

Original Article

Neonatal Abdominal Surgery, Our Experiences of 179 Cases

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Abstract:

This is a retrospective study carried out in the Department of Pediatric Surgery, Faridpur Medical College Hospital and in Dr. Zahed Children Hospital at Faridpur, during the period of May 2002 to may 2016. Total 179 neonates were treated by laparotomy for intestinal obstruction after clinical diagnosis and resuscitation. The male to female ratio was 4:5. Most of the patients presented within 02 -25 days of age. In all cases diagnosis was done on history, clinical examination and investigations. The investigations were plain x-ray abdomen in all cases and contrast x-ray upper GIT in 10 cases and enema x-ray in 11 cases and sonogram in 15 cases. Serum electrolytes were not estimated in all patients. There were 34 postoperative mortality. We did loop diversion for 81 cases those who were in potential risk to develop septicemia. Oral feeding started at 3rd postoperative day in diversion cases and 4th postoperative day in resection and end to end anastomosis cases. Superficial wound infection was encountered in 39 cases. Anorectal malformation, IHPS, Exomphalous, Gastroschisis were not included in this study. Long term survival of neonatal abdominal surgery are excellent, however patients have substantial risk to develop intra-abdominal complications.

Key words: Intestinal Atresia, Meconium Ileus, Anastomosis.

Introduction:

Bowel obstruction is one of the most common surgical emergencies in newborns. Successful management depends on timely diagnosis and appropriate intervention. An accurate history, physical examination and simple radiologic studies usually lead the physician to the correct diagnosis. Fortunately, the outlook for babies undergoing surgery for intestinal obstruction is excellent. A neonate who vomits bile may have paralytic ileus from sepsis or necrotizing enterocolitis, but proximal intestinal obstruction is a possible etiology¹. In neonate sometimes abdomen appears normal even as scaphoid shaped. It is important to evaluate the passage of meconium after birth within 24 hours or more. It is also important to observe the frequency of defecation, colour of stool and blood

mixed stool. Mainstays of resuscitation are warm clothing, oropharyngeal clearance, naso gastric suction with 6 fr feeding tube, established i/v canula with 24g and intravenous fluid with baby saline (0.225 %NaCl+5% dextrose) 100ml/kg/day, Parenteral i/v antibiotic and i/v vitamin-k 2mg/ml.

Neonatal intestinal perforation may be due to complication of prematurity. Low flow states as seen in asphyxia, sepsis, hypotension, hypovolemia is associated with hyperosmolar formulas & diarrhea, selective mesenteric artery occlusion due to a emboli from vascular catheter or canula².

Intestinal atresia may involve small intestine and large intestine. History of polyhydramnios in pregnancy is very suggestive of intestinal luminal obstruction³.

Mid gut volvulus is not so common. It may present at any age at any time and always life threatening. If gut become gangrenous, resection and end to end anastomosis is done, and baby survive with short bowel syndrome.

Meconium Ileus is commonly found in neonatal intestinal obstruction associated with pancreatic enzyme insufficiency and other metabolic disorder⁴. It is very difficult to manage as it needs multi departmental

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approach. The majority of these surgeries are successful, although some kids have recurring problems after surgery. A second bowel obstruction due to adhesions (scar tissue build-up after any type of abdominal surgery) could occur later⁵.

Post operative morbidity and mortality have been reduced owing to improvement in anesthetic technique, correction of fluid, electrolytes and acid-base balance disturbances. Earlier diagnosis and treatment have reduced in the proportion of neonate suffering preoperative metabolic derangement⁶. The aim of this study was to review the management of neonatal abdominal surgery in our hands and to discuss the result in relation to those obtained in other developed centers.

Materials and Methods:

A retrospective analysis was carried out on neonatal surgery in the pediatric surgery department of Faridpur Medical College Hospital and in Dr. Zahed Children Hospital at Faridpur between May 2002 to May 2016. Total 179 neonates were included in this study diagnosed as neonatal surgical abdomen. Detailed history was taken and complete physical examination was done in all cases. Dehydration was corrected preoperatively and clinically assessed. The laparotomy was performed under general anesthesia through supra-umbilical transverse incision. End to end anastomosis were done with 5/0 vicryl and wound closed in layers with 4/0 vicryl. Skin was closed with subcuticular 4/0 vicryl keeping a drain tube 10 fr in situ.

Diagnoses by per operative findings are intestinal atresias, neonatal intestinal perforation, midgut volvulus, meconium Ileus and malrotation of gut.

Results:

Out of 179 patients, 79 (44%) were male and 100 (56%) were female. The male female ratio was about (4:5). Age of presentation of the patient was between 01 day to 04 weeks (Table-I). Most of the patients (87.02%) were of between 3-6 days of age.

Table I: Distribution of patients according to age (n=179)

| Age in weeks | Number of Patients (%) |
|--------------|------------------------|
| 1-2 | 163 (91.06) |
| 3-5 | 16 (8.94) |

Severe dehydration was found in 17 (10%) patients that required preoperative correction by intravenous fluid therapy. In 76 cases feeding was started with breast feeding after 36 hours of operation in diversion cases

and in end to end anastomosis cases after 96 hours. Bowel moved on 4th POD. Fluid and electrolyte balance was maintained. We used 10% dextrose in 0.225% normal saline at 100 ml per kg in 24 hours. We used potassium in fluid from 3rd POD with 1 mmol/ kg/day. Fever and early features of septicemia was observed in 3rd POD in 67 cases. Superficial wound infection was found in 20 cases (11.17%) which improved with regular dressing. Sixty five (36.31%) patients were discharged on 4th postoperative day. Remaining patients were discharged after 7 days of operation.

Table II: Distribution of patients according to per operative diagnosis (n=179)

| Per-operative Diagnosis | Number of Patients (%) |
|---------------------------|------------------------|
| Intestinal Atresia | 71 (39.66) |
| Meconium Ileus | 49 (27.37) |
| Intestinal Perforation | 21 (11.73) |
| Volvulus Neonatorum | 18 (10.05) |
| Necrotising Enterocolitis | 20 (11.17) |

Discussion:

Neonatal surgical abdomen is a common condition for the pediatric surgeons. Management of this emergency situation is very crucial for the patients, parents and caregivers.

In majority of the cases of our series, diagnosis was based on clinical findings, although USG or contrast x-ray was also used to confirm the diagnosis. Ultrasonographic diagnosis depends on exposure and experience of sonologist and appropriate ultrasound probe. In our study, the male-female ratio was 4:5 but in other study it was 4:6.7⁷. In our centre, we practiced a simple regimen postoperatively whereby patient received mother breast milk 48 to 96 hours after surgery, initially frequent small feeding and gradually increased to normal feeding on the subsequent 24 hours. The postoperative stay was 3 to 7 days. In other studies it was 3 to 7 days⁸.

Conclusion:

In this retrospective study, we have studied 179 cases with various presentation of neonatal surgical abdomen. We did many cases under local anesthesia with sedation with intermittent intravenous diazepam or phenobarbitone. We have used i/v antibiotic with ceftazidim, amikacin, metronidazole, and some cases with meropenam. In our study, 34 (19%) patient expired due to some associated anomaly, septicemia, and poor per enteral nutritional support. Early diagnosis, preoperative correction of dehydration and

electrolyte balance, expert anesthetic support and experience of surgeon may play important role for better postoperative outcome of neonatal surgical patients.

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