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Laparoscopic Nissen Rossetti Fundoplication: Possibility towards Day Care Anti-reflux Surgeries

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Abstract

As we proceed towards more and more day care surgeries we always need to choose patients and procedures within a great deal of safety margin. Anti-reflux surgeries are gaining more popularity and awareness and Laparoscopic Nissen Rosetti fundoplication is a safe and effective method of performing them. Our case series of 25 patients who underwent day care Laparoscopic Nissen Rossetti fundoplication done over a period of 3 years suggests the feasibility and safety of performing day care anti-reflux surgeries with no complications. Surgical outcomes of procedure are unaffected and the main challenge faced remains pain relief and which can be effectively tackled by local blocks or plain NSAIDs. We encourage more studies in this regards with appropriate blinding to enforce its possibility as day care surgery and help patients with early recovery and decreasing cost of surgeries.

Keywords: GERD; Laparoscopic nissen rossetti fundoplication; Day care surgery; TAP block

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Introduction

Anti-reflux problems and GERD have become common in the present day practice. The complications associated with GERD like stricture esophagus, adenocarcinoma of the o-g junction, pulmonary complications, etc. have prompted clinicians to adopt both medical and surgical options to treat this condition [1-4]. PPI's have been the mainstay of treatment in this condition and their usage can be up to 6 months continuously. pH measurement and esophageal manometry have also been supplemented by the Hill's grading system of GERD based on endoscopy to assess the severity of the disease [5]. Many studies have suggested that laparoscopic fundoplication is the most effective treatment in the long-term management of GERD [6].

Laparoscopic Nissen-Rossetti Fundoplication involves performing the fundic wrap after ensuring an adequate length of intra-abdominal esophagus, approximation of the crural hiatus and accentuation of the angle of His. This differs from the usual Nissen Fundoplication by not having to divide the short gastric vessels along the gastro-splenic ligament. Thus the procedure has an added advantage of decreasing operating time and minimizing intraoperative and postoperative blood loss. [7]

In the present article, we present 25 cases of GERD who underwent the Laparoscopic Nissen-Rossetti Fundoplication at our center during a period of around 3 years from 2012-2015 as a day care procedure (<24 hr stay). We would like to highlight the possibility of day care anti-reflux surgery using laparoscopic Nissen-Rossetti fundoplication.

Materials and Methods

For the period in observation, the following cases were selected for the day care fundoplication:

1. Patients with GERD symptoms of more than 6 months duration.
2. Treatment given with PPIs for more than a month and patients being unresponsive to treatment.
3. GERD classification grade 3-4 based on Hill's system of classification of GERD using endoscopy.
4. Patients with ASA 1-2 fitness for surgery.
5. Patients consenting for the surgery as the choice of treatment for GERD.

Following patients were not selected for the day care procedure and underwent further evaluation or alternative treatment protocol:

1. Patients unwilling for surgery as the choice of treatment for GERD.
2. GERD classification grade 1-2 based on Hill's system of classification of GERD using endoscopy.
3. Co-existent conditions like peptic ulcer disease or cholelithiasis as the causes for dyspepsia along with GERD symptoms.
4. Patient unfit for surgery.

Observations

Following were the observations seen in the patient group:

1. Total nos of cases-25.
2. Duration-2012 to 2015.
3. Study-retrospective analysis.
4. Center-single center and same team of surgeon, co-surgeon, and anesthetist.
5. Age of patients-from 25 to 65 years.
6. Sex of patients-predominantly females.

The patients once diagnosed were asked to undergo anesthesia fitness evaluation prior to surgery. Once fit for surgery the patients were asked to come to the hospital early in the morning of the surgery on an empty stomach since the previous night after a short meal. The surgery was done within 2-3 hr of the admission.

The choice of procedure was LAPAROSCOPIC NISSEN ROSSETTI FUNDOPLICATION under general anesthesia and the procedure duration varied from 60 to 90 minutes. Post operatively the patient was given pain relief by transversus abdominis plane block [TAP] intraoperative with sensorcaine (0.25%) and by NSAIDs like diclofenac sodium postoperative on a SOS basis [8,9]. A pain score was chosen to subjectively assess the post-operative pain as a choice for the analgesia (>4). Post operatively after 6 hr of surgery liquids were initiated to the patient and they were given liberally after an hour of tolerating the same. The patient was discharged for follow up after having liquids.

Patients on follow up day 3 were advised semi-solid food and on day 7 were given soft diet. On day 7 the sutures were removed. Patient was given a choice of discharge in every instance and plan was to avoid discharge if the patient did not feel comfortable going home or if the pain was high.

