



CLINICAL AUDIT OF MINIMALLY ACCESS CANCER SURGERIES AND CONVERSION TO OPEN PROCEDURES IN A TERTIARY CARE CANCER CENTRE

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ABSTRACT

Abstract: An audit of minimally invasive surgeries in cancer patient is necessary to provide insight into its feasibility.
Aim: To conduct audit of minimally access surgeries in cancer patients in a tertiary care cancer centre.

Methods: A audit of minimally access cancer surgeries was performed in Regional Cancer Centre, Thiruvananthapuram between January 2016 and December 2018 with special emphasis on conversion to open surgery.

Results: 189 patients underwent minimally access surgeries. 70 (37.04%) were colorectal , 16 (8.47%) were upper gastrointestinal , 17(9%) were gynaecological oncology , 39 (20.64%)were bipsosies , 12 (6.34%) were uro-oncology , 32 (16.93%) were surgeries for esophageal or esophagogastric junction cancers and 3 (1.58%) cases were miscellaneous. 12 cases were converted to open, most due to Rate of conversion was lesser in the latter half of the study period.

Conclusions: Minimally access is a feasible option for cancer surgery.

KEYWORDS :

INTRODUCTION

Clinical audit is one of the “keystones” of clinical governance. As rightly said by Sir Hugh Brendon Devlin “... Surgery without audit is like playing cricket without keeping a score”. Surgical audit helps to ensure high quality care with continual improvement in surgical techniques. Minimally invasive surgery is said to be associated with lesser trauma and quicker recovery in patients^{1,2}. The role of laparoscopic surgery for many non cancer surgeries has been extensively studied. The role of this approach for radical cancer surgeries is coming up over years with variability of its use amongst surgeons. Conversion to open surgery has been associated with poorer outcomes in patients. This may be related to learning curve and complexity in surgery related to patient factors or tumor itself^{3,4}. It is necessary to audit results of laparoscopic surgery and conversion rates for better patient outcomes Such an audit might further lead to enhancement of techniques of surgery and intra-operative care of patient. This attempt is of paramount importance to reduce treatment related morbidity in cancer patients.

AIM

To conduct audit of laparoscopic surgeries and their conversion to open procedures in a tertiary care centre

PERIOD OF AUDIT

January 2016 to December 2018

LOCATION

Department of Surgical Oncology, Regional Cancer Centre, Thiruvananthapuram

METHODOLOGY

All patients who were planned for elective minimally access surgeries in Regional cancer centre, Thiruvananthapuram between 1st of January 2016 up to 31st of December 2018 were included in the audit. Minimally access surgeries included laparoscopic surgeries, Thoracoscopic surgeries, both laparoscopic as and thoracoscopic surgeries, diagnostic laparoscopies and diagnostic thoracoscopies. Diagnostic laparoscopy and diagnostic thoracoscopy were defined as laparoscopy or thoracoscopy done before initiation of definitive treatment (surgery or neo-adjuvant therapy before surgery) in order to rule out features of frank inoperability.

For patients who underwent surgery for esophageal or esophagogastric junction cancers – a. total minimal access surgery was defined as surgery where esophageal mobilisation was done thoracoscopically, stomach was mobilised laparoscopically and then a small midline vertical incision was made over abdomen to deliver the specimen and make gastric conduit, b. a hybrid procedure was the one in which esophagus was mobilised thoracoscopically and a laparotomy was done to mobilise and make the conduit.

A note was made of all the cases which were planned for definitive surgery using minimal access, but were converted to open surgery. An attempt was made to identify the reasons for conversion. A comparison was made with rates of conversion to open surgery in literature.

RESULTS

A total of 228 patients underwent minimally invasive intervention in the study period, of which 35 (15.36%) underwent diagnostic laparoscopy and 4 (1.75%) patients underwent diagnostic thoracoscopy and 189(82.89%) patients were taken up for definitive surgery using minimal access approach.

Of the 189 minimally access surgeries, 70 (37.04%) were colorectal surgeries, 16 (8.47%) were upper gastrointestinal surgeries, 17(9%) were gynaecological oncology surgeries, 39 (20.64%)were laparoscopic bipsosies , 12 (6.34%) were uro-oncology surgeries and 32 (16.93%) patients underwent surgeries for esophageal r esophagogastric junction cancers. 3 (1.58%) cases were classified under miscellaneous and included a patient who underwent laparoscopic anterior resection along with nephrectomy for synchronous primaries and 2 patients who underwent laparoscopic anterior resection for rectal cancer with total abdominal hysterectomy for uterine fibroid in the same setting.

Of the 32 patients who underwent minimally access surgery for esophageal and esophagogastric junction tumors, 22 (68.75%) patients underwent a total minimally access procedure, 5(15.63%) patients underwent a hybrid procedure, 3 (9.38%)patient underwent laparoscopic assisted transhiatal esophagectomy, 1(3.12%) patient underwent laparoscopic assisted superior polar gastrectomy and 1 (3.12%)patient who was found to be inoperable during thoracoscopic mobilisation and developed large esophageal perforation during balloon dilatation for stenting, underwent retrosternal bypass procedure.

