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Establishing A Dedicated Low Anterior Resection Syndrome (LARS) Clinic; A Scope in The Syndrome and Added Value

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1. Abstract

1.1. Background: Sphincter saving resection with TME with/without preoperative radiotherapy are considered standard treatment for rectal cancer. This can result in bowel dysfunction of variable severity in these patients, including faecal urgency and frequency, incontinence, and difficult or incomplete evacuation.

An internationally validated patient-reported outcome measure, Low Anterior Resection Syndrome (LARS) score, enables these symptoms to be measured. The Pre-Operative LARS score (POLARS) is a validated online tool developed by the Pelican Group, Basingstoke, which may be used to predict bowel dysfunction severity prior to anterior resection to help patients understand their risk of bowel dysfunction and also to highlight those patients who may require additional postoperative support.

We aimed to assess the risk factors for and the predicted incidence of LARS in our anterior resection patient population to validate the need for a LARS clinic in our Lower GI physiology department.

1.2. Method: All patients who had undergone curative surgery for rectal cancer in our district general hospital Jan 2016 - Dec 2018 were included in the study. Only those who had undergone restorative anterior resection were included- the rest, including non-resection procedures (TEMS/ EMR etc) or AP resections with permanent colostomy, were excluded. Demographics, tumour height from the anal verge, preoperative treatment and details of the surgery were documented and the POLARS for each patient was calculated.

1.3. Results: There were 53 males and 31 female patients in the study; the age ranged from 36 to 98 years, with 80.92% in the 51-80-year age group, 58.33% in the 61-80-year group. The incidence of Major LARS was predicted as 8.33%, minor LARS was 78.57% and no LARS was only 13.1%. Interestingly, the mean age in the Major LARS group was 53 as compared to 77 years in the no LARS group. (difference of 24.3 (95% CI: 16.8 - 31.7, p<0.001). The mean distance of the tumour from the anal verge was 10.14 cm in the Major LARS group as compared to 22.82 cm in the no LARS group. (difference of 12.68 (95% CI: 6.45 - 18.9, p=0.001). No patient in the no LARS group had preoperative radiotherapy as compared to 71.43 % in the major LARS group. (p-value= 0.003). There was only 1 female in the no LARS group whereas in the major LARS group 71.43 % patients were female. (p-value= 0.026). Minor LARS was noted in 18.8 % of patients who had Laparoscopic anterior resection compared to 57.6% in the Open group, while Major LARS was seen in 4.7% of the lap group compared to 3.5% in the open group (P value=0.37).

1.4. Conclusions: Bowel dysfunction is well known following sphincter-preserving resection. We used the POLARS to help target the patients needing intensive support post treatment to prevent QOL issues. We found the risk of major LARS strongly correlated with female sex and younger age group patients as well as a shorter distance of the tumour from the anal verge; it was significantly higher in the group that had neo adjuvant therapy. We found our predicted incidence of minor/major LARS was 86.9% of our anterior resection population on POLARS. Therefore, we set up a LARS clinic in the lower GI physiology department, specifically for these patients following oncologic/surgical treatment of pelvic cancer- we have already received excellent feedback from the pa-

tients.

2. Introduction and Background

LARS is a constellation of symptoms, such as fecal incontinence or urgency, frequent or fragmented bowel movements, emptying difficulties, and increased intestinal gas, that occur after a sphincter-sparing resection (ie, anterior resection) of the rectum [1].

POLARS, or the Pre-Operative Low Anterior Resection Syndrome Score, is a mathematical model, accessed by the internet that has been designed to help patients and doctors understand the risk of poor bowel function after rectal cancer surgery. It is presented as a single value [2].

We aimed to assess the risk factors for and the predicted incidence of LARS in our anterior resection patient population to validate the need for a LARS clinic in our Lower GI physiology department.

3. Methodology

A retrospective study off all the patient who had undergone curative surgery for rectal cancer 2016 - Dec 2018 were included in the study. Only those who had undergone restorative anterior resection were included-the rest, including non-resection procedures (TEMS/ EMR etc) or AP resections with permanent colostomy, were excluded. Demographics, tumour height from the anal verge, preoperative treatment and details of the surgery were documented and the POLARS for each patient were calculated.

Statistical results were done on the SPSS using Pearson Qui-square calculations.

4. Results

There were 53 males and 31 female patients in the study; the age ranged from 36 to 98 years, with 80.92% in the 51-80-year age group, 58.33% in the 61-80-year group.

