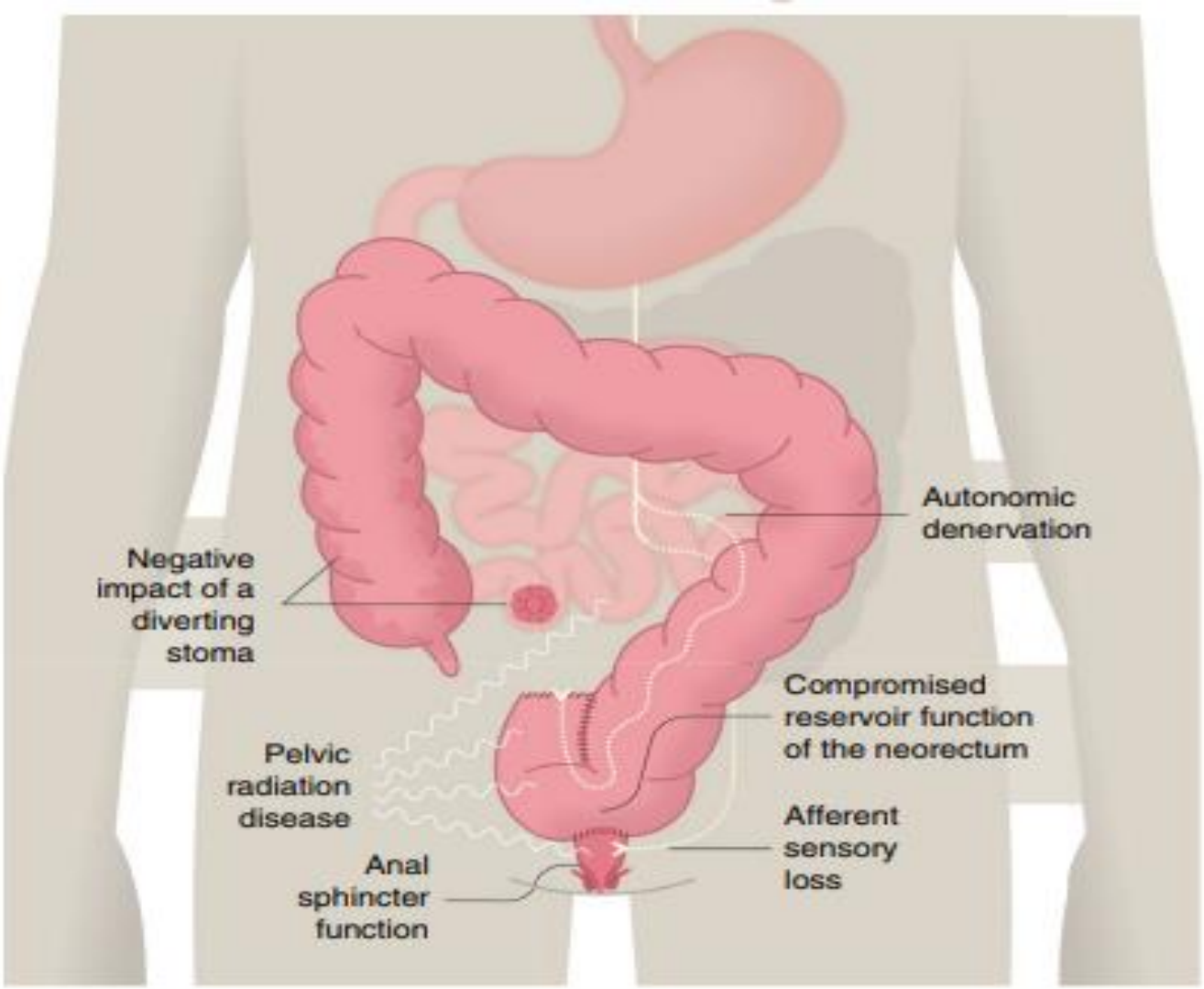
- LARS shows a high prevalence (60%–90%) and can last for years after surgical treatment
- As disease-free survival is regarded as the most important factor following curative rectal cancer surgery, the actual HRQoL and the potential ways to improve it are often overlooked
- The evidence for definitive the management of such a complex entity is very limited
- Only a small number of high-quality trials have been conducted.
- there is an urgent need to provide a clinical pathway for clinicians who treat patients with LARS

PATHOPHYSIOLOGICAL MODEL FOR LARS

- Anal continence is a complex interplay between the external anal sphincter, the internal anal sphincter, anorectal sensation, rectal compliance, rectal emptying and stool consistency.
- Treatment for rectal cancer may affect all of these items
- Therefore, LARS has a multifactorial etiology with a complex anatomical, neurological, physiological and psychological background.
- Although the pathophysiological picture of LARS might seem slightly blurred, emerging evidence can be collected to form a mixed pathophysiological model for the condition

PATHOPHYSIOLOGICAL MODEL FOR LARS

FIGURE 1 Pathophysiology of low anterior resection syndrome (LARS). Schematic representation of the multifactorial aetiology of the syndrome. LARS is likely to result from a combination of several components



1. Reservoir function and evacuation of the neorectum

- The normal rectum plays an intricate part in both the storage and evacuation of flatus and stools
- Surgical resection of the rectum and the compromised physiological properties of the neorectum are thought to be the primary cause of LARS
- Due to change of reservoir function and impaired evacuation.

