A Study of Relaparotomies in Department of General Surgery in a Tertiary **Care Centre**

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Abstract:

Problem: Relaparotomy is a potentially serious adverse postoperative complication requiring urgent or planned reintervention within 60 days of primary abdominal surgery. It not only carries significant morbidities such as wound sepsis, dehiscence, delayed recovery in the immediate post operative period and recurrent adhesive intestinal obstruction, incisional hernia and wound scar as long-term complications, even it can also lead to mortality due to septicemia and MODS. Hence, a planned decision should be made at right time by the operating surgeon to prevent complications. This study is aimed to identify the incidence, indications, type of primary surgery, risk factors and outcome of relaparotomies carried out in a tertiary care center at specified period to provide new insights &working guidelines regarding relaparotomy management to fellow surgeons. Approach: This is a retrospective observational study conducted in department of general surgery during the period of one year from May 2021 to April 2022 by verifying the operative register, case sheets, inpatient register, death register &nominal register to collect data in a pre-validated format regarding laparotomies, indications and demographic features of patients along with details of re-laparotomies, type of primary surgery, day of reintervention & mortality. Data were analyzed using microsoft excel and SPSS software to calculate results. Findings: In this study of above chosen period, total number of laparotomies performed for general surgical indication were 275. Re-laparotomies performed within this institution in the above chosen period for patients at the same period of hospitalization for primary surgery were 14. Incidence of relaparotomy in this study was 5.09%. Gender wise, 13 male patients and 1 female patient underwent relaparotomy. Majority of them were in 61–70-year age group as observed in 6 out of 14 relaparotomies with median age affected was 59. Re-operations performed after 7 days were 8out of 14(56.8%). Mean time interval for relaparotomy in this study was 7.71±3.13days. Major indication for relaparotomy was burst abdomen in 7 out of 14 patients (50%). Mortality rate for relaparotomy in this study was 28.5% as 4 out of 14 re-operated patients were expired and all 4 of them were re-operated after 4 days. Most common cause of mortality was septicemia (50%). Conclusion: Relaparotomy is a critical postoperative complication. Hence a carefully planned decision must be taken by the operated surgeon at right time to prevent any catastrophic event.

Keywords: Relaparotomy incidence, Redo Surgery, Outcome of laparotomies and re-laparotomies

I Introduction

Relaparotomy is a potentially serious post operative event requiring urgent or planned re-intervention within 60 days of primary abdominal surgery due to its complication. Incidence of relaparotomy range from 0.5 to 15% in various studies. Mortality after relaparotomy ranges from 24 to 71%. Factors associated with high mortality are old age, peritonitis and sepsis at presentation for primary surgery and immuno compromised patients. This retrospective study was aimed to study incidence and risk factors of relaparotomy in department of general surgery in Government Thiruvarur medical college during the period between May 2021 to April 2022.

Aims and objectives:

Primary objective of this study is to identify the incidence, indications, risk factors and outcome of relaparotomies.

Secondary objective of this study is to provide new insights and guidelines for management of relaparotomy to fellow surgeons to prevent complications arising out of this scenario in future.

Iimaterials and Methods

This study was conducted in department of general surgery at Government Thiruvarur medical college taking data about details of laparotomies and relaparotomies. All patients irrespective of age and gender who underwent re-exploration of the abdomen within the same period of hospitalization for primary surgery were included in this study.

Study design: Retrospective observational study

Study location: Department of General Surgery at Government Thiruvarur Medical College, Thiruvarur,

Tamilnadu India

Study Period: May 2021 to April 2022

Selection of study subjects:

Inclusion criteria for laparotomies: for study purpose, all general surgical procedures including emergency and elective carried out accessing peritoneum via midline were considered as laparotomies.

Inclusion criteria for relaparotomies— all general surgical procedures where abdomen is re-explored within the same period of hospitalization for primary surgery due to its complication, irrespective of age and gender of the patient were consider as relaparotomies.

Exclusion criteria for laparotomies: following procedures were excluded

- 1. All laparoscopic procedures.
- 2. All elective and emergency procedures accessing peritoneum via lateral incision appendectomy, Ileostomy/colostomy, psoas abscess drainage and inguinal hernia repair.
- 3. All patients of suspected or confirmed active covid disease.
- 4. All procedures for incisional hernia.
- 5. All obstetric / gynaecological procedures.

Exclusion criteria for relaparotomies

- 1. All obstetric and gynaec procedures post LSCS, post hysterectomy re-explorations.
- 2. All relaparotomies performed where primary surgery which was conducted outside this institution.
- 3. All elective procedures for stoma closure

Method of data collection:

Operative register, inpatient register, case sheets and death register were verified to collect data regarding patients age, gender, preoperative diagnosis, operative finding, indication for relaparotomy and outcome in terms of morbidity and mortality in a prevalidated format.

Study Procedure Methodology:

After defining inclusion criteria and exclusion criteria for both laparotomies as well as re-laparotomies, sociodemographic, clinical, operative details and outcome for each selected patient who satisfied the defined selection criteria were collected using the above sources of hospital records in a format. Study protocol

submitted to Institutional ethics committee and approval obtained. Informed consent was taken from all patients. Then, proceeded with analyzing the data by which results were calculated.

Statistical analysis:

SPSS software and Microsoft excel were used to analyze data for above clinical information to calculate results in the form of incidence, frequency of age and gender distribution, mean time interval for re-laparotomy, mean duration of hospital stay, mortality and most common cause for mortality.

III Results

After performing a detailed study of the collected data, following results were arrived.

Total number of laparotomies performed for the chosen period - 275 Total number of re-laparotomies performed for this chosen period - 14

Incidence of re-laparotomies in this study - 5.09% (14 /275) Gender distribution of relaparotomies - 13 males and 1 female

Most common age group involved in re-laparotomies -61 to 70 years (6 / 14 patients, 42.8%)

Median age involved in relaparotomies in this study

Most of the re-laparotomies were performed after 7 days - 56.8% (8 / 14 patients)

Mean time interval for re-laparotomies - 7.71± 3.13 days

Most common indication for re-laparotomy Burst abdomen (7/14 patients, 50%)

Mortality rate for re-laparotomy in this study 28.5% (4 / 14)

Most common cause of mortality after re-laparotomy -Septicemia (2/4 re-operated,50%)

Mean duration of hospital stay for recovery after re-laparotomy - 22.86±6.87 day

Table 1: Month wise details of laparotomies and re-laparotomies

Total relaparotomies = 14

Total laparotomies = Elective (42) + Emergency (233) +OG, Covid and Lap (6+7=13) = 288

After exclusion = 288-13 = 275Incidence = 14/275 = 5.09%

Month	Elective Laparotomies	Emergency Laparotomies	Re-laparotomies	Laparotomies for covid disease	OG Laparotomies/ Laparoscopy
May 2021	0	6	0	1	0
June 2021	0	21	0	2	0
July 2021	2	18	0	1	0
Aug 2021	3	18	0	1	0
Sep 2021	4	21	2	1	0
Oct 2021	7	23	2	0	1
Nov 2021	6	25	2	0	1
Dec 2021	7	31	3	0	2 OG and 1 Lap
Jan 2022	3	20	3	0	0
Feb 2022	3	21	0	0	2
Mar 2022	5	15	1	0	0
Apr 2022	2	14	1	0	0
May 2021 - Apr 2022	42	233	14	6	7

Table 2: List of demographics, clinical and operative details of laparotomies and relaparotomies