Our observations during the post-operative period were as follows:

1. Average stay of patient in the hospital-12 to 16 hr.
2. Post-operative pain score-All patients responded to oral NSAIDs if the pain score was high. All the patients were willing for discharge postoperatively **(Table 1)**.
3. Post-operative complications **(Table 2)**.
4. Follow up relief in symptoms-100%.

Our observations indicate that with a proper selection criterion, laparoscopic nissen Rossetti fundoplication can be offered as anti-reflux therapy to the patient as a day care procedure.

Laparoscopic Nissen Rossetti fundoplication does not involve dividing the short gastric vessels and thus allows a faster surgery with minimal bleeding. The fundic wrap is fashioned in a careful manner after creating a wide retro-esophageal tunnel and ensuring that the wrap is not tight at all. Post-operative dysphagia, bleeding, gas bloating, etc. are usually not encountered but the patient is kept on a liquid diet for 3 days to allow the inflammation to subside along the wrap and prevent any discomfort to swallowing. Pain was the main challenge in the early discharge and was assessed using the pain score and it was found that patients usually were comfortable postoperatively with adequate local infiltration in the muscle planes during surgery at the port sites and also with one or two doses of NSAIDs like diclofenac sodium or paracetamol. None of the patients required readmission or felt the need to stay longer.

Discussion

A 360-degree fundoplication is the most common treatment for GERD presently especially for both acid and bile reflux in patients who respond poorly to the proton pump inhibitors. Even regression of Barrett's metaplasia after surgery has become the interest for physicians to advocate the procedure [10].

Few papers have been published regarding the feasibility of laparoscopic Nissen fundoplication in day care setting and fewer are double cohort studies in this regard [11-13].

Day care fundoplication was taken into consideration and the discharge criteria according to the post anesthesia discharge score system were: <20% deviation of pulse and blood pressure compared with preoperative values, balanced gait without dizziness, pain acceptable and pain regulated with

Table 1 Post operative pain score.

Score 1-4	20
Score 5-8	4
Score>8	1

Table 2 Post operative complications.

Post operative dysphagia/ odynophagia	0
Post operative bleeding	0
Post operative respiratory complications	0
Post operative wound complications	0
Post operative complications unrelated to above	0
Readmission	0
Post operative gas bloating symptoms	0

oral analgesics, no excessive nausea and vomiting and minimal blood loss [14]. Other quality of life assessors were the EQ-5D-a simple questionnaire based on 5 dimensions: mobility, self-care, usual activity, pain/discomfort, and anxiety/depression. Thus highlighting that an approach towards day care fundoplication had begun whilst the possibility of day care cholecystectomy had already become evident and been brought into practice.

Simple acceptances of a procedure to be performed as day care needs to have no increased morbidity and mortality compared to inpatient procedure, high success rate of same-day discharge and satisfied patients. Good pain relief can be brought in by local infiltration of the diaphragm as well as port site wounds supplemented by NSAIDs or likewise [14].

Recently new interventions to treat GERD have been developed like the magnetic sphincter positioned around the distal esophagus laparoscopically [15]. Here postoperative pain is almost negligible since the dissection is minimal. Thus pain relief becomes a major criterion for deciding the feasibility of the surgical procedure to be considered as a day care procedure.

The Nissen Rossetti fundoplication differs from the usual Nissen fundoplication in not having the divide the short gastric vessels during the fundic wrap creation. All the other operative steps are similar. This reduces the operative time and also decreases the blood loss in the surgery. In normal individuals this would even add to decreased postoperative pain since the dissection is less than the nissen fundoplication procedure. The De Meester score post operatively for the result of the procedure can assess the efficacy of the procedure. Symptomatic relief does remain the single best criteria for the outcome analysis of the procedure [16].

Cost factor analysis also highlights the importance of choosing to perform the procedure in day care setting. Older concepts have changed when now the nasogastric tube is avoided in postoperative setting and early alimentation is also initiated for the patients. In elective setting of a clean surgery even prophylactic antibiotics are enough not necessitating long hospitalizations in view of medication administration or for parenteral alimentation. Pain relief and patient satisfaction remain the sole indices for the choice of continuing admission of the patient versus the day care procedure.

Dysphagia or odynophagia was another problem worrying the physician preventing early discharge of the patient. The procedure differs in choosing the anterior or posterior gastric wall for the fundoplication. However the dysphagia after the procedure did not differ in the choice of procedure and thus there was no harm done to the patient in choosing the Nissen Rossetti procedure for the treatment of GERD for the patient. Other studies have also proposed that division of short gastric vessels is not necessary to perform a “short and floppy” plication [17].

Conclusion

Laparoscopic Nissen Rossetti Fundoplication is effective for the treatment of GERD with severe grade or symptoms. It can be offered to the patient as day care procedure also but with proper selection criteria. More studies can be done prospectively and with appropriate blinding to prove the efficacy of this procedure as a day care option for anti-reflux surgery.

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