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## RESEARCH ARTICLE

### BISHOP KOOP METHOD IN THE MANAGEMENT OF MULTIPLE INTESTINAL ATRESIA.

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#### Abstract

Jejuno ileal atresia (JIA) is a serious congenital anomaly and a common cause of intestinal obstruction in neonates occurring one in approximately 5000 live births (1). Various surgical procedures have been described worldwide to correct JIA like primary resection with end to end anastomosis, Bishop-Koop procedure, Mikulicz double barrel ileostomy and Santulli technique. We present a case of preterm neonate for whom Bishop- Koop procedure was done which led to early enteral feeding, short hospital stay and adequate bowel length in one year follow up eventually leading to surgical closure of the chimney.

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#### Introduction:-

Small bowel atresia is a common cause of intestinal obstruction in newborns. Most intestinal atresias are of the simple type associated with a favorable anatomy for anastomosis and reestablishment of the intestinal continuity. Complex atresias include a much smaller percentage of cases and are linked to a greater likelihood of postoperative complications and high mortality rate [2]. Patients with type IIb atresia (apple peel) and type IV atresia (multiple atresias) are the classic examples of complex atresia in all its variations [3]. Simple or complex atresias may be associated with other pathologies such as gastroschisis, meconium ileus or volvulus. These associations could increase the rate of complications prolonging the hospital stay [4]. Intestinal resection and primary anastomosis with or without enteroplasty is usually the surgical technique of choice for simple atresias. In contrast, complex atresias may frequently involve conducting decompressive and functionalizing stomas. Some alternatives described in surgical literature are the Santulli and the Bishop-Koop techniques [5] ; [6]. The significant disparity in the size of intestinal ends, the increased wall thickness and the intestinal dysmotility with decreased peristalsis are important anatomical features to be considered by the surgeon before the operation. These conditions may force the surgeon to create a proximal stoma, despite the increased morbidity and mortality of this procedure [7] ; [8].

Our patient had multiple jejunal atresia for which Bishop-Koop procedure was done after minimal resection and anastomosis of distal atretic segments and bringing out the distal loop of the proximal most atretic part of jejunum and doing an end to side jejuno jejunostomy of the proximal atretic segment to the distal small bowel loop. The child had uneventful post operative period, good weight gain and adequate bowel growth at one year of age.

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**Case Report:-**

Two to three cases of late preterm male children with a birth weight of 2 kg had not passed meconium after birth, presented with bilious vomiting from first day of life. Their ante natal scans were normal. Physical examination revealed soft flat abdomen with mild dehydration with bilious naso gastric drainage. Xray revealed proximal small bowel obstruction. The children were subjected to laparotomy after resuscitation.



**Fig 1:-** pre op xray.

We found proximal jejunal atresia which were around 10 cm distal to DJ flexure, and two or three distal jejunal atresia. After minimal resection and end to end anastomosis of distal atretic segments the total small bowel length were around 50 cm. Hence Bishop- Koop technique was done for these children by bringing out the distal loop of the first atretic segment and by performing an end to side jejuno-jejunostomy after minimal resection of the dilated proximal jejunum. All anastomosis were performed as extra mucosal anastomosis with 4/0 polyglycolic acid. The Y limb were brought out as ostomy and fixed at the laparotomy wound.



**Fig 2 :-** post op xray.



**Fig 3 &4:-** 1 year follow up xrays.

The children were started on enteral feeds through jejunostomy from fifth post operative day. The children were discharged on the seventh post operative day and were on a regular follow up. The children had good bowel length and a weight of around 8 kg at one year of age. So the jejunostomy were closed through extra peritoneal approach. These children are still on a regular follow up and have no complications.

**Discussion:-**

Intestinal atresia is a frequent cause of neonatal bowel obstruction. It is known that the most important cause of mortality remains to be short bowel syndrome. Therefore, extensive small bowel resection and excessive tapering of the dilated loop should be avoided. However, complex atresias remain a challenge for the surgeon, and some of

them, demand bowel resection and proximal enterostomies. Jejunal stomas require careful and appropriate postoperative management, particularly in preterm infants. The location of the atresia seems to be one of the most important factors to consider as it may increase morbidity. According to some authors, the more proximal the atresia is, the greater the damage to the intestinal wall may be. Tongsin et al., have mentioned that it would be incorrect to consider jejunal and ileal atresia as anatomically identical. They postulate that the jejunal wall is more compliant, allowing a proximal massive expansion with consequent loss of peristaltic activity, therefore worse results are obtained compared to ileal atresia [9]. Sometimes, the tapering and bowel resection of the dilated loop can achieve a primary anastomosis, but occasionally it requires a decompressive and functionalizing enterostomy (Santulli or Bishop–Koop) [5] ; [6].

Harry Bishop and Everett Koop in 1957 described resection of dilated segment with end to side anastomosis and atretic small distal segment is directed out as distal ostomy. Although this procedure is not primarily done for JIA5 but researchers have recommended it as it has low short hospital stay, early feeding, low morbidity, mortality and avoidance of TPN as compared to primary anastomosis. In Bishop-Koop procedure the distal ostomy provides the benefit of deflating dilated proximal bowel and also helps to transit the contents gradually through the distal unused segment of bowel. Thus the distal segment of intestine begins to dilate and function steadily and allows early enteral feeding which reduces the need for parenteral nutrition. In Bishop Koop procedure intestinal length is preserved as there is limited resection of the small intestine so usually negating use of TPN. The main disadvantages of enterostomy is, that it needs further surgery for its closure, leads to skin excoriation and leakage which may aggravates the nutritional status of neonate.

Our experience in this case showed that Bishop- Koop procedure in multiple intestinal atresia prevented short bowel syndrome, post operative ileus and proximal jejunostomy related complications. Though the child had to undergo another surgery in one year of life, the child had developed good bowel length after the first surgery and the second surgery was an extra peritoneal closure. Hence it is a good alternative for the management of multiple intestinal atresia especially in a preterm neonate and in a proximal jejunal atresia.

### Conclusion:-

It is concluded from our experience that Bishop Koop procedure is a safe technique with good outcome in the management of jejunoileal atresias. This technique has improved the survival of patients and minimized the postoperative complications. However well designed, large scale comparative studies are required to compare the outcome of Bishop Koop procedure with other available procedures in the management of jejunoileal atresias.

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