1. Reservoir function and evacuation of the neorectum

- Several efforts to restore reservoir function have been made in the form of coloplasty, side-to-end anastomosis and colonic J-pouch. Sideto-end anastomosis and colonic J-pouch improve function in the first 12–18 months
- But their benefit seems to diminish thereafter.
- Some studies have also shown that partial mesorectal excision (PME) is oncologically safe in selected patients and performs better than TME from a functional standpoint

1. Reservoir function and evacuation of the neorectum

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Taeniectomy pouch as neorectum after low rectal resection

A Farag, AN Mashhour, MY Elbarmelgi, MM Raslan, AM Abdelsalam, and AA Mohsen

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Taeniectomy Versus Transverse Coloplasty as Neorectum After Low Rectal Resection

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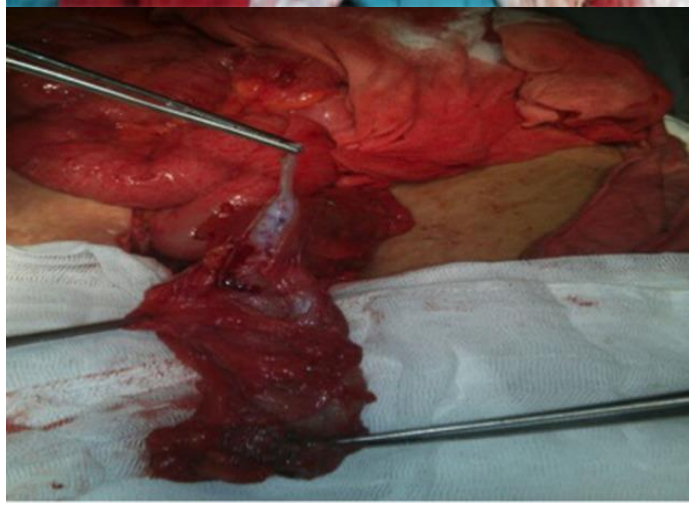
PMID: 30564920 DOI: 10.1007/s00268-018-04890-z

Taeniectomy is a novel technique in the field of colorectal surgery. It is used with the aim of decreasing number of anastomoses and hence decreasing leakage, and is technically less demanding. Taeniectomy can be used as an alternative to the transverse coloplasty pouch, although further larger studies are needed for more detailed assessment.



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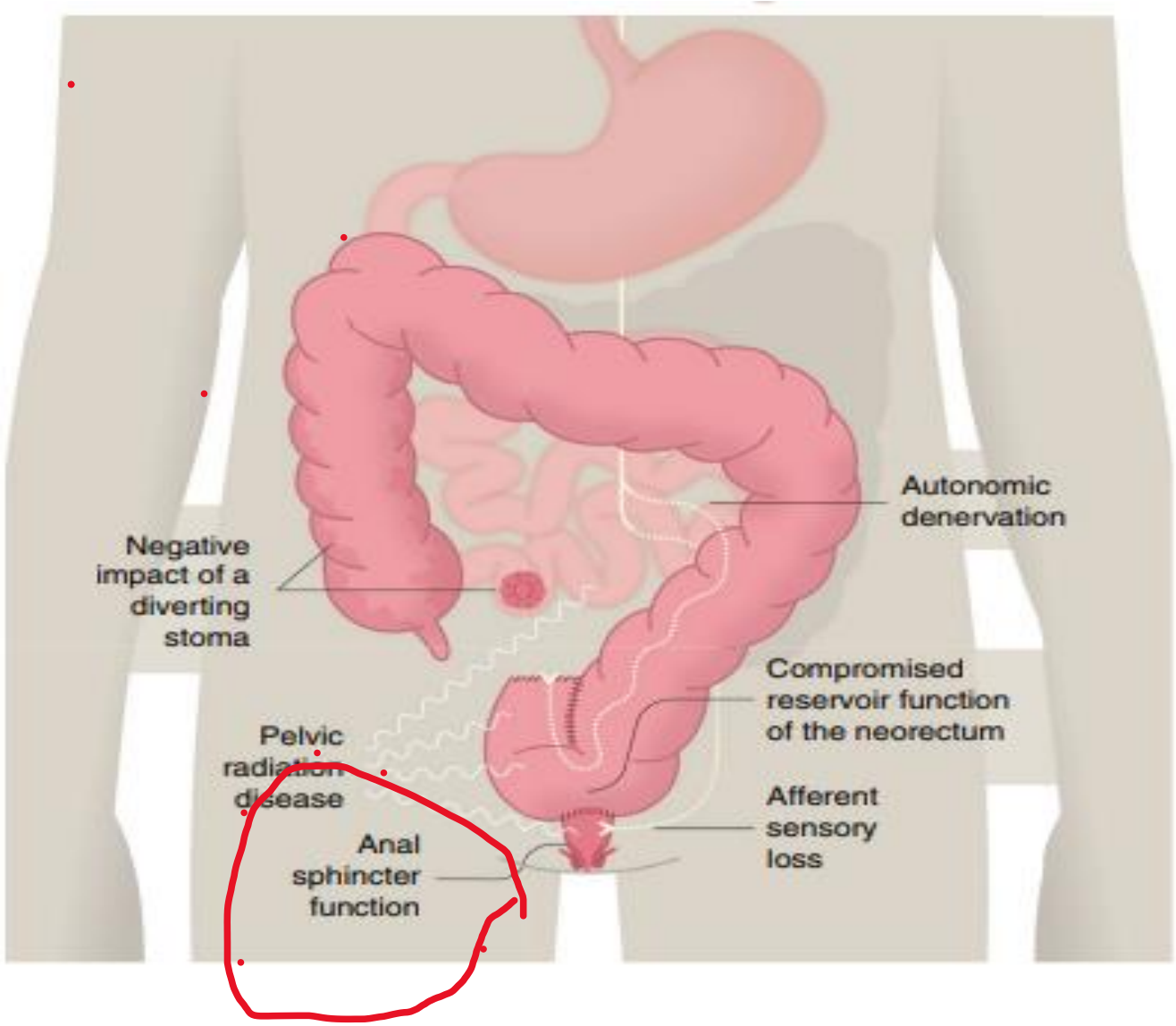

