

Early Experience with Minimally Invasive Oncologic Surgery at a Peripheral Cancer Centre in North East India

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Abstract: Introduction: The use of minimally invasive surgery (MIS) in oncology in certain cancers has been proven to be non-inferior to open procedures with superior short term outcomes in several randomized controlled trials. Methods: A retrospective study of MIS done for cancers of esophagus, lung, colorectal cancers and gastric cancers was done for the study period 1st Jan 2018 to 31st Dec 2019. Results: A total of 46(54.7%) procedures were done with the use of MIS out of a total of 84 cases. Trans-thoracic esophagectomy (TTE) was done using VATS in 25 cases (62.5%). The mean duration of ICU stay was 2days and mean duration of hospital stay was 12days. The mean post-operative pain score was 2. The number of surgeries done by MIS for colorectal cancers was 17(44.7%) out of a total of 38 cases. This included 3 lap right hemicolectomies, 9 Lap APR, 5 Lap LAR/ULAR. The mean ICU stay was 1day and the mean hospital stay was 11days. The mean pain score was 3. Also performed was one case of VATS left lung upper lobectomy, one case of VATS right lung metastasectomy, 2 cases of lap-assisted distal gastrectomy with D2 lymphadenectomy. Conclusion: The acceptance of MIS in our institute has produced favourable short term results which appear encouraging.

Keywords: Minimally invasive surgery

1. Introduction

The use of minimally invasive surgery (MIS) in oncology in certain cancers has been proven to be non-inferior to open procedures with superior short term outcomes in several randomized controlled trials¹. For example, MIS has been associated with less incisional pain and reduced need for opioids, shorter length of stay, as well as lower overall morbidity and improved quality of life².

2. Materials and Methods

A retrospective study of MIS done for cancers of esophagus, lung, colorectal cancers and gastric cancers was done for the study period 1st Jan 2018 to 31st Dec 2019. Simple statistical tools were used for analysis.

3. Results

A total of 46 (54.7%) procedures were done with the use of MIS out of a total of 84 patients. Trans-thoracic esophagectomy (TTE) was done using VATS in 25 patients (62.5%) and the remaining were done using open right lateral thoracotomy 4 patients (10%) and trans-hiatal approach (THE) 11 patients (27.5%). Conversion to a thoracotomy was needed in 3 cases (12.5%). The indications were uncontrolled bleeding in two patients and a left bronchial injury in one patient. Anastomotic leak was noted in 3 patients (12.5%). A similar incidence (12.5%) of hoarseness of voice due to recurrent laryngeal nerve palsy was noted and it was transient in all instances. The median duration of ICU stay was 2 days (range was 1-4days) and median duration of hospital stay was 12 days (range was 11-23days). The median post-operative pain score was 2 (range was 1-4).



Figure 1: Showing thoracoscopic mobilization of the esophagus (VATS TTE)

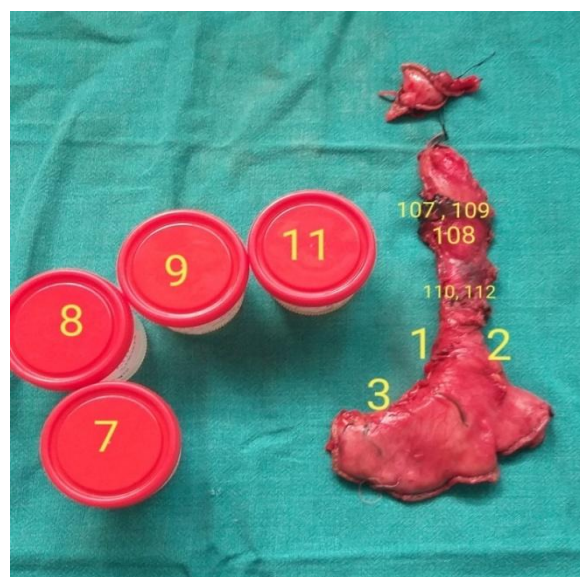


Figure 2: Specimen of esophagectomy

The number of surgeries done by MIS for colorectal cancers was 17 (44.7%) out of a total of 38 patients. This included 3 laparoscopic right hemicolectomies, 9 laparoscopic abdomino-perineal resections (APR), 5 laparoscopic low or ultra-low anterior resections (LAR/ULAR). The conversion rate to open procedure was 11.4%. The median ICU stay was 1 day (range was 1-3days) and the median hospital stay was 11days (range was 7-26days). These numbers compared favourably against the open surgery patients, where median values were 2 days (range 1-5days) and 14 days (range 8-31days) respectively. The incidences of surgical site infections (SSIs) were higher in the open surgery patients (3 vs 1). The median pain score was 3 in MIS patients and 6 in open surgery patients.

There was one patient who underwent VATS left lung upper lobectomy, one patient of VATS right lung metastasectomy and 2 patients with laparoscopic-assisted distal gastrectomy with D2 lymphadenectomy.

