STARR Procedure for Obstructed Defecation Syndrome. How I do it?

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***Abstract**: Obstructed defecation attributable to structure deformity in the lower rectum has been a challenge to surgeon. A seemingly accessible part of human anatomy is unnecessary approached from the abdomen or through a very morbid pelvic approach. Stapled trans anal rectal resection (STARR) has emerged as a safe, effective and minimally invasive procedure. I have modified the suture placement in STARR procedure and have introduced this procedure to Asia. Universally reported patient satisfaction has led to widespread enthusiasm amongst the surgeon across India. This has taken me to various cities in India to proctor colleague on STARR. The procedure performed in a methodological manner is precursor to its safety and efficacy. I discuss the technique of the procedure as I do it and as it is practiced now.*

Recent understanding about the structured alteration in lower third of rectum has led to better understanding of lower rectal function. A normal defecation is a result of structural and functional alignment of this part of rectum with the anal canal. This structural and function alignment calls for a synergic and effective recto-anal propulsion of fecal bolus. Disturbance of this mechanism leads to disorders of defecation. Loss of efficacy in recto-anal functional alignment can be due to structural anatomical defects such as

- Rectocele
  - Anterior rectocoele
  - Posterior rectocoele
- Rectal Intussusception
  - Recto-rectal intussusception
  - Recto-anal intussusception

Either of these anatomical abnormalities in isolation or in conjunction amongst themselves can manifest as a disorder of defecation categorized as Obstructive Defecatory Syndrome (ODS).

It was only in 2007 that a cure for ODS emerged when an Italian, Longo presented a new procedure named stapled transanal rectal resection (STARR) at the Annual Cleveland Clinic, Florida Colorectal Disease Symposium [1,2] . Initially there was some scepticism amongst the surgical fraternity, about the technique of placement of rows of parallel purse string sutures. Dr. Longo visited India during 2005-2006 and gave video presentation of his procedure. The parallel rows of purse string suture in lower rectum remained a cause of surgical challenge and reservations. The purpose of these sutures was to pull the part of rectum to be resected into the resecting-stapling unit of the circular stapler used for performing the STARR procedure. The same purpose could be achieved with enhanced precision by pulling the rectum by a series of 6 interrupted sutures placed circumferentially to act like strings of a parachute. I found this parachute string mechanism to be scientifically sound and surgically reproducible. I discussed it with Dr. Longo and he found the technique very exciting and concurred with the use of the same. However to begin with I used to perform STARR with two hemi-circumferential resections of lower rectum. The two hemi-circumferences being the right and left. After watching Dr. Longo operate, I have shifted to two hemi-circumferences being anterior and posterior.

Procedure (for proper understanding watch the video at www.endosurgeon.org[3-10]

SELECTION OF PATIENTS

For any surgical intervention to be effective, it has to be applied only in case where it is well indicated. Hence proper selection of ODS patients for STAR is the cornerstone of effective surgery. The patients should be selected according to a structured protocol incorporating the clinical evaluation and defecographic substantiation. These aspects are discussed in various articles appearing in this issue. The STARR procedure being new, it is imperative to have an informed patient made aware of the nature and possible outcomes of the procedure.

PREOPERATIVE PREPARATION

Patients undergoing STAR should undergo a routine pre-anaesthesia evaluation for general anaesthesia (GA). The procedure should be preferably performed under GA unless GA is contraindicated. Regional anesthesia (RA) should be avoided. Adverse outcomes specific to STARR such as retention of urine and missed staple line bleeding are more likely to happen with RA as compared to GA.

To ensure clear vision of rectum during surgery some preoperative laxative should be used the night before surgery to ensure emptying of bowel on the morning of surgery

OPERATIVE PROCEDURE

Once under anesthesia, chemoprophylaxis (a 2nd generation cephalosproin + imidazole) is administered and patient shifted to a lithotomy position, to be adequately prepared and draped.

I use a circular cutting and stapling device (PPH01, manufactured by Ethicon Endosurgery, Cincinnati, USA) for the rectal resection. It is similar to used for stapled hemorrhoidopexy i.e. PPH03 except for the ability of PPH01 stapler to take in thicker tissues. This is necessary because STARR involves full thickness rectal resection while the hemorrhoidopexy involves only mucosal resection.

A circular anal dilator (CAD) is introduced into the anal canal and secured in place with skin sutures passed through the four slots in CAD. The orientation of CAD is such that the slots are positioned at 12 o'clock position, 3 o'clock position, 6 o'clock position and 9 o'clock position.