						Emergenc
	Age/	Admitte				y/elective
S.no	sex	d date	Ip no	Diagnosis	Procedure	
			211732	Intestinal	Ileosigmoid knotting-Resection anastamosis	Emergenc
1.	60 M	2/5/21	5	obstruction	double barrel ileostomy	у
			211777	Intestinal		Emergenc
2.	58 M	3/5/21	0	obstruction	Laparotomy -Adhesive band release (Covid)	у
			211947			Emergenc
3.	62 M	10/5/21	3	Gastric Perforation	Laparotomy -Primary closure	у
			212003		Perineal &rectal tear -laparotomy, primary repair	Emergenc
4.	42 M	12/5/21	0	Fall from height	diversion colostomy	у
			212244			Emergenc
5.	65M	24/5/21	3	Gastric Perforation	Laparotomy-primary closure	у
			212381	Intestinal		Emergenc
6.	72F	30/521	5	obstruction	Laparotomy- Ileal band adhesion- adhesiolysis	у
			212394		Meckels diverticulum-Ileal loop obstruction-	Emergenc
7.	52M	31/5/21	7	Acute Appendicitis	Appendectomy -resection anastomosis	у
			212508	Ventral hernia	Ileal perforation-resection ileotransverse	Emergenc
8.	75F	7/6/21	9	obstructed	anastomosis	у

			212518	Blunt injury		Emergenc
9.	35 M	11/621	2	abdomen	Ileal perforation-primary closure	y
			212564		Multiple ileal perforation- laparotomy, resection	Emergenc
10.	30M	11/6/21	9	Stab abdomen	double barrel ileostomy	у
			212570		, and the second	Emergenc
11.	25M	11/6/21	3	Stab abdomen	Laparotomy-mesenteric tear repair	y
			212574	RTA Blunt injury		Emergenc
12.	54 M	12/6/21	1	abdomen	Ileal Perforation- laparotomy primary closure	у
			212572	Gangrenous	Laparotomy-cholecystectomy corads4RTPCR	Emergenc
13.	65 F	12/6/21	5	cholecystitis	Negative	у
			212577			Emergenc
14.	25M	13/6/21	2	Stab abdomen	Bowel eviscerisation- laparotomy lavage	у
			212621	Gangrenous	1 7 5	Emergenc
15.	60F	15/6/21	3	cholecystitis	Laparotomy-subtotal cholecystectomy	y
			212624	CA Rectum		Emergenc
16.	40M	16/6/21	8	Obstructed	Laparotomy- diversion transverse loop colostomy	у
				RTA -		Emergenc
			212634	Diaphragmatic		y
17.	28M	17/6/21	9	hernia	Laparotomy-mesh repair B/L ICD	
			212653	Blunt injury	The state of the s	Emergenc
18.	40M	18/6/21	9	abdomen	Laparotomy-omental tear repair	у
			212657	Appendicular		Emergenc
19.	35M	18/6/21	0	perforation	Laparotomy-appendectomy	y
	00111	10, 0, 21	212662	Blunt injury		Emergenc
20.	50M	19/6/21	8	abdomen	Gr3 liver injury-laparotomy lavage	y
	001.1	177 07 21	212675	wo women	ere myery repersonsy revege	Emergenc
21.	65M	20/6/21	6	Gastric Perforation	Laparotomy- Graham patch closure	y
			212709	Duodenal		Emergenc
22.	48M	22/6/21	3	perforation	Laparotomy-Graham patch	y
		_	212707	F	Transfer year and Paris	Emergenc
23.	38M	22/6/21	4	Stab abdomen	Liver laceration-laparotomy primary suturing	у
		-	212712	Blunt injury	Meckels diverticulum ileal gangrene- laparotomy	Emergenc
24.	16M	23/6/21	5	abdomen	resection anastomosis Corads 2	y
			212723	-	Meckels diverticulum-ileal gangrene resection	Emergenc
25.	34M	24/6/21	8	SBO-Closed loop	anastomosis	у
			212733	r		Emergenc
26.	60M	24/6/21	4	Ileal perforation	Laparotomy-primary closure	y
			212740	Ruptured liver	1 31 3 3 3 3 3 3 3 3 3 3	Emergenc
27.	50M	27/6/21	0	abscess	Laparotomy-peritoneal lavage	у
			212748		1 710-	Emergenc
28.	60M	29/6/21	8	Gastric Perforation	Laparotomy-primary closure	y
			212702	CA Stomach	1 31 3 3 3 3 3 3 3 3 3 3	Emergenc
29.	45M	29/6/21	7	Advanced	Laparotomy- feeding jejunostomy	y
			212815	Bull gore injury	1 000 0	Emergenc
30.	13M	30/6/21	2	Abdomen	Eviscerisation-laparotomy retrieval and closure	y
31.	60M	2/7/21	212837	Ruptured liver	Laparotomy-lavage	Emergenc
	001,1	1			=-r	

			1	abscess		у
			212838	Ruptured liver		Emergenc
32.	60M	2/7/21	3	abscess	Laparotomy-lavage	у
			212904	Blunt injury	Mesenteric injury-laparotomy ligation of ileocecal	Emergenc
33.	42M	7/7/21	6	abdomen	artery	y
	12111	77.77.21	212913			Emergenc
34.	50M	8/721	1	Acute cholecystitis	Choledocholithiasis-open cholecystectomy	y
51.	50111	07 721	212933	Ticate choiceystilis	choledochontmasis open cholecysteetomy	Emergenc
35.	35M	9/7/21	0	Stab abdomen	Ileal perforation-laparotomy Primary closure	y
55.	55111	77 77 21	212948	otab abdomen	incur perioration raparotomy rimary crosure	Emergenc
36.	42M	10/7/21	3	Stab abdomen	Ileal perforation-laparotomy Primary closure	y
- 50.	12111	10/ // 21	212953	otab abdomen	incur perioration raparotomy rimary closure	Emergenc
37.	47M	10/7/21	4	Stab abdomen	Mesenteric injury-laparotomy repair	y
37.	4/1/1	10/ // 21	212946	Intestinal	Laparotomy- adhesive band release-	Emergenc
38.	70M	10/721	4	obstruction	Appendectomy	
50.	70101	10/ /21	212945	Obstruction	Appendectomy	y Emergenc
39.	65M	11/721	3	Carectum obstructed	Laparotomy -Hartmann procedure	_
37.	03101	11/ /21	212978	Carectum obstructed	Laparotomy -fraitmann procedure	y Emergenc
40.	40M	12/7/21	1	Gastric Perforation	I aparatamy propyloria perforation alegura	
40.	40101	12/ //21	212870	Gastric Perioration	Laparotomy-prepyloric perforation closure	У
41.	40M	14/7/21		Stab abdomen	I aparatamy gastria perforation primary decurs	Emergenc
41.	40101	14/ // 21	0		Laparotomy-gastric perforation primary closure	У
42	401/4	15/7/21	213014	Post roux enY JJ	T an anot anno maine and all around	Emergenc
42.	40M	15/7/21	212002	leak	Laparotomy primary closure	У
42	5 4 N 4	20 /7 /21	213083	C4-11- 1	T	Emergenc
43.	54M	20/7/21	0	Stab abdomen	Laparotomy-gastric perforation primary closure	У
11	(OM (21 /7 /21	213212	Ascending colon	Laparotomy-Rt hemicolectomy ileotransverse	Emergenc
44.	60M	21/7/21	3	malignancy	anastomosis	У
45	(5) (21 /7 /21	213432	Cartuia Daufauatian	T	Emergenc
45.	65M	21/7/21	1	Gastric Perforation	Laparotomy-primary closure	у
16	403.4	22 /7 /21	212945	OA -4	C-14-4-144	Elective
46.	40M	23/7/21	2	CA stomach	Subtotal gastrectomy	T
47	403.6	00 /7 /01	213101	Duodenal		Emergenc
47.	40M	22/7/21	7	perforation	Laparotomy-primary closure	у
40	60 5	02 /7 /01	213041	Retroperitoneal		Emergenc
48.	60F	23/7/21	6	mass	Exploratory laparotomy biopsy Covid	у
40	503.5	20 (5 (21	212889			Elective
49.	50M	30/7/21	5	CA stomach	Subtotal gastrectomy	_
		20 (5 (2)	213171	Intestinal		Emergenc
50.	56M	29/7/21	0	obstruction	Laparotomy-cecal band release	y
			213219	Duodenal	. ,	Emergenc
51.	68M	31/7/21	4	perforation	Laparotomy-primary closure	y
			213252	Blunt injury		Emergenc
52.	35M	2/8/21	1	abdomen	Laparotomy-jejunal perforation Primary closure	у
			213280	Duodenal		Emergenc
	62M	3/8/21	3	perforation	Laparotomy-primary closure	у
54.	17M	4/8/21	213293	Duodenal	Laparotomy-primary closure	Emergenc