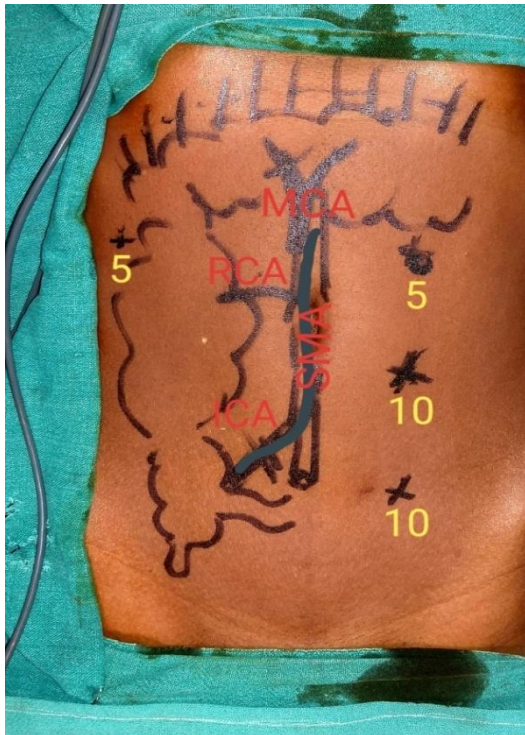


Figure 3: Surface marking of port placement for right hemicolectomy



Figure 5: VATS left lung upper lobectomy



Figure 4: Laparoscopic right hemicolectomy

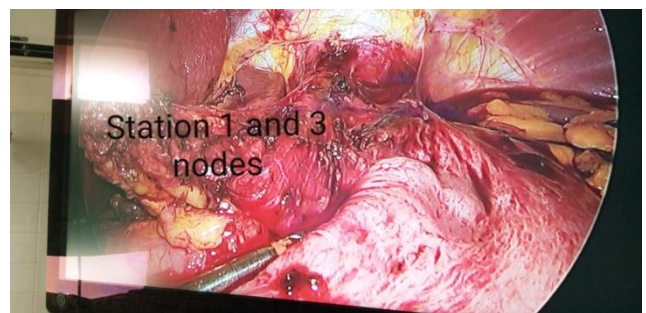


Figure 6: Nodal dissection in laparoscopic-assisted distal gastrectomy

The numbers of MIS surgeries increased in the year 2019 compared to 2018 (Tables1, 2, 3). There was an increase of 56% in MIS approach in esophageal cancer and 38% in colorectal cancer resections (Table 4).

Table 1: Showing the number of surgeries for esophageal cancer

Esophagectomy	2018	2019
Open TTE	14	04
THE	09	11
VATS TTE	02	25

Table 2: Showing the number of surgeries for colorectal cancer

Colorectal Surgery	2018	2019
Open APR	09	07
Open LAR	09	12
LAP APR	02	09
LAP LAR/ ULAR	01	07
LAP HEMICOLECTOMY	00	03

Table 3: Showing the number of surgeries for other cancers

Other Lap Cases	2018	2019
LAP Distal Radical Gastrectomy	00	02
VATS Metastasectomy	00	01
VATS Left Lung Upper Lobectomy	00	01

Table 4: Showing the percentages of surgeries done by MIS approach, year-wise

	2018	2019
Thoracoscopic Surgery	08%	64%
Laparoscopic Colorectal Surgery	14%	52%

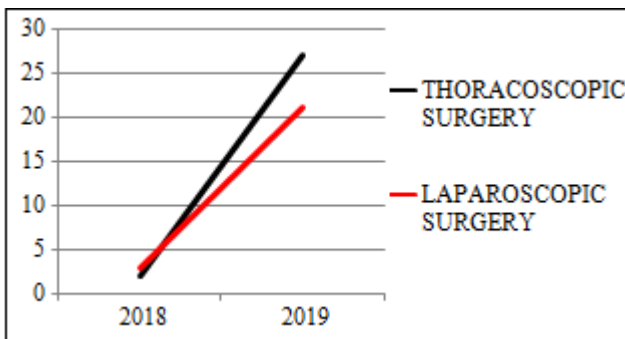


Figure: Showing the increasing trend of use of MIS in surgery at our institute, year-wise.

4. Discussion

Minimally invasive surgery (MIS) refers to surgical procedures that limit the size of surgical incisions needed so that the blood loss, wound healing time, associated pain and scarring, hospitalization time, risk of infection, and postsurgical complications are usually less.

Surgery has long been thought of as a “stressor” with associated immunomodulation and possibly derivative effects on cancer progression. Many hypotheses exist regarding the immunologic response to surgery and whether a less “stressful” MIS might result in better oncologic outcomes³.

Neoplasms such as early gastric cancer, colo-rectal cancer, and esophageal cancer are now preferentially approached with minimally invasive surgery with decreased pain, lower wound infection rates, better postoperative pulmonary function, and shorter recovery time compared with traditional laparotomy. Robust studies showed that minimally invasive techniques could provide equivalent outcomes compared with traditional open approaches in many cases^{4,5,6,7,8}. At our institute, we have incorporated MIS techniques into our surgical practice, as per oncologic indications, in a very steadfast manner, for the last two years, as reflected in the data presented herein. Our experience is still very early and evolving, as we learn more

and we hope to report a much bigger dataset in years to come.

We do not have a robot in our institute and our MIS experience is limited to laparoscopic approaches only.

5. Conclusion

The use of MIS in our institute has produced favourable short term results which is very encouraging.

6. References

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