The incidence of Major LARS was predicted as 8.33%, minor LARS was 78.57% and no LARS was only 13.1%. Interestingly, the mean age in the Major LARS group was 53 as compared to 77 years in the no LARS group (difference of 24.3 (95% CI: 16.8 - 31.7, $p<0.001$).

The mean distance of the tumour from the anal verge was 10.14 cm in the Major LARS group as compared to 22.82 cm in the no LARS group (difference of 12.68 (95% CI: 6.45 - 18.9, p=0.001).

No patient in the no LARS group had preoperative radiotherapy as compared to 71.43 % in the major LARS group (p-value= 0.003).

There was only 1 female in the no LARS group whereas in the major LARS group 71.43 % patients were female. (p-value= 0.026)

Minor LARS was noted in 18.8 % of patients who had Laparoscopic anterior resection compared to 57.6% in the Open group, while Major LARS was seen in 4.7% of the lap group compared to 3.5% in the open group. (P value=0.37)

5. Discussion

It is estimated that between 25 and 80 percent of patients develop one or more symptoms of LARS following a sphincter-sparing rectal surgery. About 50 percent of patients still report symptoms more than 10 years after surgery. For individual patients, symptoms vary in type, severity, and duration as a reflection of different underlying etiologies [3].

Many potential mechanisms have been proposed for the syndrome; decrease in anal tone sensation, internal anal sphincter dysfunction, reduction in the rectal reservoir capacity and compliance, and disruption of the local reflexes between the anus and the neo-rectum [4].

Few surgical techniques like Colonic J-Pouch-Anal anastomosis [5], side-to-end anal anastmosis [6], transverse coloplasty pouch [7] in addition to the straight coloanal anastomosis have been described and compared in order to reduce LARS postoperatively [8].

Multiple options as a treatment modalities have been proposed for LARS including a serotonin receptor antagonist was given to patients with symptoms of urgency and incontinence following LAR with significant improvement in urgency and bowel movements per day [9].

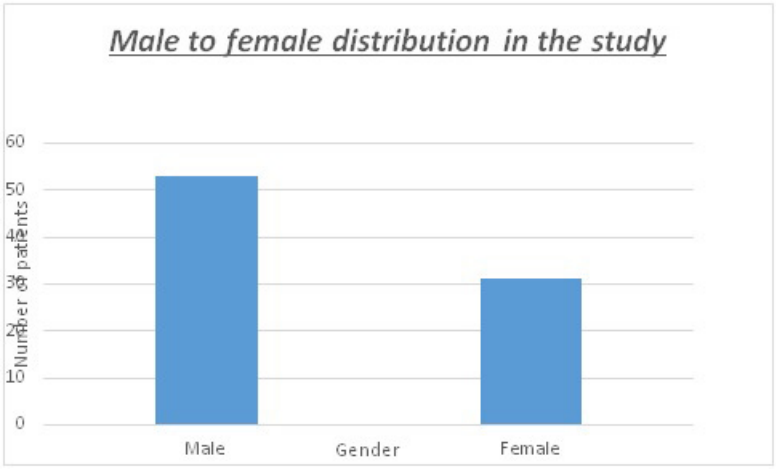
Also, Implantable sacral nerve stimulators (SNSs) have been studied in patients with medically refractory incontinence, and Biofeedback therapy (BFT), the process by which patients are trained with myometrium and balloons to strain effectively and relax the sphincter, has met with some success in patients with bowel outlet dysfunction, have been utilized in the management of LARS with promising results [10-13].

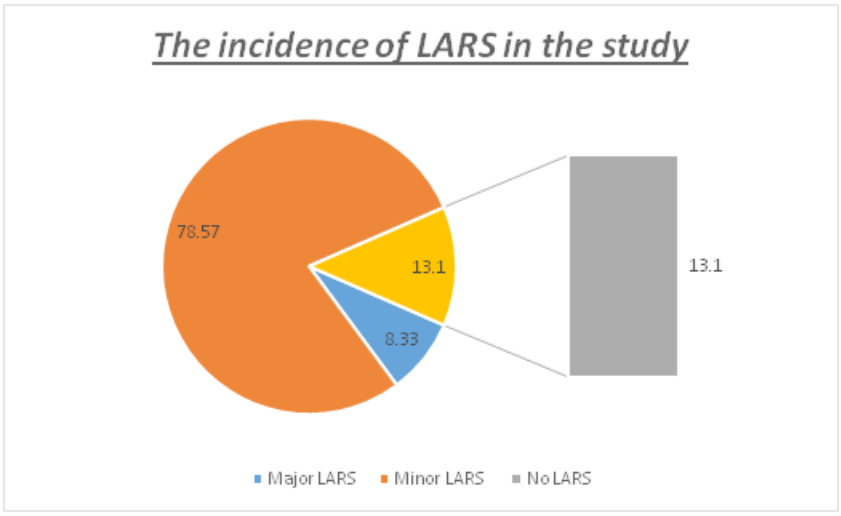
POLARS the preoperative LARS score is presented in a single value [2]. It is a prediction of symptoms according to a bowel function questionnaire called LARS. The cut off values of 0 to 20 (no LARS), 21 to 29 (minor LARS), and 30 to 42 (major LARS) are taken from the original development and validation of the Low Anterior Resection Syndrome score paper, Emmerson et al, Aarhus, Denmark [14].