			0	perforation		у
			213306			Emergenc
55.	65M	5/8/21	2	Gastric Perforation	Laparotomy-primary closure	y
			213304	Appendicular		Emergenc
56.	17M	5/8/21	1	perforation	Laparotomy-appendectomy	y
			210099	SAIO-Adeno CA		Emergenc
57.	55M	6/8/21	4	Jejunum	Laparotomy-feeding jejunostomy	у
			213316	Duodenal		Emergenc
58.	32M	6/8/21	3	perforation	Laparotomy-primary closure	y
			213348	Appendicular		Emergenc
59.	14M	7/8/21	2	perforation	Laparotomy-primary closure	y
			213347		Laparotomy-jejunal gangrene Resection	Emergenc
60.	42M	8/8/21	9	SBO	anastamosis	y
			213363	Duodenal		Emergenc
61.	30M	8/8/21	0	perforation	Laparotomy-primary closure	y
			213447			Emergenc
62.	35M	14/8/21	4	Gastric Perforation	Laparotomy-pyloric perforation primary closure	у
			213335	Ascending colon	Laparotomy-Rt hemicolectomy ileotransverse	Emergenc
63.	38F	14/8/21	7	growth obstruction	anastomosis	y
			213344		Laparotomy-Transverse colon perforation	Emergenc
64.	33M	14/8/21	7	Stab abdomen	primary closure	y
			213287			Elective
65.	55F	16/8/21	0	CA Stomach	Laparotomy- gastrectomy GJ	
			213212			Elective
66.	60F	16/8/21	2	Cholecystitis	Laparotomy-cholecystectomy CBD Exploration	
			213487	Duodenal		Emergenc
67.	27M	16/8/21	3	perforation	Laparotomy-primary closure	y
	253.6	10 (0 (01	213515	Blunt injury		Emergenc
68.	35M	18/8/21	9	abdomen	Laparotomy-mesenteric tear repair	у
(0)	453.6	10 (0 (01	213514	CDO M. 1	Laparotomy-ileal resection anastamosis loop	Emergenc
69.	45M	19/8/21	7	SBO Malrotation	ileostomy	у
70	213.6	22 /0 /21	213301	Doct :100ct	Tanagatama, ilaastama, slaasta	Elective
/0.	21M	23/8/21	7	Post ileostomy	Laparotomy-ileostomy closure	E
71.	53M	27/8/21	213613	Small bowel	Laparotomy-SMA occlusion Segmental resection double barrel ostomy (COVID)	Emergenc
/1.	33101	21/0/21	213667	gangrene Rectosigmoid	double variet ostolliy (COVID)	y Emergenc
72.	64F	29/8/21	1	perforation	Laparotomy-Hartmann procedure	_
12.	041	29/ 0/ 21	213883	Ruptured liver	Laparotomy-traitmann procedure	y Emergenc
73.	40F	30/8/21	6	abscess	Laparotomy- lavage & drainage	_
75.	401	307 67 21	213474	Incisional hernia	Laparotomy- lavage & dramage	y Elective
74.	70F	2/9/21	0	CBD stone	Cholecystectomy-CBD Exploration Mesh repair	Elective
/4.	701	2/ // 21	213711	Duodenal	Choiceystectomy-CDD Exploration west repair	Emergenc
75.	55M	2/9/21	5	perforation	Laparotomy-primary closure	_
13.	22141	217121	213721	Perioration	Euparotomy primary closure	y Emergenc
76.	20M	2/9/21	6	Gastric Perforation	Laparotomy-primary closure	_
70.	201VI	2/ // 21		Gastric I crioration	Daparotomy-primary closure	y

			213514			Elective
77.	65M	3/9/21	4	CA Stomach	AGJ FJ	Licetive
			213610	Ileal band		Emergenc
78.	40F	2/9/21	0	obstruction	Laparotomy- band release	у
			213649			Emergenc
79.	64M	3/9/21	2	LBO	Laparotomy-band release	y
			213721		Laparotomy-appendicular &ileal perforation-	Emergenc
80.	50 F	4/9/21	1	SBO	appendectomy, resection end ileostomy	у
			213769			Emergenc
81.	70M	4/9/21	6	Gastric Perforation	Laparotomy-primary closure	y
	7		213773	Duodenal		Emergenc
82.	20M	6/9/21	9	perforation	Laparotomy- primary closure	
02.	20101	0/ // 21	213833	perioration	Laparotomy-primary closure	y Emergenc
83.	19M	8/9/21		Ilaal narfaration	Languatemy, respection anastemosis	
03.	19101	6/9/21	8 213841	Ileal perforation	Laparotomy-resection anastomosis	У
0.4	(0) (0 (0 (21			I COMP	Emergenc
84.	60M	9/9/21	0	Gastric Perforation	Laparotomy-primary closure COVID	у
			213601			Elective
85.	49F	13/9/21	6	Choledocholithiasis	Cholecystectomy-CBD Exploration	
			213376	Blunt injury		Emergenc
86.	14M	11/9/21	6	abdomen	Laparotomy-bladder& urethral injury Open SPC	у
			213377	GB Perforation	Laparotomy-subtotal cholecystectomy	Emergenc
87.	56M	12/9/21	9	Incisional hernia	adhesiolysis mesh repair	у
			213744	Rectosigmoid		Emergenc
88.	56M	12/9/21	2	obstruction	Laparotomy- resection and Colostomy	у
			213748		Transverse colon & jejunal perf - resection	Emergenc
89.	20M	13/9/21	2	Stab abdomen	anastomosis and jejunal closure	y
			213749			Elective
90.	60M	15/9/21	6	CA Stomach	Laparotomy- Gastrectomy GJ	
			213766	LBO - Transverse		Emergenc
91.	74M	16/9/21	7	Colon	Laparotomy - resection Anastomosis	y
			213928		of the state of th	Elective
92.	72M	20/9/21	1	CA Stomach	Laparotomy - Gastrectomy	21001110
,2.	72111	20/ // 21	213833	Crrotomach	Post Laparotomy for ileal perforation -	Emergenc
93.	19M	20/9/21	8	Burst Abdomen	relaparotomy	y
93.	1 / 1 / 1	2019121	214051	Duodenal	Totaparotomy	Emergenc
94.	18M	21/9/21	7	perforation	Laparotomy - primary closure	
94.	101/1	21/7/21		perioration	Laparotomy - primary closure	У
O.F.	17N f	25/0/21	214130	Castria Danfa ti	I approtomy primary alegans	Emergenc
95.	47M	25/9/21	4	Gastric Perforation	Laparotomy - primary closure	У
0.4	(53.5	26 /0 /21	214132	Ruptured liver	T	Emergenc
96.	65M	26/9/21	5	abscess	Laparotomy - lavage drainage	У
			214146	Duodenal		Emergenc
97.	22M	26/9/21	6	perforation	Laparotomy - primary closure	y
			214165	Duodenal		Emergenc
98.	45M	27/9/21	6	perforation	Laparotomy - primary closure	y
			214121		Relaparotomy for ileal perforation- tube	Emergenc
99.	32F	30/9/21	3	Post op bile leak	ileostomy	у