2. ***Anal sphincter function***

- Anal sphincter function relies on the external and internal anal sphincters and nervous system interplay and control.
- Theoretically, the functioning of the internal anal sphincter can be affected by TME surgery with potential disruption of the recto-anal inhibitory reflex arising in the ganglion cells in the rectal wall and mediated via axons that traverse the anorectal junction to serve the internal sphincter
- Some extrinsic autonomous nerve control also exists providing modulatory properties
- In practice, inconsistent findings suggest a lower resting and squeeze pressure in the anal canal following rectal resection

2. ***Anal sphincter function***

- Indeed, ultralow coloanal resection (intersphincteric resection) destroys the intrinsic axis, the whole or parts of the internal anal sphincter and the extrinsic modulatory supply, with LARS occurring more often in patients with ultralow coloanal resection than in patients with TME
- Poor preoperative anal sphincter function is a strong predictor of LARS, and it should be taken into consideration at initial treatment planning.

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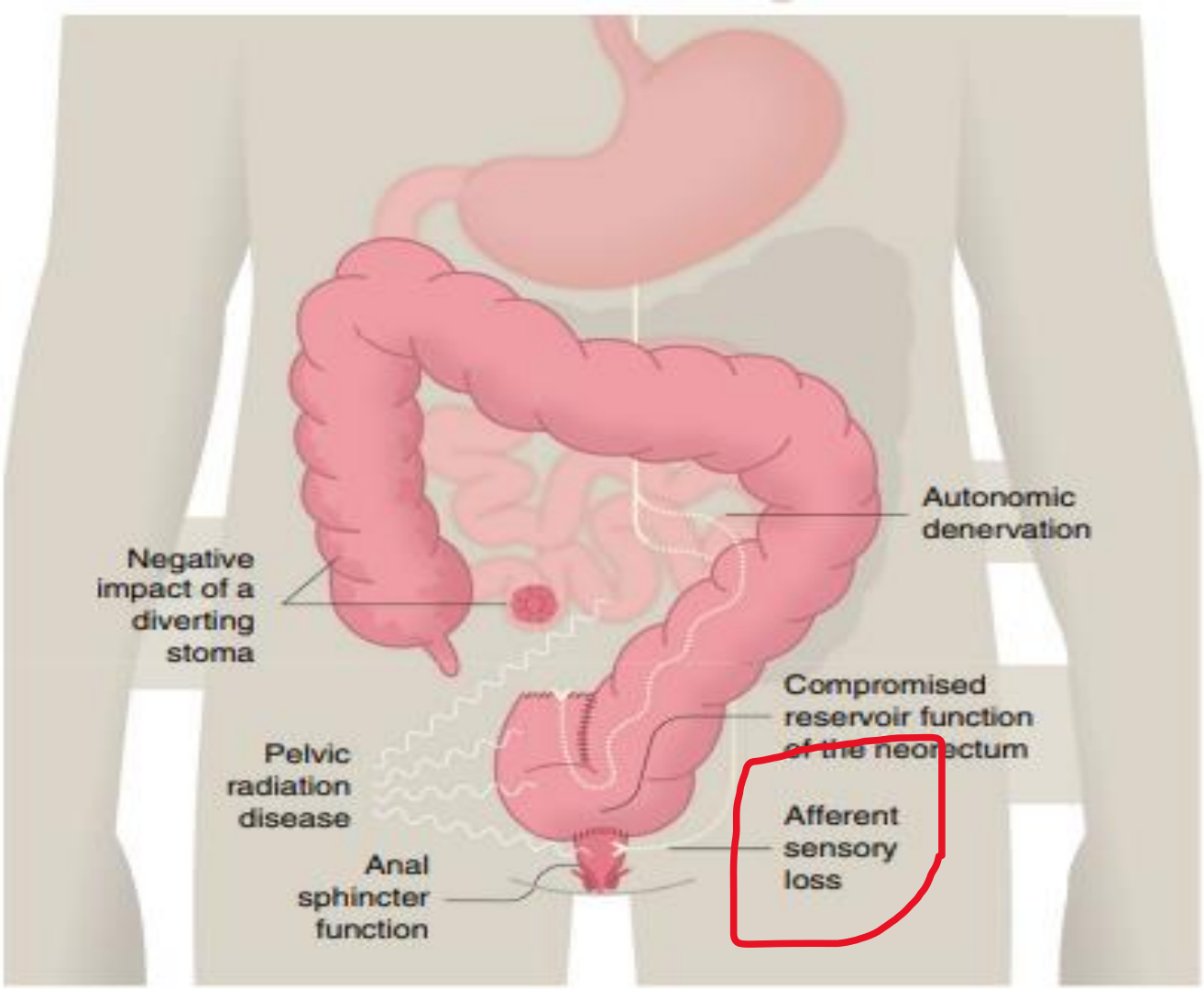

