ORIGINAL ARTICLE

IS NASOGASTRIC DECOMPRESSION NECESSARY IN ELECTIVE ENTERIC ANASTOMOSIS?

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Background: Placement of nasogastric tube is common surgical practice after bowel anastomosis. What is to be achieved by this prophylaxis is gastric decompression, a decreased likelihood of nausea and vomiting, decreased distension, less chance of pulmonary aspiration and pneumonia, less risk of wound separation and infection, less chance of fascial dehiscence and hernia, earlier return of bowel function and earlier discharge from hospital. We conducted a prospective observational study in Surgical Ward 2, Jinnah Postgraduate Medical Centre, Karachi from January 2008 to December 2009 to assess whether routine use of nasogastric decompression in elective enteric anastomosis can be safely omitted. **Method:** Patients who underwent elective enteric anastomosis were included in this study. These patients were managed prospectively without nasogastric decompression. Outcome were measured in terms of time of passing flatus, nausea, vomiting, abdominal distension, pulmonary complications, wound infection, wound dehiscence, anastomotic leak, length of hospital stay and mortality. **Results:** Except for incidence of minor symptoms like nausea or vomiting, omission of NG tube did not lead to any serious complication like anastomotic leak, pulmonary complications wound dehiscence or death. **Conclusion:** Nasogastric decompression can safely be omitted from a routine part of postoperative care after elective enteric anastomosis.

Keywords: Nasogastric, Decompression, Elective, Enteric, Anastomosis

INTRODUCTION

Placement of NG tube after abdominal surgery for enteric anastomosis is classic dogmatic teaching in surgical training.[1] What is to be achieved by this prophylaxis is gastric decompression, a decreased likelihood of nausea and vomiting, decreased distension, less chance of pulmonary aspiration and pneumonia, less risk of wound separation and infection, less chance of fascial dehiscence and hernia, earlier return of bowel function and earlier discharge from hospital.[2] The necessity of nasogastric decompression following elective abdominal surgery has been increasingly questioned over the last several years. Many clinical studies have suggested that this practice does not provide any benefit but could lengthen the hospital stay, in addition to patient discomfort and respiratory complication.[3,4] Already in 1995 Cheatham and colleagues published the result of meta-analysis of all published clinical trials so far comparing selective versus routine NG decompression after elective laparotomy which does not support the prophylactic use of NG tube.[5] In July 2004, the Cochrane database of systemic review published the results of their systematic review on the prophylactic decompression after abdominal surgery, that review was revised and up dated in 2007. According to this data base, routine nasogastric decompression should be abandoned in favour of selective use of the NG.[6] It is well known that changing common practice in hospital is hard and at all levels resistance is usually abundant. In spite of all these evidence, systemic use of NG tube is still common in post operative management.[7] that's why we decided to conduct a prospective observational study with intention to conform and to build confidence, in safe omission of NG tube after elective enteric anastomosis in our local setup.

MATERIAL AND METHODS:

This prospective observational study was conducted at Surgical Ward 2 of Jinnah Postgraduate Medical Centre Karachi from Jan 2008 to December 2009. Total 93 patients who undergone elective enteric anastomosis were included. They had a wide range of operations performed (Table-1). These patients were managed prospectively without nasogastric decompression or NG tube withdrawn when patient is still in the operating room or recovery room. Injection Metoclopramide was given IV 10 mg 8 hourly to patients who complained of nausea. Instructions were given to the postgraduate on call that if vomit of approximately 500ml or abdominal distension developed than do nasogastric decompression. Excluded were patients with acute or chronic small or large bowel obstruction or had emergency laparotomy. Other criteria for exclusion were a history of full dose pelvic irradiation, peritonitis, extensive fibrotic adhesions difficult endotracheal intubations at the beginning of procedure and operating time longer than 6 hours. Obviously, surgical judgment entered into the decision for exclusion of patients with multiple dense fibrotic adhesions, prolonged operating time, or with complicated surgery. Patients were followed during hospital stay or contacted on phone up to 2 weeks if discharged earlier to complete the follow up. Data were recorded in a Performa regarding patient particulars, diagnosis, procedure performed, re-insertion

of nasogastric tube due to vomiting or abdominal distension, time to flatus, nausea, vomiting, abdominal distension, pulmonary complications, wound infection, wound dehiscence, anastomotic leak and length of hospital stay. Abdominal X-rays done in patients who complained of distension and if gaseous distension found than nasogastric decompression done.

Table-1: Procedure performed

Procedure	Number
Ileostomy Closure	69
Colostomy Closure	13
Low Anterior resection with covering ileostomy	6
Laparoscopic Anterior Resection of Ca Rectum	1
Right Hemicolectomy	2
Total Colectomy with Ileoanal anastomosis	2

Data was analysed using SPSS-9 for statistical processing. Mean age of the sample, male to female ratio, mean postoperative stay in hospital, average time of passing flatus were calculated. Postoperatively patients were discharged when they started oral diet and become mobile.

RESULTS

There were 93 patients, of which 62 were male and 31 were female. The mean age was 31 years with a range from 15–70 years. Almost 80% were below the age of 40. Nausea occurred in 74.7% of all patients, yet only 5.9% had vomiting and one had abdominal distension for which the NG decompression done. Time of passing flatus was on average two days. Mean length of hospital stay was 5.7 days with a range from 3–27 days. Hospital stay usually increased secondary to wound infection which occurred in 11.7% of patients. There was anastomotic leak and wound dehiscence in a single patient which on re-exploration found to be due to obstruction distal to anastomosis. Patient had any pulmonary complication. One patient died on 3rd post operative day after reversal ileostomy, of which the cause of death not known, although on gastrograffin follow-through there was no leak.

