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Laparoscopic versus open surgical management of patients with small bowel perforation: a clinical outcome based prospective study.

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Introduction:

Small bowel perforation is one of the commonest life-threating surgical emergency with high mortality and morbidity. Management of intestinal perforation is always surgical and may be done by laparotomy, laparoscopy. Advancement in minimal invasive surgical techniques, laparoscopy has emerged as preferred mode due to its diagnostic and therapeutic benefits and also better postoperative outcomes.

Materials and Methods:

63 patients with small bowel perforation were included in study. Out of 63 patients 45 (Group A) were managed by open while 18 (Group B)were operated by laparoscopic procedure. Loop or double barrel ileostomy was given depending on the site & size of perforation.

Surgical techniques

Laparotomy

Patients who underwent exploratory laparotomy, a single midline abdominal incision was given & peritoneal lavage was done with approximately 7-10 litres of warm saline, using a standardized technique.

Laparoscopy Patients operated by laparoscopic approach, first port was umbilical port, created using open technique & a 30^0, 10 mm laparoscope was introduced through umbilical port & peritoneal exploration was done. Two 5 mm ports were introduced, one in left hypochondrium & other in left iliac fossa.Figure1.

Localization of perforation site was done.Figure2 Loop or double barrel ileostomy was given depending on the site & size of perforation. figure 3

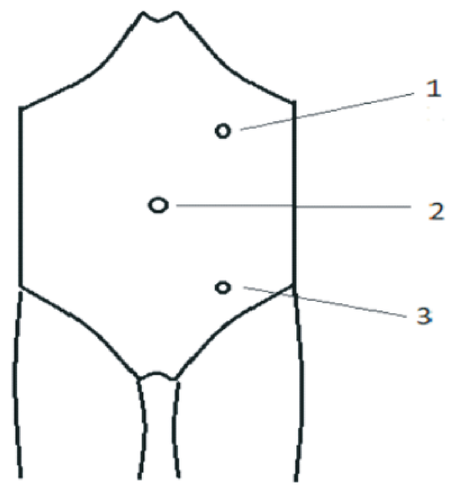

FIGURE1
(Site of Port Placement)

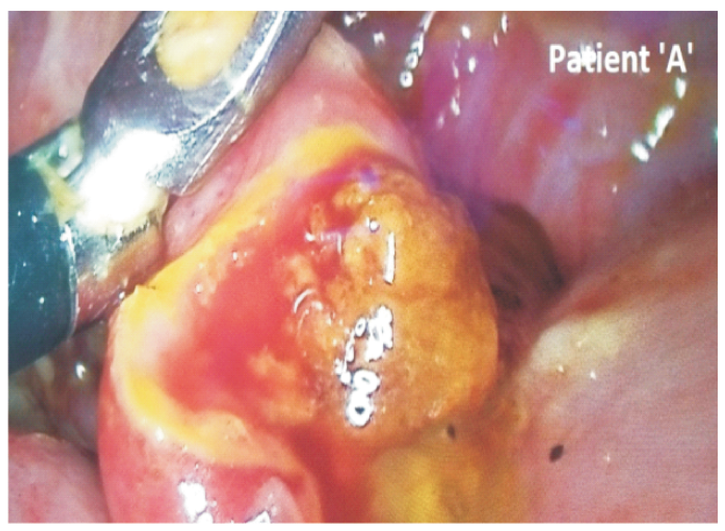

FIGURE 2
(Intraoperative Picture of Ileal Perforation)

FIGURE 3
(Post Operative image after Laparoscopy)

Results:

Patients of both group were comparable in demographic profile. Mannheim's Peritonitis Index was also similar in both groups. Duration of surgery(in minutes) was significantly higher in group B (138.89±16.50) as compare to group A(96.44 ± 27.30), p-value <0.0001. Pain during first 3 days, ASEPSIS score, POSAS score were significantly high in group A as compared to group B these were 4.96±1.53 vs 3.73±1.40,27.36±16.32 vs12.94±12.33 and 45.12±17.37 vs 14.18±4.22 in group A and group B with p values 0.004,0.001 and<0.0001 consecutively

Duration of stay was comparable in both groups, Duration of hospital stay, pain after 3rd day, temperature were comparable in both groups.Table 1

	Laparotomy	Laparoscopy		
	Mean ±SD	Mean ±SD	t-value	p-value
Age	29.02±11.18	26.39±8.50		0.372
Mannheim's Peritonitis Index	22.56±3.56	22.72±3.70	0.166	0.868
Duration Of Surgery (Min)	96.44 ± 27.30	138.89±16.50	6.14	<0.0001
Duration Of Stay (Days)	13.24±8.71	10.39±2.09	1.37	0.176
Pain (0-3 days)	4.96±1.53	3.73±1.40	2.97	0.004
(4-6 days)	1.84±1.96	1.06±1.21	1.56	0.12
(7-10 days)	1.06±1.45	0.57±1.08	1.12	0.267
Temp. (0-3 days)	101.1±1.74	101.15±0.91	0.03	0.977
(4-6 days)	99.56±1.47	99.24±1.07	0.84	0.404
(7-10 days)	99.22±1.22	98.92±0.65	0.82	0.530
Wound Infections (ASEPSIS score)	27.36±16.32	12.94±12.33	3.38	0.001
Cosmesis (POSAS score)	45.12±17.37	14.18±4.22	8.80	<0.0001
Duration of internalization of stoma (Min.)	104.74± 19.55	93.53±12.79	2.162	0.035

Conclusion:

Small bowel perforation is a surgical emergency with a high mortality & morbidity. Besides the control of sepsis, the primary treatment is surgery either by open laparotomy or laparoscopy. With the advancement in minimally invasive surgeries, laparoscopy in surgical emergencies has become an effective tool both as its diagnostic capabilities & therapeutic benefits. By avoiding laparotomies it reduces postoperative pain, improves recovery of gastrointestinal functions, reduces hospitalization, cuts health care costs, and improves cosmetic results.

Laparoscopy may be used in other surgical emergencies to reduce postoperative complications and increase better outcome with low tolerance to convert into open technique if required.

References

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