			214225	CA Stomach		Emergenc
100	60 M	1/10/21	6	Perforated	Laparotomy-biopsy omental patch closure	y
			214255	Blunt injury	Splenic injury gr4-laparotomy Splenectomy	Emergenc
10	1	2/10/21	3	abdomen		y
			214262	Ascending Colon		Emergenc
102	85M	4/10/21	3	growth	Rt hemicolectomy ileotransverse anastomosis	y
			107431	Sigmoid colon	, and the second	Elective
103	80M	8/10/21	5	growth	Left hemicolectomy	
			214225	CA Stomach		Emergenc
104	60M	8/10/21	6	operated	Burst abdomen relaparotomy -mass closure	y
		11/10/2	214208	CA Ascending		Elective
10	64M	1	2	Colon	Right hemicolectomy	Licetive
10.	OHIVI	11/10/2	214396	Duodenal	right hemicolectomy	Emergenc
104	27M	1171072	0	perforation	Laparotomy-primary closure	
100	2/101	13/10/2	214421	Duodenal	Laparotomy-primary closure	y Emergenc
10'	1614				I amanatana Drimana alama	_
10'	46M	1 14/10/2	5	perforation 1eft	Laparotomy-Primary closure	У
100	205		214441	Ruptured left	Laparotomy-Lt partial salphingectomy	Emergenc
108	39F	1	9	pyosalphinx	appendectomy OG	у
		15/10/2	212253	Blunt injury		Emergenc
109	72M	1	4	abdomen	Laparotomy-mesenteric tear Ligation and lavage	у
		16/10/2	214468	Hepatic flexure		Emergenc
110	75M	1	0	obstruction	Rt hemicolectomy ileotransverse anastomosis	y
		16/10/2	214443	Obstructed	Laparotomy-ileal gangrene Resection anastomosis	Emergenc
11	47M	1	3	umbilical hernia	-anatomical repair	у
		18/10/2	214414	Rectosigmoid		Elective
112	70F	1	6	growth	Laparotomy-resection anastomosis	
		18/10/2	214242	Cholelithiasis CBD		Elective
113	68F	1	7	Stone	Cholecystectomy CBDE	
		18/10/2	214256	Obstructed		Emergenc
114	48F	1	1	Incisional hernia	Laparotomy-ileal gangrene Resection anastomosis	y
		22/10/2	214333			Elective
113	50M	1	3	CA Stomach	Gastrectomy-GJ	
		25/10/2	214627			Emergenc
114	65M	1	2	Gastric Perforation	Laparotomy-primary closure	y
110	05111	27/10/2	214612	Gustrie i erioration	Euparotomy primary closure	Elective
11'	48M	1	0	G00	Gastrectomy-GJ	LICCHIVE
11	401VI	26/10/2	214456	Duodenal	Gasticetomy-Gi	Emanaca
118	40F				I aparatamy primary docum	Emergenc
110	40F	1	8	perforation	Laparotomy-primary closure	у
	705	28/10/2	214357	Cholelithiasis CBD	CDDE	Elective
119	70F	1	1	Stone	CBDE	7
		27/10/2	214653	Duodenal		Emergenc
120	50M	1	2	perforation	Laparotomy-primary closure	у
		27/10/2	214639	Liver abscess		Emergenc
12	70M	1	7	rupture	Laparotomy-lavage	y
		27/10/2	214645			Emergenc
122	65M	1	8	Gastric Perforation	Laparotomy-primary closure	y

		28/10/2	214652	Appendicular		Emergenc
123	24F	1	2	perforation	Laparotomy-appendectomy	y
		28/10/2	214653	perioranion		Emergenc
124	65F	1	1	Gastric Perforation	Laparotomy-primary closure	y
12-	031	28/10/2	214663	Gustife i choration	Euparotomy primary closure	Emergenc
125	48M	1	214003	Gastric Perforation	Laparotomy-primary closure	
12.	40101	29/10/2	214627	Gastric i crioration	Laparotomy-primary closure	y Emergenc
126	65M	1	214627	Burst Abdomen	Delementary mass classes	_
120	03101	30/10/2	214696	Duodenal	Relaparotomy-mass closure	У
100	39M			perforation	T an anot anno mino any along a	Emergenc
127	39101	1	1	Duodenal	Laparotomy-primary closure	У
100	500	30/10/2	214705			Emergenc
128	56M	1	8	perforation	Laparotomy-primary closure	у
100	203.5	30/10/2	214410	Recurrent Incisional		Emergenc
129	30M	1	7	hernia	Laparotomy-anatomical repair	y
		31/10/2	214716	Posterior gastric		Emergenc
130	60M	1	9	Perforation	Laparotomy-primary closure	у
			214717	Penetration injury	Transverse mesocolon injury-laparotomy	Emergenc
131	29M	1/11/21	8	Abd	resection anastomosis- tube ileostomy	у
			214722	Duodenal		Emergenc
132	29M	1/11/21	1	perforation	Laparotomy-primary closure	y
			214726			Elective
133	55M	3/11/21	0	Intussusception	Laparotomy-resection anastomosis	
			214733			Emergenc
134	50F	2/11/21	0	Pericolic Abscess	Laparotomy drainage	y
			214788	Obstructed		Emergenc
135	50F	5/11/21	9	Incisional hernia	Ileal gangrene -resection anastomosis	y
			214749	RTA Blunt injury	Gastric, splenic, colonic &small bowel tear-	Emergenc
136	22M	3/11/21	8	abdomen	splenectomy primary closure	y
			214970	RTA Blunt injury	Splenic, colonic, small bowel injury-splenectomy	Emergenc
137	22M	3/11/21	1	abdomen	primary closure	у
			214862	Sigmoid		Emergenc
138	47M	4/11/21	3	diverticulitis	Laparotomy-abscess drainage loop ileostomy	у
			214862	0.27 0.23 0.23 0.23		Emergenc
139	40M	7/11/21	7	Gastric Perforation	Laparotomy-Graham patch	y
10,	101/1	77 117 21	214972	Duodenal	Euparotomy Granam paten	Emergenc
140	56M	7/11/21	4	perforation	Laparotomy-primary closure	_
170	J01V1	10/11/2	214863	Duodenal	Laparotomy-primary closure	y Emergenc
141	48M	10/11/2	6	perforation	Laparotomy-primary closure	_
14.	401VI	11/11/2	214973	perioration	Laparotomy-primary closure	У
1 44	453.6			Cartuia Danfanatian	T	Emergenc
142	45M	12/11/2	3	Gastric Perforation	Laparotomy-primary closure	У
1	573.5	12/11/2	214864	0.1 1	0.1	Emergenc
143	57M	1	1	Splenic abscess	Splenectomy	у
	107 -	14/11/2	214943	Appendicular		Emergenc
144	40M	1	4	perforation	Laparotomy-primary closure	у
		14/11/2	214914	Obstructed	Laparotomy-adhesiolysis, bowel repair	Emergenc
145	65F	1	5	Incisional hernia	anatomical repair	y