DISCUSSION

Ileus occurs after almost every intra-abdominal operation with administration of general anaesthesia and is characterized by lack of coordinated propulsive gastrointestinal contractions. This is likely to be caused by disappearance of cyclic interdigestive myoelectric complexes that originate in the stomach and move through the small intestine to end in the ileum. These complexes have been hypothesised to serve a 'housekeeper' function; that is to sweep the bowel clean of debris, gas and no digestible solids. When such complexes abolished, as after abdominal operations, secretions, gas and debris accumulate with in the bowel lumen, the bowel distends and passage of stool and flatus cease.

Since the introduction of the nasogastric tube by Levin in 1921 nasogastric decompression after major abdominal operations has become surgical dogma.[8] Since the seventies many reports showed that routine use of nasogastric tube after abdominal surgeries is unnecessary, but still the routine use of nasogastric tube is common surgical practice.

Colvin *et al.* followed patients divided into three groups. The long intestinal tube (Cantor catheter) was placed preoperative, intraoperative and tube free group. He found no difference between them. He concluded that there is no benefit in routine use of nasogastric tube.[9] Rancette *et al.* also done study in patients who undergone colonic operations and found that morbidity and post operative stay were similar in both group[10]. Later wolf *et al* conducted study and found same results.[11] Wen–Zang Lei *et al.* carried a prospective randomized study on 368 patients and reported statistically significant a higher frequency of pharyngo-tonsillitis in patients having an NG tube.[12] Further more many recent randomized controlled trails showed that NG tube is unnecessary following elective laparotomy.[13–16]

The meta-analysis of 26 clinical trials done by Cheatham *et al.* in 1995 reported the incidence of nausea in 179 out of 1986 patients in which the tube was selectively placed, on the other hand 181 out of 1978 patients experienced nausea, which shows that nausea was more common in patients with routine tube placement. Abdominal distension was noted in 8.2% of selectively compressed and 8.3% of routinely decompressed, whereas 10.1% of selectively decompressed and 8.5% of routinely decompressed patients developed vomiting. Only 5.2% of selectively managed patients required nasogastric tube placement. In fact, for each patient managed selectively who subsequently requires nasogastric tube placement for nausea, vomiting or abdominal distension, 20 patients can be managed without a nasogastric tube, thus sparing 95% of elective laparotomy patients the significant discomfort and risk of pulmonary complications associated with nasogastric decompression. In our study we found out that the incidence of nausea was 74.7%, yet only 5.9% had vomiting and 1.07% had abdominal distension for which the insertion of NG tube done.[17] Bauer *et al* observed 200 patients operated mainly for colorectal surgery and reported that regular use of NG tube is unnecessary. He found that only 6% patients require insertion of Ng tube which were managed without it.[18] In our study insertion of NG tube was required in 5.9% patients due to vomiting and abdominal distension. Placement of a nasogastric tube for decompression may alleviate symptoms of postoperative ileus. There is no evidence, however, that

routine placement of a NG tube at surgery will prevent an ileus or shorten its duration.[19] Several studies have shown that time to return of bowel function and oral intake was the same or sooner in the patients without nasogastric tube.[20–22] We found out that the time of passing flatus was on average 2 days in patients without insertion of tube comparable to the meta-analysis conducted by Nelson in 2005, of twenty eight studies and found out that patients without tube has an earlier return of bowel function. The groups in which tubes were placed; the average time of passing flatus was 3.10–5.10 days, whereas in tubeless groups it ranges from 2.50–4.51 days.[2]

Previously nasogastric tube was used to lessen the risk of pulmonary complications like aspiration and pneumonia. Later the studies showed that avoidance of NG tube even reduces the incidence of pulmonary complications. Olsen *et al* in 1983 conducted study to find out the value of nasogastric tube after colorectal surgery. The result showed that 2 out of 52 patients suffer from pulmonary complications, in contrast to 2 out of 46 patients in control group.[23] Later in 1992, Savassi *et al* reported that only 1 patient out of 52 had pulmonary complication, where as in control group it was 8 out of 57.[4] In our study no patient developed any pulmonary complication due to omission of NG tube.

According to the studies reported wound infection tends to be more frequent when outline intubations are avoided; the reasons for this are not clear.[2] In this study 11.7% patients developed wound infection, which also lead to longer hospital stay.

Another important reason for the traditional use of NG tube is the fear surgeons of occurrence of fascial dehiscence and ventral hernia without nasogastric decompression. Otchy *et al* conducted a long observational study to find out development of ventral hernia after colorectal surgery without the use of NG. And found no significant difference in occurrence of ventral hernia between two groups.[24] We observed that only one patient had wound dehiscence and anastomotic leak, which on re-exploration found to be due to obstruction distal to anastomosis.

The length of hospital stay in our study was on average 5.7 days ranging from 3–27 days compared favourably to previously published length of stay after open surgery.[25,26] A recent survey on Spanish surgeons practice in 2008 showed that mean hospital stay in Spain after open colonic surgery was 6.56±1.05.[27] The shorter postoperative stay could be partly attributed to the earlier return of bowel function and advancement of diet.

We found that in those operations where we used to pass NG tube, even with out tube, not lead to any serious consequence. Although we studied a limited number of patients our finding confirms with the meta-analysis done by Cheatham and Nelson with the exception that the incidence of abdominal distension was not as high even without NG tube. Considering a shorter hospital stay and avoiding the placement of nasogastric tube is cost effective step towards the management of patients with enteric anastomosis.

CONCLUSION

There is no rationale for routine use of nasogastric tube after elective enteric anastomosis. Patients undergoing elective abdominal operations may avoid prophylactic tube placement, which should be used only when symptoms develop. In this era of cost containment, this approach may also represent cost-effective strategy. By not placing nasogastric tube routinely, each hospital may realize significant saving.

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