3. *Afferent sensory loss*

- The length of the retained rectal remnant, as measured on MRI scan, correlates with better functional outcome.
- This beneficial effect is lost in irradiated patients.
- Both randomized control trials and epidemiological studies show a greatly increased risk of severe LARS following neoadjuvant therapy
- This suggests that neorectal function is highly dependent on afferent sensory input from the remaining mucosa distal to the anastomosis or from the pelvic sidewalls.
- Gas–stool discrimination is diminished and may cause frequent toilet visits.
- Furthermore, abnormal cortical processing of neorectal sensation has been shown in studies investigating the brain–gut axis, although the clinical importance of this remains unknown

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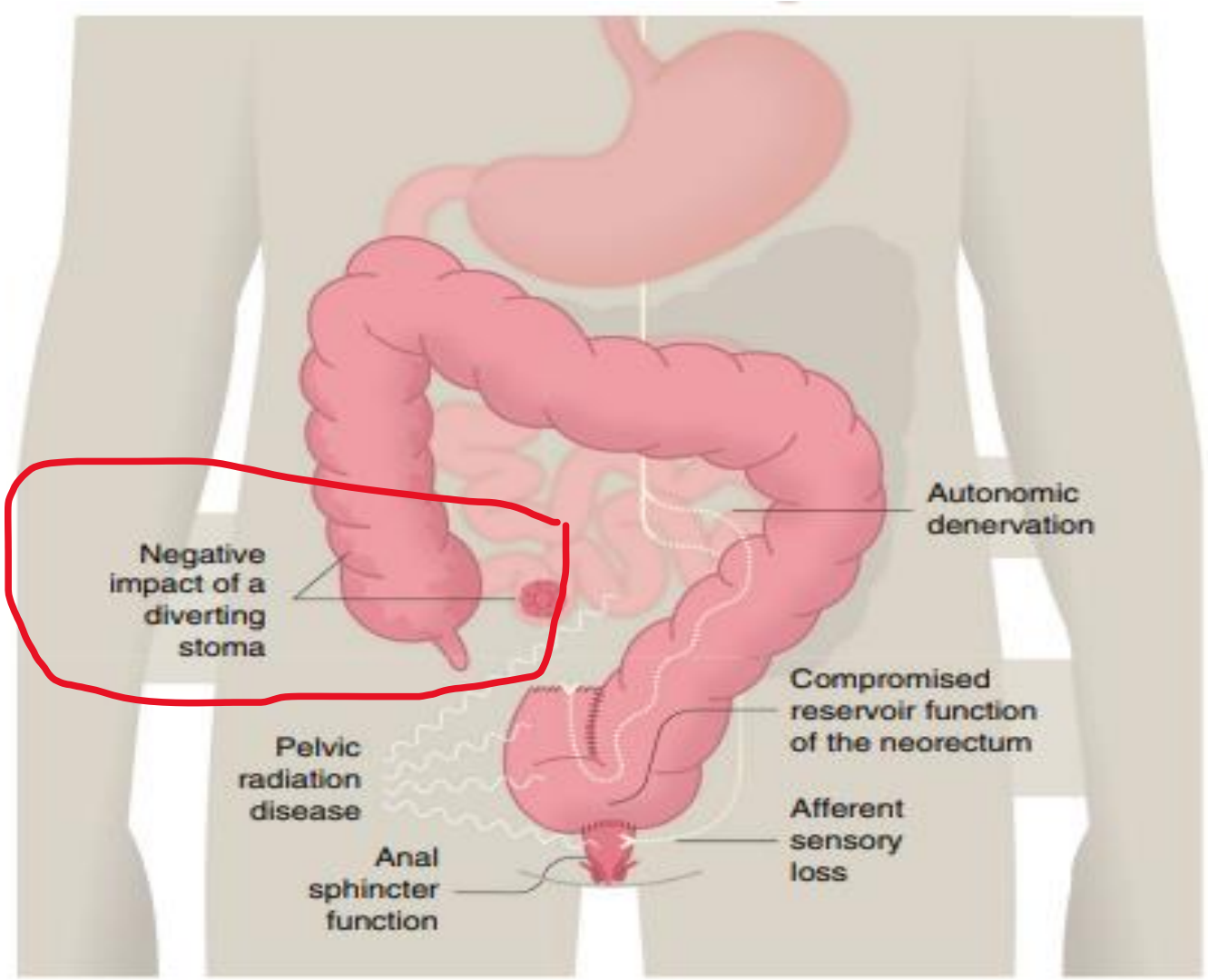