		16/11/2	214970			Emergenc
146	22M	1	1	Postop burst Abd	Relaparotomy-mass closure	y
		18/11/2	215021	Hepatic flexure	Laparotomy-Rt hemicolectomy ileotransverse	Emergenc
147	60M	1	8	obstruction	anastomosis	y
		20/11/2	215040		Laparotomy-Omental band release, resection	Emergenc
148	65M	1	7	LBO-Splenic flexure	anastomosis	y
		23/11/2	214905	F		Elective
149	46M	1	5	CA Stomach	Distal gastrectomy-D2 lymphadenectomy	21001110
		24/11/2	214823	Duodenal growth	g	Elective
150	58M	1	0	GOO	Laparotomy- GJ	21001110
		23/11/2	215046		Relaparotomy-Ascending colon leak-right	Emergenc
151	30M	1	4	Postop feculent leak	hemicolectomy ileotransverse anastomosis	y
131	30141	23/11/2	1	1 ostop reedient reak	nemicolectomy neotransverse anastomosis	Emergenc
153	73M	1	215007	Gastric Perforation	Laparotomy-primary closure	y
132	75141	25/11/2	214942	Gustife i choration	Euparotomy primary closure	Elective
153	35M	1	9	G00	TVGJ	Elective
15.	33141	24/11/2	215113	000	Small bowel& colonic gangrene-resection end	Emergenc
154	64F	1	3	Mesenteric ischemia	jejunostomy	
135	041	24/11/2	215103	Wiesemene isenemia	Jejunostomy	y Emergenc
154	22M	1	1	Gastric Perforation	Laparotomy-primary closure	_
13.	22101	24/11/2	215101	Sealed duodenal	Laparotomy-primary closure	y Emergenc
154	80F	1	0	Perforation	Laparotomy-primary closure	
150	801	25/11/2	215148	Tenoration	Laparotomy-primary closure	y Emorgono
157	50M	1	7	RTA blunt abdomen	Laparotomy-jejunal tear primary closure	Emergenc
13	30101	27/11/2	215159	Hemorrhagic	Laparotomy-jejunar tear primary closure	У
158	60M	1	7	Pancreatitis	I aparatamy lavaga	Emergenc
130	00101	29/11/2	214853	FallCicatitis	Laparotomy-lavage	y Elective
150	48M		6	CA Stomach	Gastrectomy-GJ	Elective
153	40101	29/11/2	214861	CA Stolliacii	Gastrectomy-Gi	Elective
160	45M	1	1	G00	Laparotomy-GJ	Elective
100	45101	28/11/2	215175	Traumatic Gastric	Laparotomy-G3	Emergenc
161	35M	1	9	Perforation	Laparotomy-primary closure	
10	JJ1V1	29/11/2	215179		Laparotomy- Right salphingectomy on table OG	y Emergenc
162	30F	1	6	Pregnancy	call	
102	301	1	0	1 regulativy	Splenic injury, jejunal, descending colon tear-	y Emergenc
			215235	Penetration injury	splenectomy, jejunal repair &resection	, ,
163	30M	1/12/21	9	Abdomen	anastomosis	У
10.	20101	1/12/21	215237	Acute Intestinal	41143101110313	Emergenc
14	39F	1/12/21	5	obstruct	Laparotomy-band release	_
104	JJF	1/12/21	215239	Right Inguinal	Laparototity-valid icicase	y Emergenc
164	70M	2/12/21	215239	hernia obstructed	Laparotomy	Emergenc
103	/01/1	2/12/21			Laparotomy	y Emorgona
1//	403.4	2/12/21	215623 9	Sigmoid Perforation	I aparetomy primary documents as it as at are-	Emergenc
100	40M	3/12/21		abscess	Laparotomy-primary closure loop ileostomy	У
1.00	603.4	2/12/21	215261	Blunt injury	Multiple ileal perferentiare recentiare and a distribution in the second	Emergenc
167		3/12/21	9	abdomen	Multiple ileal perforation-resection anastomosis	У
168	50M	3/12/21	215216	Litters hernia	Gangrenous perforation ileum-resection	Emergenc

			1		anastomosis	у
			215281		Eviscerisation-laparotomy resection anastamosis	Emergenc
169	39M	4/12/21	4	Stab abdomen	of Jejunum	у
			215060	P3L3		Emergenc
170	32F	4/12/21	7	Hemoperitoneum	Laparotomy-hysterectomy OG	у
			215271	Periampullary		Elective
171	50M	6/12/21	2	growth	Whipples procedure	
	001.1	0, 12, 21	215273	810	Cacoon abdomen-Splenectomy, adhesiolysis, tube	Emergenc
172	25M	5/12/21	0	Splenic abscess	jejunostomy	y
	20111	0, 12, 21	215279	Duodenal		Emergenc
173	65M	6/12/21	1	perforation	Laparotomy-primary closure	y
17,	00111	0, 12, 21	215129	perioration	Euparotomy primary electric	Elective
174	55F	8/12/21	8	CA Stomach	Gastrectomy-GJ	Licetive
	551	0, 12, 21	215280	Crrotomach	Laparotomy-perforation at hepatic flexure-	Emergenc
175	55M	7/12/21	6	Sealed Perforation	diversion loop ileostomy	y
17.	00111	77 127 21	215327	Scarca i ciroration	Laparotomy-muscle tear, hemoperitoneum	Emergenc
176	36M	7/12/21	4	Stab abdomen	primary suturing	y
170	50111	77 127 21	215338	Irreducible umbilical		Emergenc
177	30F	9/12/21	2	Hernia	Laparotomy-mesh repair	y
177	301)/ 12/21	2	Umbilical hernia-	Euparotomy mesh repair	Emergenc
			215431	postop intestinal	Relaparotomy-adhesiolysis preperitoneal mesh	y
178	65M	9/12/21	0	obstruction	repair	y
170	03111	13/12/2	215432	obstruction	Терин	Elective
179	75M	137 127 2	4	CA Stomach	Laparotomy-Gastrectomy GJ	Elective
177	75111	13/12/2	215435	Calculus	Euparotomy Gustreetomy Gu	Emergenc
180	57F	1	3	Cholecystitis	Cholecystectomy-	y
100	371	13/12/2	215432	Duodenal	Choiceystectomy	Emergenc
181	34M	1	1	perforation	Laparotomy-primary closure	y
10.	5 1111	13/12/2	215433	perioration	Euparotomy primary crossic	Emergenc
182	46M	1	0	Gastric Perforation	Laparotomy-primary closure	y
102	101/1	13/12/2	215434	Guotife i ciroration	Euparotomy primary elocate	Emergenc
183	32F	1	2	Post hysterectomy	Burst Abd- relaparotomy mass closure OG	y
	021	15/12/2	215125	1 out injutercetoring	Built flow relaparationly made closure of the	Elective
184	75F	1	4	CA Anal canal	APR	Licetive
10	751	14/12/2	215437	C/17 mar canar	Omental Prolapse Jejeunal Perforation -primary	Emergenc
184	26M	14/12/2	3	Stab abdomen	closure	y
100	20111	14/12/2	214437	Impacted Vesical		Emergenc
186	55M	14/12/2	6	calculus	Trial SPC- Open cystolithotomy	y
100	00141	16/12/2	215143	Rectosigmoid	Time of Copen cyttoninotomy	Elective
187	56M	10/12/2	213143	growth	LAR	LICCHYE
10	JOIVI	16/12/2	215248	810 WIII	12/110	Emergenc
189	68M	10/12/2	5	Gastric Perforation	Laparotomy-primary closure	y
100	00101	16/12/2	215231	Blunt injury	Daparotomy-primary closure	Emergenc
190	40M	10/12/2	7	abdomen	Laparotomy-liver laceration lavage	
103	40101	17/12/2	215235	abdomen	Anastomotic leak-relaparotomy diversion lop	y Emergenc
100	30M	1//12/2	5	Burst Abdomen	ileostomy mass closure	_
190	SOIM	1	3	Duist Abdolliell	neosionly mass closure	y