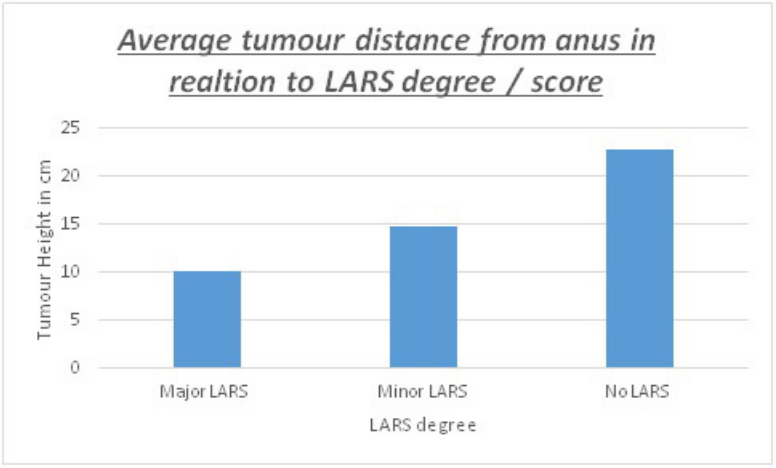
As noticed from the study male to female distribution was nearly 2:1. See chart below The incidence of Major LARS in the study group was predicted as 8.33%, minor was 78.57% and No LARS was only 13.1. see chart below

We have also noted that the median age in the Major LARS group was 53 compared to 77 years in no LARS group (95% CI: 16.8 - 31.7, $p<0.001$).

The distance of the tumour from the anal verge is an important factor and we have also found that the median distance from the anal verge 10.14 cm in the major LARS compared to 22.82 in the No LARS group. (95% CI: 6.45 - 18.9, p=0.001) see chart below







Post-operative radiotherapy is an important factor as no patient from the No LARS group had preoperative radiotherapy, 71.3% in the major LARS had preoperative radiotherapy (p value =0.003).

Gender also seems to be an important factor as 71.43% of the major LARS were females compared to only 1 female in the NO LARS group.

Minor LARS was noted in 18.8 % of patients who had Laparoscopic anterior resection compared to 57.6% in the Open group, while Major LARS was seen in 4.7% of the lap group compared to 3.5% in the open group (P value=0.37) and a proposed further research into comparing the laparoscopic and the open approaches for the incidence of poet operative LARS.

Accordingly, the need for a preoperative implementation of the above findings has been advocated. We have dedicated a LARS clinic for the patient undergoing a Low anterior resection to establish the need for further counselling, as it is being adopted on case to case patients and some patients will be more suitable for a stoma decision to be made preoperatively. This was noted to have had added to increase the quality of life of the patients post operatively. Not only it included the patient in the peri-operative decision but also made the prediction of the LARS syndrome and its estimation a good tool for the physiology clinic.

Therefore, we have implemented the above findings in establishing a LARS clinic in the lower GI physiology department, especially department, specifically for these patients following oncologic/surgical treatment of pelvic cancer- we have already received excellent feedback from those patients. We believe that a patient satisfaction questionnaire may be the second step of the study with the aim the establish further improvement in the quality of life of such patients.

6. Conclusion

- Bowel dysfunction is well known following sphincter-preserving resection
- We found the risk of major LARS strongly correlated with female sex and younger age group patients as well as a shorter distance of the tumor from the anal verge; it was significantly higher in the group that had neo adjuvant therapy.
- We found our predicted incidence of minor/major LARS was 86.9% of our anterior resection population on PO-LARS.
- Therefore, we set up a LARS clinic in the lower GI physiology department, specifically for these patients following oncologic/surgical treatment of pelvic cancer- we have already received excellent feedback from the patients.

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