4. *The negative impact of a diverting stoma*

- A temporary stoma is widely used after TME to avoid the consequences of an anastomotic leak.
- Emerging evidence shows that a diverting stoma may increase the risk of developing LARS.
- The precise aetiology is not known, but it could be related to diversion colitis or to changes in epithelial function of the terminal ileum, causing bile acid malabsorption, small bowel bacterial overgrowth or bacterial recolonization of the colon after stoma reversal

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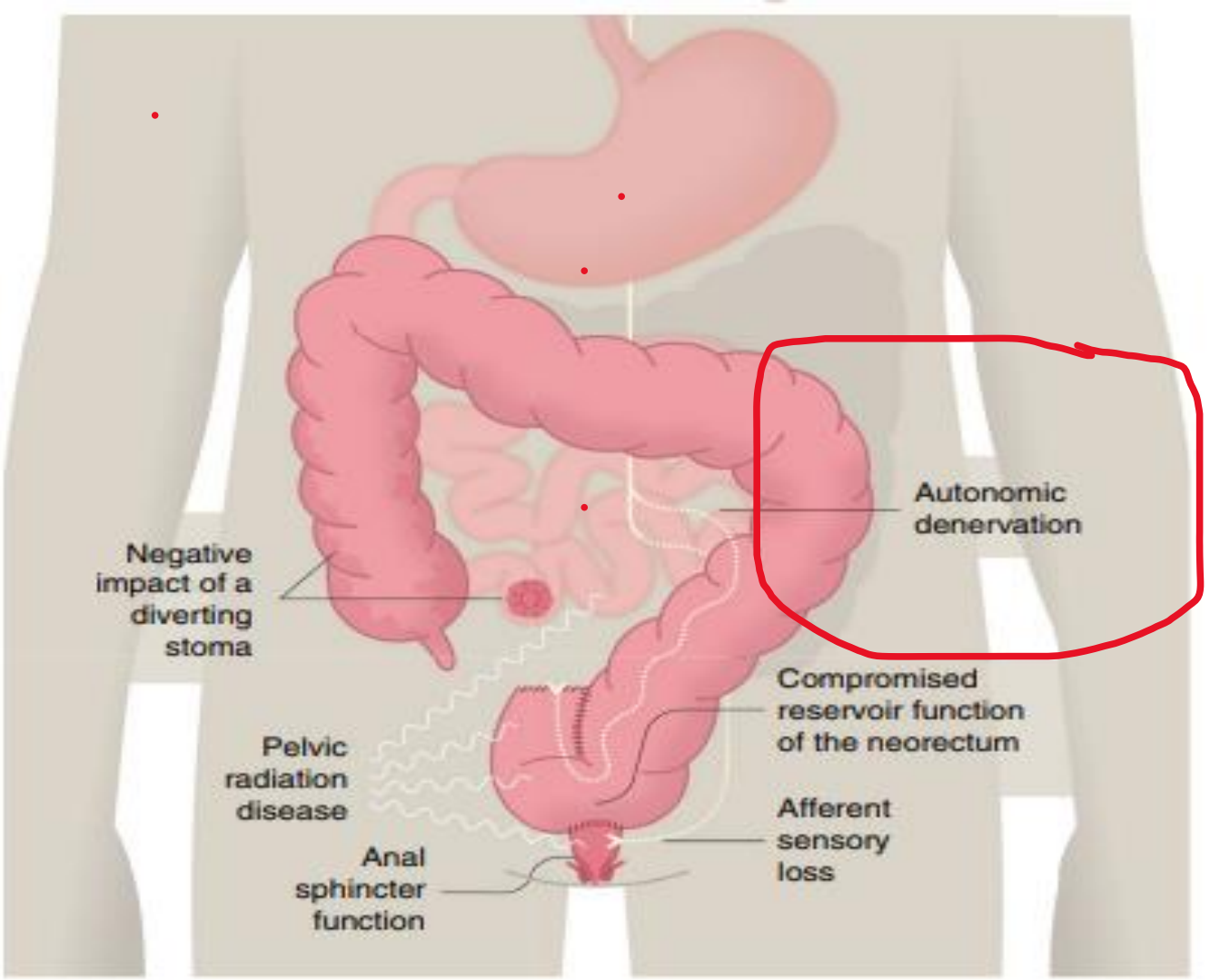

5. Autonomic denervation

- Food intake strongly stimulates faecal urgency in LARS patients, and an accentuated gastrocolic reflex can be detected.
- This is probably caused by autonomic denervation of the neorectum
- After rectal resection, the bowel proximal to the anastomosis is left without parasympathetic and – to some extent – without sympathetic extrinsic innervation due to central vessel ligation, causing damage to the sympathetic supply from the superior hypogastric plexus in the proximity of the aorta.
- The increased motility of the colon due to the sympathetic denervation of the left colon seems to be a major cause of the fragmentation and urgency with LARS