		20/12/2	215525	Obstructed Rt		Emergenc
191	71M	1	4	Lumbar hernia	Laparotomy-band release -mesh repair	y
		22/12/2	215411		of a second of the second of t	Elective
192	64M	1	3	CA Stomach	Gastrectomy-GJ	21001110
		23/12/2	215575			Emergenc
193	25M	1	6	Stab abdomen	Ileal Perforation-laparotomy & ileostomy	y
	20111	23/12/2	215560	otat as domen	near removation supercomp & neostomy	Emergenc
194	34F	1	0	Stab abdomen	Diagnostic Laparoscopy Exclusion	y
17	J 11	23/12/2	215573	otab abdomen	Diagnostic Euparoscopy Excitation	Emergenc
195	60M	1	4	Sigmoid Volvulus	Hartmann Procedure HBS Ag +	y
17.	00101	24/12/2	215588	orginoia vorvaras	Transmir i foccuare fibb rig	Emergenc
104	52M	1	4	Gastric Perforation	Laparotomy-primary closure	_
190	321VI	25/12/2	215603	Gastric Ferioration	Laparotomy-primary closure	y Emergenc
107	2217			Ilaal manfanation	I an anotomore minerame alegania	
19.	23F	1	7	Ileal perforation	Laparotomy-primary closure	У
		06/10/0	215406	Cecal perforation		Emergenc
100	((2) (26/12/2	215496	post appendectomy-	Relaparotomy- resection of IC junction	У
198	63M	1	3	fecal fistula	ileotransverse anastamosis tube ileostomy	
]	27/12/2	215502			Emergenc
199	45M	1	2	Gastric Perforation	Laparotomy-primary closure	у
		29/12/2	215625			Elective
200	43M	1	3	GOO	TVGJ	
		28/12/2	215640	Appendicitis		Emergenc
201	23M	1	8	Peritonitis	Laparotomy-appendectomy	y
		29/12/2	215633			Emergenc
202	29M	1	9	Gastric Perforation	Laparotomy-primary closure	у
		31/12/2	215647	Ruptured liver		Emergenc
203	52F	1	1	abscess	Laparotomy-abscess drainage	у
			215640			Elective
204	70F	3/1/22	4	Rectal Prolapse	Rectopexy	
			220055	Duodenal		Emergenc
205	55M	5/1/22	7	perforation	Laparotomy-primary Closure	y
			215613	Hepatic flexure		Elective
206	55F	7/1/22	8	obstruction	Rt hemicolectomy	
			215660	Postop burst	3	Emergenc
207	29M	7/1/22	6	Abdomen	Relaparotomy mass closure	у
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	220115	11000111011		Emergenc
209	65M	8/1/22	6	Rt Inguinal hernia	Limited resection colostomy& Rt orchidectomy	y
200	03111	07 17 22	220124	Appendicular	Elimited resection colosiomy and oremacetomy	Emergenc
200	49M	9/1/22	1	perforation	Laparotomy-appendectomy	_
203	11M	9/1/22	220154		· · · · · · · · · · · · · · · · · · ·	У
210	C	12/1/22	220154	Blunt injury abdomen	Laparotomy-terminal ileal mesenteric tear- primary closure	Emergenc
210		12/1/22			primary crosure	У
011	503.5	12 /1 /22	220171	Duodenal	Tamanatama mima1	Emergenc
211	50M	12/1/22	7	perforation	Laparotomy-primary closure	У
2.1	453.5	10 /1 /00	220182	Duodenal		Emergenc
212		13/1/22	0	perforation	Laparotomy-primary closure	У
213	65F	13/1/22	220183	LBO- Splenic	Laparotomy-resection Anastomosis	Emergenc

			6	flexure		у
			220192	Blunt injury		Emergenc
214	21M	13/1/22	1	abdomen	Grade 4 Splenic injury- splenectomy	y
			220193	Duodenal	1 0 1	Emergenc
215	28F	14/1/22	2	perforation	Laparotomy-primary closure	y
			220197	Intestinal		Emergenc
216	18M	15/1/22	8	obstruction	Laparotomy-interloop adhesion band release	y
			220221	Ventral hernia	Laparotomy-omental gangrene- omentectomy	Emergenc
217	55F	16/1/22	0	obstructed	mesh repair	y
			220221		*	Emergenc
218	70M	16/1/22	1	Gastric Perforation	Laparotomy-primary closure	y
			220055	Adhesive Intestine		Emergenc
219	55M	16/1/22	7	obstruction	Relaparotomy-adhesiolysis Loop ileostomy	y
			220236		Small bowel gangrene-resection anastomosis tube	Emergenc
220	85 M	17/1/22	5	Mesenteric ischemia	Jejunostomy	y
			220115	Post Op wound		Emergenc
221	65M	18/1/22	6	dehiscence	Relaparotomy-ostomy revision -mass closure	у
			220258	Obstructed		Emergenc
222	60F	18/1/22	5	incisional hernia	Mesh repair	y
			226241	Abdominal wall		Elective
223	31F	20/1/22	9	defect	Abdominoplasty	
			220243	Ruptured liver		Emergenc
224	54M	19/1/22	1	abscess	Laparotomy-Abscess Drainage	у
			220362	Duodenal		Emergenc
225	60M	25/1/22	2	perforation	Laparotomy-Primary closure	у
			220366			Emergenc
226	60M	26/1/22	5	GB Perforation	Cholecystectomy, sigmoid gangrene-colostomy	y
			220161	Acute Recurrent		Emergenc
227	60M	1/2/22	0	SBO	laparotomy-band release	у
			220235			Elective
228	33F	3/2/22	7	G00	Laparotomy-GJ	
			220487			Emergenc
229	42M	2/2/22	8	Fall-Blunt abdomen	Jejunal, colonic perforation primary closure	у
			220503	Duodenal		Emergenc
230	50M	4/2/22	8	perforation	Laparotomy primary closure	у
			220512			Emergenc
231	60F	4/2/22	9	Gastric Perforation	Laparotomy primary closure	у
			220511			Emergenc
232	30M	4/2/22	6	Gastric Perforation	Laparotomy primary closure	y
		_,,,,,,,,	220524			Emergenc
233	71F	7/2/22	6	Compound volvulus	Small bowel& sigmoid gangrene-end ileostomy	у
_			220555			Elective
234	55M	9/2/22	1	G00	Laparotomy-GJ	_
		0.40.400	220582	Duodenal		Emergenc
	38M	9/2/22	5	perforation	Laparotomy-primary closure	у
236	45F	11/2/22	220539	Mesenteric ischemia	Laparotomy-resection anastomosis- proximal	Emergenc

			5		loop ileostomy	у
			220570	Posterior Gastric	Laparotomy-liver abscess drainage- primary	Emergenc
237	40M	13/2/22	0	Perforation	closure lavage	y
			220583			Emergenc
238	42M	13/2/22	5	Gastric Perforation	Laparotomy- primary closure	у
	12111	107 27 22	220610	RTA Blunt injury		Emergenc
230	35M	16/2/22	7	abdomen	Splenic injury gr4-laparotomy, splenectomy	y
20.	55111	10/ 2/ 22	220624	abdomen	Specific injury gir inpurotomy, spicificciomy	Emergenc
240	80M	17/2/22	4	Gastric Perforation	Laparotomy-primary closure	y
2-10	00111	1772722	220634	Gustrie i choration	Euparotomy primary closure	Emergenc
241	42M	17/2/22	7	Gastric Perforation	Laparotomy-primary closure	y
241	421VI	1772722	220669	Giant Gastric	Laparotomy-primary closure	Emergenc
24	55M	19/2/22	0	Perforation Gastric	Laparotomy-primary closure, palliative AGJ	_
242	33101	19/ 2/ 22	220609	renoration	Laparotomy-primary closure, pamative AGJ	У
243	55M	21/2/22		Colonia abassas	Colonactomy	Emergenc
243	33101	21/2/22	5	Splenic abscess	Splenectomy	У
24	101/4	22/2/22	220810	Cartuia Daufanatian	T	Emergenc
244	18M	22/2/22	1	Gastric Perforation	Laparotomy-primary closure	У
24/	453.6	04/0/00	220820	Duodenal	T	Emergenc
245	45M	24/2/22	7	Perforation	Laparotomy-primary closure	y
			220782	Duodenal		Emergenc
246	40M	24/2/22	3	Perforation	Laparotomy-primary closure	у
			220777			Emergenc
247	47F	24/2/22	4	Stab abdomen	Omental contusion - lavage	у
			220774	Ruptured liver		Emergenc
248	56M	26/2/22	1	abscess	Splenic, liver abscess -splenectomy, lavage	y
			220765	Blunt injury		Emergenc
249	53M	26/2/22	2	abdomen	Bladder injury- Open SPC	y
			220565	Post LSCS		Emergenc
250	31F	26/2/22	2	abdominal abscess	Lavage - jejunal injury,primary closure OG	y
			220746			Emergenc
251	29F	26/2/22	0	LSCS Bladder injury	SPC OG	y
			220756	Cholelithiasis CBD		Elective
252	46M	28/2/22	8	Stone	Open cholecystectomy- CBDE	
			220493			Elective
253	51M	2/3/22	0	GOO	TVGJ	
			220803	Blunt injury		Emergenc
254	55M	1/3/22	9	abdomen	Laparotomy-mesenteric tear Repair	y
			220834			Emergenc
255	65M	3/3/22	3	Gastric Perforation	Laparotomy-primary closure	y
			220759			Elective
256	60M	9/3/22	6	CA Stomach	Gastrectomy-GJ	
			220902	Acute cholecystitis	· · · · · · · · · · · · · · · · · · ·	Emergenc
257	45F	9/3/22	1	CBD calculus	Open cholecystectomy- CBDE	y
			220763	Duodenal	1	Emergenc
258	68M	11/3/22	6	perforation	Laparotomy-primary Closure	y
259		11/3/22	220793	Acute Int	Anal canal growth-transverse loop colostomy	Emergenc
	, , , , , ,					