After securing the CAD the internal rectal prolapse, intussusception is checked for by pushing in a "sponge on holder" and pulling it out gently. This helps in indentifying the prolapse and the groove at the base of the recto-rectal intussusception. The prolapse is now to be resected in two sequential parts in hemi-circumferential manner. I begin with the anterior hemi-circumference first. To pull the anterior half of prolapse into the resecting / stapling unit of PPH0-1, the traction is given by three parachute sutures. The sutures are placed at

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the base of intussusception and are full thickness. First one to be placed is at 12 o'clock position than 10 and 2 o'clock position parachute sutures are placed. To protect the posterior hemi-circumferential rectal mucosa from being bitten by PPH01, a spatula is introduced on the rectal mucosal through the 6 o'clock slotin the CAD. This protects the posterior half from any entanglement in the jaws of PPH01. The free threads of 10 o'clock suture and one arm of the free thread of 12 o'clock suture are jointly pulled through the left thread slot of PPH01. The remaining arm of the free thread of 12 o'clock suture and the two arms of the free thread of 2 o'clock suture are pulled through the right slot in PPH01. Adequate traction is applied on the threads to pull in the prolapse before the instrument is tightened, fired and removed as in a standard stapled hemorrhoidopexy. The same steps are repeated in a mirror like fashion to complete the posterior hemi-circumferential resection with the fresh PPH01 instrument. The staple line is examined for its integrity and hemostasis. This can be reinforced by box- mattress sutures (as designed by me- mattress suture placed across the staple line, being parallel to the staple line with the two buried strips of mattress suture being equidistant from the staple line.) placed at 12, 3, 6 and 9 o'clock positions, using either chromic catgut or synthetic absorbable sutures. The sutures at 9 and 3 o'clock position ensure the "dog-ear of tissue" left at the junction of anterior and posterior resection, being buried. This ensures the recto-rectal anastomosis being smooth, secure and dry. Postoperative management is same as for standard stapled hemorrhoidopexy.

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LITERATURE REVIEW

Nondiabetic Kidney Disease in Type 2 Diabetic Patients: A Single Center Experience

U Das, KV Dakshinamurty, A Prayaga, MS Uppin Ind. Jr. Neph.: 2012, Volume : 22, Issue : 5, Page : 358-362

Nondiabetic renal disease (NDRD) is seen as a cause of proteinuria and renal failure in type 2 diabetes mellitus (DM). The clinical differences between NDRD and diabetic glomerulosclerosis (DGS) are not clear. This study was done to find the spectrum of NDRD in type 2 DM patients and differences in clinical profile between NDRD and DGS patients. Data of patients with type 2 DM who underwent renal biopsy in this institute from 1990 to 2008 were analyzed retrospectively. Patients were categorized as isolated NDRD, NDRD with DGS, and isolated DGS. A total of 75 patients were included. Mean age was 45 ± 10.2 years, male to female ratio was 3.1 : 1, median duration of DM was 12 months (range, 1 year-15 years), proteinuria was 4.2 ± 3.4 g/day, and serum creatinine was 4.3 ± 3.9 mg/dl. Hypertension was observed in 63 (84%) cases and microscopic hematuria in 24 (32%) cases. Nephrotic syndrome (38.7%) was the commonest clinical presentation. Forty-eight (64%) cases had NDRD and 27 (36%) had DGS. The commonest NDRD was minimal change disease (12.5%). Three (6.3%) patients had lupus nephritis. Tubulointerstitial nephritis has been observed in 10.4% patients. No significant differences between NDRD and DGS patients were found except hypertension which was significantly high in the DGS group. Acute kidney injury and nephritic syndrome were not observed in the DGS group. In conclusion, the incidence of biopsy-proven NDRD in type 2 DM in this study was high. Kidney biopsy aided in the detection of NDRD in clinically suspected patients.

LITERATURE REVIEW

Are We Overconcerned about Secondary Hyperparathyroidism and Underestimating the More Common Secondary Hypoparathyroidism in Our Dialysis Patients?

Tarun Jeloka, Manish Mali, Anjali Jhamnani, Santosh Konde, Vikas Jadhav JAPI 2012, VOL. 60,102-105

The aim of the study was to determine the prevalence of hyper and hypo-parathyroid state in prevalent dialysis patients. The second part of the study was to look for the prevalence of vascular calcification (abdominal aortic) and factors predicting calcification in these patients. All adult patients, who were more than 1 month on dialysis, were included in the study. A total of 68 patients, of which 75% were on hemodialysis and 25% on peritoneal dialysis, were finally studied. Patients' parathyroid status was defined as per target recommendation of KDOQI – hypoparathyroid with iPTH < 150 pg/ml and hyperparathyroid with iPTH > 300 pg/ml. Vascular calcification was determined by X ray of lateral lumbar spine to look for abdominal aortic calcification (AAC). The AAC was scored as validated. The prevalence of hyper- and hypoparathyroidism in dialysis patients was determined as percentage of total dialysis patients. The prevalence of AAC and factors predicting it was analyzed by 'univariate' and 'multiple logistic regression analyses. The mean age of patients was 50.04 ± 14.15 years, 58.82% were males and 42.64% were diabetics. Mean duration of dialysis was 22.36 ± 19.17 months. Hyperparathyroidism was seen in only 27.94 % of all dialysis patients, while hypoparathyroidism was in 45.58%. Abdominal aortic calcification was seen in 79.41% of overall patients and 13.23% had significant calcification (score 7-24). On univariate analysis, age (0.000) and iPTH (0.03) were the only variables predicting AAC and on logistic regression analysis, age was the only independent predictor of abdominal aortic calcification (p=0.002, OR 1.11, CI 1.038-1.186). Hypoparathyroidism is more common (46%) in our dialysis patients as compared to hyperparathyroidism (28%). There is high prevalence of vascular (abdominal aortic) calcification (80%) in our dialysis patients.