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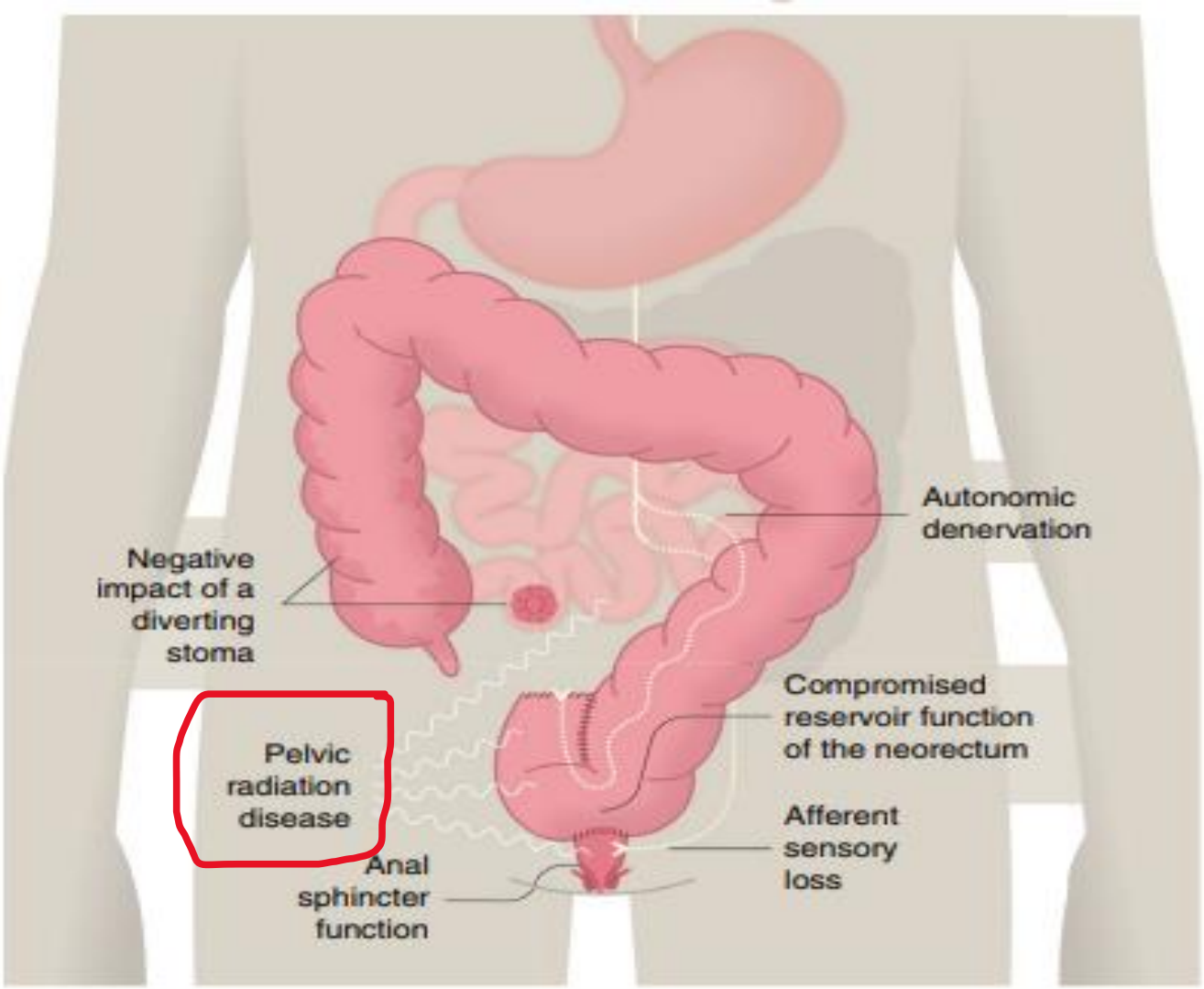

6. Chemotherapy and neoadjuvant radiotherapy

- Chemotherapy often induces acute gastrointestinal symptoms.
- Although these are often reversible when chemotherapy is completed
- it may contribute to chronic long-term gastrointestinal symptoms.
- Neoadjuvant radiotherapy causes a more substantial impact on bowel function in most studies, even when confounding factors are removed
- In the longer term, radiation causes mucosal ischaemic and fibrotic changes, as well as initial mucosal inflammation.

IDENTIF YING L ARS AND MONITORING OF TREATMENT

- a large international consensus trilingual Delphi process with patients as the major stakeholders defined LARS as having at least one of eight symptoms resulting in at least one of eight consequences after anterior resection

FIGURE 2 International consensus definition of low anterior resection syndrome (LARS). LARS is defined as one or more symptoms with one or more consequences following anterior resection [6]

The LARS score

- The LARS score comprises five simple questions with three or four answering categories, making it easy to use for both patients and healthcare professionals
- The LARS score was developed as a screening tool for identifying LARS
- Due to its simplicity, it is also useful in the outpatient setting to articulate late adverse effects.
- The LARS score may be less useful as an outcome parameter in monitoring treatment effects, as its capability for detecting changes over time has been questioned. If one item is improved, another item might change in the opposite direction and thereby challenge the aggregated score value.
- A simple anchor question on how much bowel function affects HRQoL has been suggested to be added to improve the clinical information and responsiveness

TABLE 1 Bowel function questionnaire scoring instructions [11,33]