			6	obstruction		у
			220769			Emergenc
260	38F	11/3/22	7	SBO	ileojejunal gangrene-resection anastomosis	y
		_	220782			Elective
26	45M	13/3/22	3	Choledochal Cyst	CBD Stricture -Whipple procedure	Ziective
	101/1	107 07 22	221010	Duodenal	CDD directors with proceeding	Emergenc
26	48M	14/3/22	8	perforation	Laparotomy-primary closure	y
202	401VI	14/ 5/ 22	223245	perioration	Laparotomy-primary closure	Emergenc
263	52M	14/3/22	6	Gastric Perforation	Laparotomy-primary closure	
20.	32101	14/ 3/ 22	221025	Gastric I choration	Laparotomy-primary closure	y Emargana
26	52M	14/3/22	221023	Gastric Perforation	Lanaratamy primary alagura	Emergenc
202	32IVI	14/ 3/ 22		Gastric Perioration	Laparotomy-primary closure	У
26	(5) f	15/2/22	221027		T	Emergenc
263	65M	15/3/22	9	Gastric Perforation	Laparotomy-primary closure	У
	0.00	4 4 4 9 4 9 9	221096	Duodenal		Emergenc
266	26M	16/3/22	8	perforation	Laparotomy-primary closure	у
			225793			Emergenc
26	70M	19/3/22	6	Post OP Burst Abd	Relaparotomy-mass closure	У
			221203	Blunt injury		Emergenc
268	45M	26/3/22	7	abdomen	Pyloroduodenal perforation closure	y
			221204	Obstructed	Distal jejunal gangrene, omental necrosis-	Emergenc
269	52M	26/3/22	0	Incisional hernia	Resection anastomosis	у
			220875			Elective
270	65M	28/3/22	0	CA Stomach	Gastrectomy-GJ	
			220932	Duodenal		Emergenc
27	50M	27/3/22	8	perforation	Laparotomy-primary closure	y
			221268	Duodenal		Emergenc
272	60M	30/3/22	7	perforation	Laparotomy-primary closure	y
			221327	Blunt injury		Emergenc
273	42M	3/4/22	0	abdomen	Splenic injury-splenectomy	y
			221352			Emergenc
274	60F	3/4/22	8	Gastric Perforation	Laparotomy-primary closure	y
			221390	Acute Int		Emergenc
275	65F	7/4/22	0	obstruction	Laparotomy-Meckels-resection& anastomosis	y
			221204			Emergenc
276	66F	6/4/22	9	Splenic abscess	Splenectomy	у
				CA Sigmoid		Emergenc
			221459	Ascending colon	Sigmoidectomy colorectal anastamosis, primary	у
27	65M	10/4/22	5	Perforation	closure of perforation, loop ileostomy	
			221216	3		Elective
279	27M	13/4/22	0	Pseudocyst Pancreas	Cystogastrostomy	Licetive
270	-/141	10, 1, 22	221474	RTA Blunt injury		Emergenc
270	23M	12/4/22	2	abdomen	Splenic injury-splenectomy	
273	20141	12/7/22	221374	Trans colon CA	opicine injury spicificationity	y Emergenc
200	61M	13/4/22	1	Liver Mets	Laparotomy-ileotransverse anastomosis	
280	OTIVI	13/4/22		TIACI IAICIS	Laparotomy-neonansverse anastomosis	У
201	2014	10/4/22	221861	Castria Dauf	T a manustament minerame alors	Emergenc
28.	29M	18/4/22	3	Gastric Perforation	Laparotomy-primary closure	у

			221593	Assault Splenic		Emergenc
282	65F	20/4/22	7	injury	Splenectomy	у
			221599			Emergenc
283	54M	21/4/22	7	SBO Ileal stricture	End ileostomy	у
			221599			Emergenc
284	54M	25/4/22	7	Relaparotomy	Ileostomy revision (Relaparotomy)	у
			221657	Duodenal		Emergenc
285	65M	25/4/22	2	Perforation	Laparotomy-primary closure	у
			221679	Desc colon		Emergenc
286	55F	26/4/22	9	Obstruction	Left hemicolectomy	у
			221265			Elective
287	65M	29/4/22	6	CA Stomach	Gastrectomy GJ	
			221754			Emergenc
288	28M	30/4/22	5	Ileal perforation	FB impaction retrieval & primary closure	у

Table 3: Age distribution of relaparotomies

Tubic 5.11gc distribution of fempurotesmies								
S.no	Age	Number	Percentage					
		of						
		patients						
1	10-20	1	7.2%					
2	21-30	3	21.4%					
3	31-40	1	7.2%					
4	41-50	0	0%					
5	51-60	3	21.4%					
6	61-70	6	42.8%					
	Total	14	100%					

Table 4: Time of re-intervention

S.no	Time of	re-	Number	of	Percentage
	laparotomy		patients		
1	Less than 3 days		2		14.2%
2	3 to 7 days		4		28.4%
3	8 to 11 days		8		56.8%
	Total		14		100%

Majority of patients were re-intervened after 7 days Mean time interval for re-laparotomy = 7.71 ± 3.13 days

Table 5: Gender distribution of relaparotomies

S.no	Gender	Number of	Percentage
		patients	
1	Male	13	92.8%
2	Female	1	7.2%
	Total	14	100%

Table 6: Distribution of relaparotomies as per scenario of primary surgery

S.no	Type of Primary	Number of	Percentage
	surgery	relaparotomies	
1	Emergency	12	95.8%
2	Elective	2	14.2%
	Total	14	100%

Table 7: Distribution of relaparotomies as per indications

		-	-
S.no	Indication	Number of	f Percentage
		patients	
1	Burst abdomen	7	50%
2	Peritonitis	4	28.57%
3	Adhesive	2	14.29%
	obstruction		
4	Ostomy revision	1	7.14%
	Total	14	100%

Table 8: Outcome details of patients after re-laparotomy

ration of a meeting accounts of h	worderes wroter to impus
Outcome of relaparotomies	Number of
	patients
Recoveries after	10
relaparotomies	
Deaths after relaparotomies	4
	14
Total	