A total of 12 out of 189 (6.35%) surgeries were converted to open, of which 7 (58.34%) were colorectal, 3 (25%) upper gastrointestinal, 1 (8.33%) biopsy and 1 uro-oncology surgery (8.33%).

Reasons for conversion to open surgery were sought for under specific headings . 8 (66.67%) cases were converted to open disease in view of technical difficulty, 1(8.33%) patient had bleeding from a major vessel, 1 (8.33%) patient had inadvertent adjacent organ injury and the 2 patients (16.67%) could not tolerate pneumoperitoneum.

In 2016, 8 out of 59 (13.56%) cases were converted to open surgery. However in the next 2 years, only 4 out of 130 cases (3.08%) were converted to open surgery

Reason for conversion	n(%)	Surgery	Specific details
Bleeding with no major vessel injury	0		
Bleeding major vessel	1 (8.33)	Uro-oncology	Nephrectomy- 2nd renal artery injury
Adjacent organ injury	1 (8.33%)	Colorectal	clipping L ureter
Technical difficulty (pre-existing adhesions, loaded bowel, partially obstructed bowel, etc)	8 (66.67%)	Colorectal-4 Upper gastrointestinal- 3 Biopsy-1	Colorectal 1. loss of plane with uterus 2. colovesical fistula and ileal loop stuck 3. tumor adherent to left ureter 4. Pre existing adhesions Upper Gastrointestinal 1. Bulky growth at oesophagogastric junction 2. Difficult tumor localisation 3. Obesity Biopsy 1. Paraaortic node close to DJ flexure
Patient could not tolerate pneumoperitoneum	2 (16.67%)	Colorectal -2	

DISCUSSION:

This audit showed that of minimally access surgery was used successfully for a most of the major cancers, most commonly for colorectal cancers. The conversion rate was found to be similar to that described in literature for oncological surgeries, which ranges from 6.6-30%^{5,6,7}. The fact that conversion rates were more during initial period of audit and dropped markedly during the later 2 years suggests role of learning curve, and probable better patient selection for minimally invasive surgeries. None of the patients who underwent minimally invasive surgeries for esophageal cancer had to be converted to open procedure. However 15.63% patients underwent planned hybrid procedure. Most studies in literature reporting conversion to open surgery in esophageal and esophagogastrectomy cancers report a rate of around 25%. The threshold and definition of conversion differ across studies and most studies do not consider

planned hybrid procedures separately^{8,9,10}. However lower rates of conversion in esophageal cancer especially during thoroscopic phase may be attributable to esophagus being a relatively fixed organ, less anatomical variability in thorax, better patient selection, less space constrains in thoroscopic surgeries compared to thorcotomy and magnification.

Overall this audit gives us an insight into the feasibility of doing major cancer surgeries using minimally access surgery.

CONCLUSION:

This clinical audit of laparoscopic surgeries and their conversion rate shows that there is an acceptable rate of conversion of minimally access to open surgeries and is a feasible option in a tertiary care centres in developing countries.

Jan 2017- dec 2018

1.Diagnostic lap: 16 +14

2.Laparoscopic surgery: 95 + 59

SRN			2016	Result Total CASES	Result total DL
1	Colorectal	41	29	70	
2	Upper GI	5 12 DL Total- 17	11 10 DL Total : 21	16	22
3	Pancreas	1 (dianostic lap)	0		1
4	Gynec onco	9	8 3 DL Total : 11	17	3
5	Lap biopsies	33	6	39	
6	Uro onco	7	5 1 DL	12	1
7	Others Lap rectum with nephrectomy -1 Rectum with TAH + BSO - 2	3		3	
	Total	111	73	157	27
	Esophagus				
	Minimally invasive	20	2	22	
	Hybrid	4	1	5	
	Lap THE	1	2	3	
	Lap superior polar	1		1	
	Diagnostic lap	7	1	8	7
	Diagnostic thoracoscopy	3	1	4	4
	Substernal bypass	1		1	
	Total	37	7	44	2

Reasons for conversion

Reason for conversion	N(%)	Surgery	Specific details
Bleeding with no major vessel injury	0		
Bleeding major vessel	1	Uro-oncology	Nephrectomy- 2nd renal artery injury
Adjacent organ injury	1	Colorectal	clipping L ureter
Technical difficulty	6 ()	Colorectal-3 Upper gastrointestinal- 2 Biopsy-1	Colorectal 1. loss of plane with uterus 2. colovesical fistula and ileal loop stuck 3. tumor adherent to L ureter Upper Gastrointestinal 1. Bulky growth at oesophagogastric junction 2. Difficult tumor localisation

			Biopsy 1. Paraaortic node close to DJ flexure
Patient could not tolerate pneumoperitoneum	2	Colorectal – 1 abandoned 1 done by open	
Others (adhesions)	3		
Esophagus	1	Inoperable- retrosternal bypass done by open technique	

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