Add the scores from each 5 answers to one final score	
Do you ever have occasions when you cannot control your flatus (wind)?	
□ No, never	0
□ Yes, less than once per week	4
□ Yes, at least once per week	7
Do you ever have any accidental leakage of liquid stool?	
□ No, never	0
□ Yes, less than once per week	3
□ Yes, at least once per week	3
How often do you open your bowels?	
□ More than 7 times per day (24 h)	4
□ 4–7 times per day (24 h)	2
□ 1–3 times per day (24 h)	0
□ Less than once per day (24 h)	5
Do you ever have to open your bowels again within 1 h of the last bowel opening?	
□ No, never	0
□ Yes, less than once per week	9
□ Yes, at least once per week	11
Do you ever have such a strong urge to open your bowels that you have to rush to the toilet?	
□ No, never	0
□ Yes, less than once per week	11
□ Yes, at least once per week	16
Total Score:	

Interpretation: 0–20, no LARS; 21–29, minor LARS; 30–42, major LARS. The score is for use free of charge for anyone treating patients with LARS.

PREVENTION OF LARS

Discussing risk with patient ahead of rectal surgery – shared decision-making Discussions must take place prior to the surgery so that patients can understand the consequences and risks of deciding whether a low anterior resection or an abdominoperineal excision would give them a better long-term outcome in terms of function.

PREVENTION OF LARS

1. Type of anastomosis

the reconstruction technique (colonic J-pouch or side-to-end) is a factor that is very much in the surgeon's control and has been shown to improve bowel function in the first 12–18 months

2. Ileostomy – and the timing of closure

it is thought that the use of an ileostomy may have an impact on long-term bowel function and HRQoL.

an ileostomy is associated with twice the risk of suffering from LARS. This may be due to a difference in height of the anastomosis and/or timing of the closure

PREVENTION OF LARS

3. Radiotherapy Neoadjuvant radiotherapy

4. Local excision of early rectal cancers

Recommended pathway of managment

- Physicians should ensure that there is no underlying ‘organic’ lesion that may explain a patient's symptoms after surgery
- This needs a minimal work-up, at least digital rectal examination and proctoscopy to rule out anastomotic strictures.
- The role of the gastroenterologist The first step for all physicians taking care of a patient is to evaluate the patient's symptoms and their impact on HRQoL
- The gastroenterologist may also help to rule out any potential ‘organic’ lesions and specific cause of diarrhoea by appropriate investigations

Recommended pathway of managment

- Endoscopy

1. Apart from routine postoperative screening, endoscopy is not mandatory in all patients presenting with LARS.
2. It may be useful when radiation-induced colitis or local tumour recurrence is suspected

Recommended pathway of managment

- Anorectal physiology

1. Anorectal manometry may be useful not only as a diagnostic tool but to guide biofeedback therapy.
2. Endoanal ultrasonography is not mandatory, since it rarely impacts the treatment strategy.
3. Pelvic floor rehabilitation and biofeedback therapy

Recommended pathway of managment

- Patient motivation and expectations
- Diet, laxatives, constipating agents and medication
- TRANSANAL IRRIGATION
- Sacral nerve modulation and tibial stimulation

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Calprotectin in Low anterior resection syndrome patients; a new insight into diagnosis and management: A pilot study

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In conclusion, our study showed that fecal Calprotectin can be a useful tool in the diagnosis and treatment planning of patients with persistent LARS

Refractory LARS ……. FECAL DIVERSION

- Stoma formation can be proposed to patients with severe LARS with refractory symptoms and impaired HRQoL