Table 9: Mortality details after relaparotomy

S.no	IP no	Age/	Diagnosis	D.O. S	Redo	Relaparotomy	Cause of	Expired
		gender			date		death	date
1	2152359	30 M	Stab abdomen-	1/12/21	17/12/21	Loop ileostomy for	ARDS&	24/12/21
			splenectomy			colon anastamotic leak	pleural	
							effusion	
2	2154963	63 M	Perforated	19/12/21	26/12/21	Limited resection	Multi organ	1/1/22
			appendix-			anastamosis for caecal	failure	
			laparotomy			leak		
3	2201156	65 M	Scrotal abdomen	9/1/22	18/1/22	Burst abdomen- mass	Sepsis	29/1/22
			with strangulation			closure &ostomy		
						revision		
4	2215997	54 M	Ileal stricture- end	21/4/22	25/4/22	Ostomy revision for	Sepsis &AKI	1/5/22
			ileostomy			congestion		

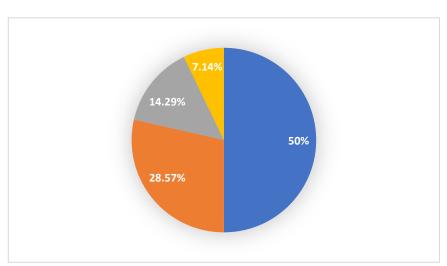
Out of 14 relaparotomies, 10 patients survived and 4 patients were expired. All 4 patients who expired underwent primary surgery under emergency setting. Maximum deaths were observed in relaparotomy for leak at anastamotic or perforation closure site.

Table 10: Clinical details of relaparotomies

S.	Ip no	Age/	Diagnosis	D.O. S	Redo	Indication	Outcome	Discharged	Expired
no		gender			date			date	date
1	2138338	19 M	Ileal perforation-	8/9/21	19/9/21	Burst	Recovere	25/9/21	
			laparotomy		11 th pod	abdomen	d	(17 days)	
2	2141213	32 F	Elective	27/9/21	30/9/21	Ileal bile leak	Recovere	14/10/21	
			cholecystectomy		3 rd pod		d	(17 days)	
3	2142256	60 M	Gastric perforation-	1/10/21	9/10/21	Burst	Recovere	15/10/21	
			laparotomy		8 th pod	abdomen	d	(14 days)	
4	2146272	65 M	Gastric perforation-	26/10/2	29/10/2	Burst	Recovere	05/11/21	
			laparotomy	1	1 3 rd pod	abdomen	d	(10 days)	
5	2149701	22 M	Splenectomy for	4/11/21	16/11/2	Burst	Recovere	29/11/21	
			trauma		1 12 th	abdomen	d	(25 days)	
					pod				
6	2150464	30 M	Appendicular abscess	21/11/2	23/11/2	Ascending	Recovere	4/12/21	
			drainage	1	1 2 nd pod	colon leak	d	(13 days)	
7	2154310	65M	Umbilical hernia-	1/12/21	9/12/21	Adhesive	Recovere	16/12/21	
			hernioplasty		8 th pod	obstruction	d	(15 days)	
8	2152359	30 M	Stab abdomen-splenic	1/12/21	17/12/2	Burst	Expired		24/12/2
			and colonic injury		1	abdomen			1
					16 th pod	Anastamotic			
						leak			
9	2154963	63 M	Appendicular	19/12/2	26/12/2	Caecal	Expired		1/1/22
			perforationlaparotom	1	17 th pod	dehiscence			
			y						

10	2156606	65 M	Gastric perforation-	29/12/2	7/1/22	Burst	Recovere	20/1/22	
			laparotomy	1	9 th pod	abdomen	d	(22 days)	
11	2200557	55 M	Duodenal perforation	5/1/22	16/1/22	Adhesive	Recovere	28/1/22	
			closure		11 th pod	obstruction	d	(23 days)	
12	2201156	65 M	Obstructed rt	9/1/22	18/1/22	Burst	Expired		29/1/22
			inguinal hernia		10 th pod	abdomen			
			repair& ileal						
			perforation closure						
13	2207936	70 M	Laparotomy&colosto	11/3/22	19/3/22	Burst	Recovere	30/3/22	
			my for anal growth		8 th pod	abdomen	d	(19 days)	
14	2215997	54 M	Laparotomy& end	21/4/22	25/4/22	Ostomy	Expired		1/5/22
			ileostomy for ileal		4 th pod	revision			
			stricture						

1 Pictorial representation of distribution of relaparotomies as per indication



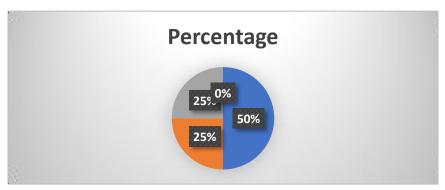
50% - Burst abdomen

28.50% - Peritonitis

14.29% - Adhesive obstruction

7.14% - Ostomy revision

2 Pictorial representation of cause of mortality after re-laparotomy



50% - Sepsis 25% - ARDS 25%-MOF

Discussion:

In this retrospective study of 275 laparotomies conducted in department of government Thiruvarur medical college during May 2021 to April 2022, 14 relaparotomies were performed. Incidence of relaparotomy was found to be 5.07% (50 per 1000 operation per year). Gender wise, 13 male patients and 1 female patient underwent relaparotomy. Majority of them (42.8%) were of 61-70-year age group. Median age of patients who underwent relaparotomy was 59 years.

Regarding time of re-intervention, majority (8 patients, 56.8%) were reoperated after 7 days of primary surgery and 4 patients were reoperated between 4 to 7 days of initial surgery. Remaining only 2 patients were reoperated within 3 days of primary surgery. Mean time for relaparotomy was 7.71±3.13 days. Majority of them (12, 85.8%) were reoperated following primary surgery in emergency setting and only 2 patients (14.2%) were reoperated following elective primary surgery.

Major indication for relaparotomy in this study was burst abdomen, followed by others such as peritonitis due to leak at anastamotic/perforation closure site, adhesive obstruction and ostomy revision in that order.

4 patients were expired after relaparotomy. Most common cause of mortality after relaparotomy was found to be due to septicemia, followed by multiorgan dysfunction and respiratory failure. Even though 7 patients underwent relaparotomy for burst abdomen, only 1 patient who also required ostomy revision expired.

Time of relaparotomy had influence on the mortality outcome as noted by following observation which signify the importance of early re-intervention.

Number of patients who recovered when reoperated within 4 days = 4Number of patients who recovered when reoperated after 4 days Number of patients who expired when reoperated within 4 days Number of patients who expired when reoperated after 4 days = 4

Remaining 10 patients who recovered after relaparotomy were discharged between 10 days and 25 days. Mean duration of stay of recovered patients after relaparotomy was found to be 22.86± 6.87 days. Among 10 patients who recovered after relaparotomy who were followed up to 1 month, 8 had no major complications except for scar hypertrophy in 3 of them whereas other 2 patients had adhesive colic which was managed conservatively.

Conclusion:

Relaparotomy is a serious adverse event for any patient undergoing major abdominal surgery especially if conducted in an emergency setting. Delay in seeking appropriate care within crucial time, old age above 60, presence of multiple comorbid conditions, multiple intraabdominal organ injuries following abdominal trauma, peritonitis with gross contamination, relaparotomies planned after 4 days were all important determinants of poor outcome & mortality after relaparotomy as per the results of this study.

Hence decision regarding relaparotomy should be given an adequate forethought by careful post operative monitoring of clinical, radiological and laboratory parameters taking into consideration the pre operative scenario and intra operative finding to arrive at an early clinical judgement. If planned early in the immediate post operative, relaparotomy can be a life-saving procedure for patients presenting with major abdominal surgical ailments. Results observed in this study were confined to the operated patients selected during the chosen study period. Moreover, this is a single centre retrospective study involving only selected smaller group of patients. To extrapolate the observed results to general population, a detailed multi-centre prospective study involving larger population is required.

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