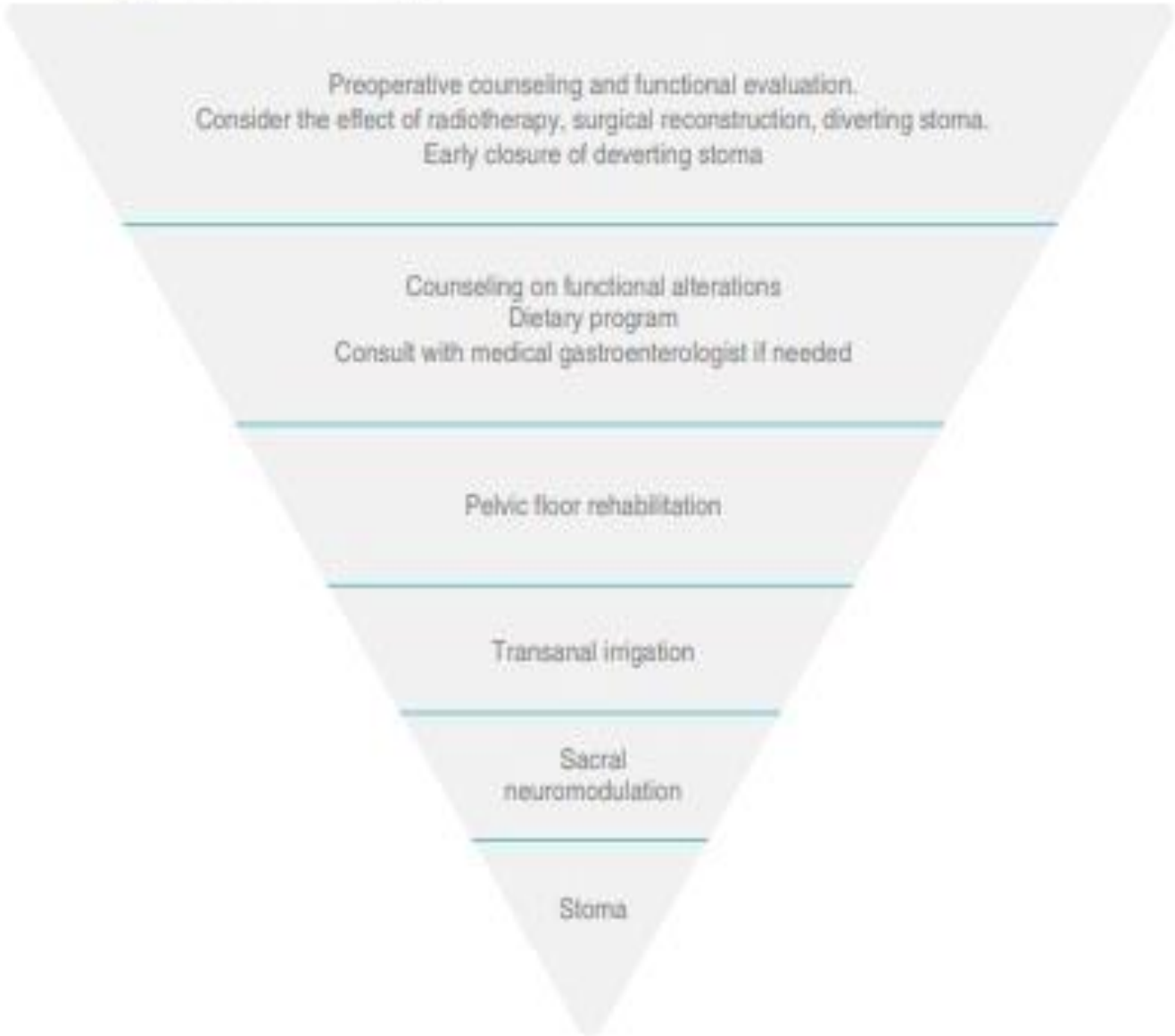
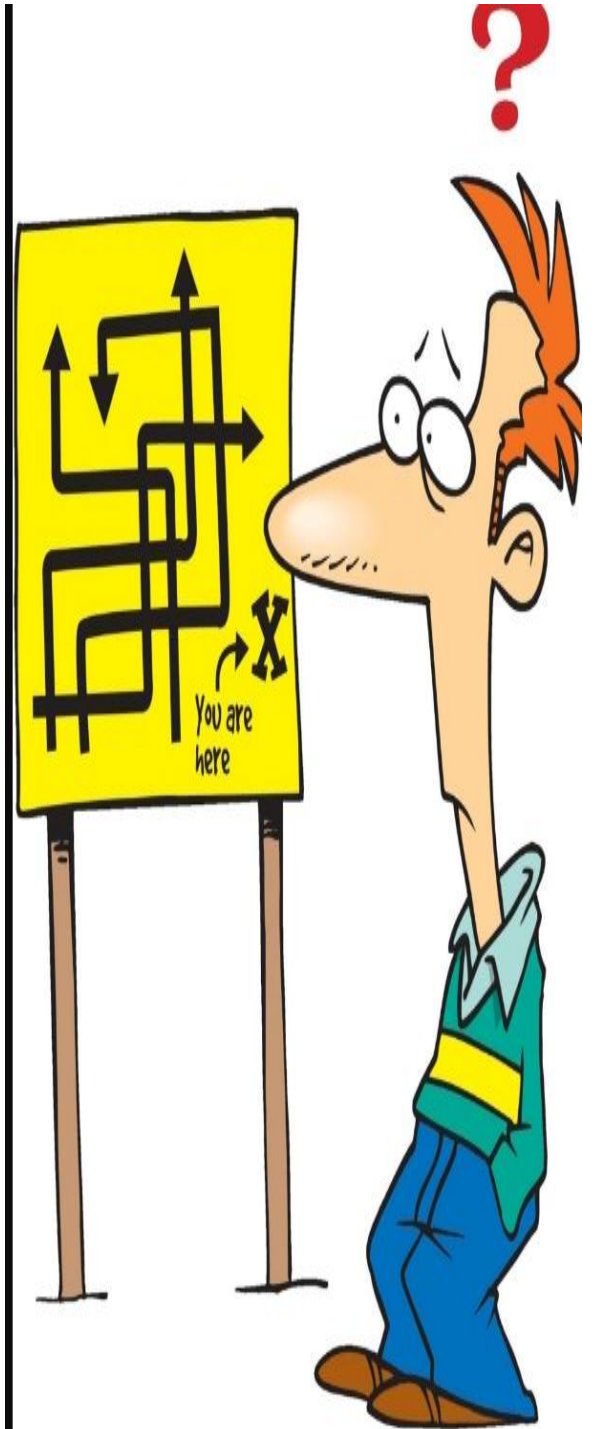


FIGURE 3 A suggested treatment chart for patients with low anterior resection syndrome

Is there an optimal pathway for management of low anterior resection syndrome?

the absence of structured guidance and due to a wide variability of symptoms with different effects on patients' lives, conservative measures often yield inconsistent results. Their impact on patient satisfaction and HRQoL is doubtful and still poorly supported by evidence



THANK YOU