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## **Study on Effect of Transanastomotic Jejunostomy Tube in the Surgery of Jejunioleal Atresia in Neonates**

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### **ABSTRACT**

**Introduction:** *Jejunioleal atresia is one of the major causes of neonatal intestinal obstruction.*

**Objective:** *To study the effect of transanastomotic jejunostomy tube in the surgery of neonatal jejunioleal atresia.*

**Materials and Methods:** *Retrospective study was conducted over the statistical data available in the hospital for the period of 3 years. All cases had resection of the atretic segment and end to end anastomosis, with cheetle's cut to the distal bowel. From the post operative data available from records, patients were categorised into two groups. Those with transanastomotic jejunostomy tube inserted and not inserted. Total 22 cases were included in the study. 14 cases underwent resection anastomosis with transanastomotic jejunostomy tube. 8 cases underwent resection anastomosis without transanastomotic jejunostomy tube. Post operative clinical course evaluation includes, duration of hospital stay, incidence of complications like anastomotic leak, anastomotic stricture/intestinal obstruction, incidence of relaparotomy, incidence of mortality are evaluated and compared.*

**Result:** *In the group with transanastomotic tube, 2 cases had post operative complications; whereas the other group 4 cases had post operative complications*

**Conclusion:** *Our study also shows that resection and end to end anastomosis in jejunioleal atresia, with insitu transanastomotic jejunostomy tube is better than, those without transanastomotic jejunostomy tube.*

**Keywords-** *Jejunioleal atresia, trananastomotic jejunostomy tube, anastomotic leak, anastomotic stricture.*

## Introduction

Jejunioleal atresia is one of the major causes of neonatal intestinal obstruction. Atresia—derived from the Greek components *a-* ("no" or "without") and *tresis* ("hole" or "orifice").<sup>[1]</sup> In 1955, Louw and Barnard demonstrated the role of late intrauterine mesenteric vascular accidents as the likely cause of jejunioleal atresias, rather than the previously accepted theory of inadequate recanalization of the intestinal tract.<sup>[2]</sup>

Common clinical characteristics of patients with jejunioleal atresia include the following: Polyhydramnios on prenatal ultrasonography (28%) Prematurity (35%) Low birth weight (25-50%) Classic signs include the following: Bilious emesis that warrants emergency surgical evaluation (most patients) Abdominal distention (in distal atresia) Jaundice (32%) Failure to pass meconium in the first 24 hours.

Grosfeld et al modified Louw's original classification into the following description of intestinal atresia, which is currently the most commonly used classification scheme<sup>[3]</sup>:

1. Type I – Membrane
2. Type II – Blind ends joined by fibrous cord
3. Type IIIa – Disconnected blind end
4. Type IIIb – Apple-peel deformity
5. Type IV – Multiple, string of sausages

The radiographic findings characteristic of jejunioleal atresia are distended bowel loops with air-fluid levels proximal to the level of the obstruction. The lower the atresia in the GI tract, the greater the number of intestinal loops that appear distended on the radiograph.

Regarding surgery, open and laparoscopic approaches have been reported.<sup>[4,5,6]</sup> The entire intestine is delivered through the incision to assess the anatomy and type of atresia and to rule out other anomalies. A perforation, if present, should be controlled at this stage before further exploration is done. The definitive way to exclude distal atresias, which occur in 6-21% of patients, is to irrigate normal saline solution into the distal pouch and to milk it caudally.

If other anomalies are ruled out, the intestine is returned to the abdominal cavity while the atretic segment is kept exposed. When the intestinal length is normal, the dilated proximal pouch can be resected by removing 10-15 cm of dilated bowel proximal to the atresia, to avoid postoperative physiologic obstruction due to lack of peristalsis.

The proximal intestine is transected at a right angle to maximize its vascularity; the distal bowel is transected obliquely and the incision continued along the antimesenteric border as a fishmouth to equalize the size of the openings on the two sides for the anastomosis.<sup>[7]</sup>

A one- or two-layer end-to-back (end-to-oblique) anastomosis is performed. The mesenteric gap is then approximated with fine absorbable sutures, with care taken not to kink the anastomosis or to damage the mesenteric vessels. The patency of the anastomosis can be tested by milking intestinal air through it. The intestinal segment is then moistened with warm saline solution and returned to the abdominal cavity. The abdominal wall is closed in layers with absorbable sutures.<sup>[12]</sup>

Enteral feedings are carefully started after signs of propulsive peristalsis occur, as indicated by clear,

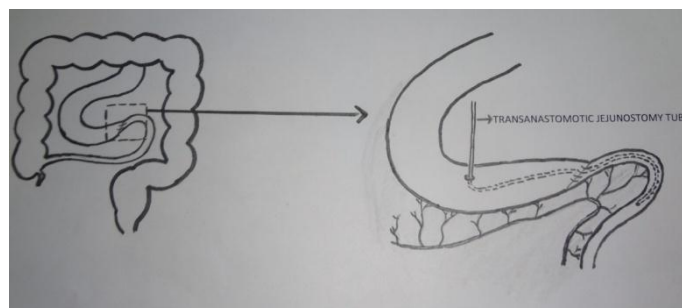
low-volume nasogastric output; a soft, nondistended abdomen; and evidence that the baby is passing flatus or stool.

The most common cause of death in infants with jejunoileal atresia is infection related to pneumonia, peritonitis, or sepsis.<sup>[8,11]</sup> The most important surgical complications are anastomotic leaks and functional obstruction at the level of the anastomosis,<sup>[8,9]</sup>

### Materials and Methods

Objective is to study the effect of transanastomotic jejunostomy tube in the surgery of neonatal jejunoileal atresia. Retrospective study was conducted on the statistical data available in the hospital for the period of 3 years. All cases that were diagnosed as jejunoileal atresia in first week of neonatal period were included in the study. Patients with other associated congenital anomalies are excluded. Only cases of single atresia were included in study. Cases of multiple atresia were excluded from the study. All cases had resection of the atretic segment and end to end anastomosis, with cheetle's cut to the distal bowel. All cases were anastomosed in single layer with 4-0 prolene were included in the study. From the post operative data available from records, patients were categorised into two groups. Those with transanastomotic jejunostomy tube inserted and not inserted. 8Fr feeding tube passed through abdominal wall from outside and entered the cavity of proximal jejunum through a small opening made in the jejunal wall. Jejunal serosa around the hole is fixed with peritoneum in the abdominal wall. Tube is kept transanastomotically. Holes at the terminal end of feeding tube are usually

kept more than 5 cm away from the site of anastomosis. In the group with tube, jejunostomy feed with breast milk started on the 3<sup>rd</sup> day of post operative period, if there are no signs of peritonitis or leak. In the group without jejunostomy tube, oral feeds with breast milk started only on the 5<sup>th</sup> day of post operative period, if there are no signs of peritonitis or leak. Jejunostomy tube is removed after one week, once patient stabilised with oral feeds. Total 22 cases were included in the study. 14 cases underwent resection anastomosis with transanastomotic jejunostomy tube. 8 cases underwent resection anastomosis without transanastomotic jejunostomy tube. Post operative clinical course evaluation includes, duration of hospital stay, incidence of complications like anastomotic leak, anastomotic stricture/intestinal obstruction, incidence of relaparotomy, incidence of mortality are evaluated and compared.



### Results

Total 22 cases were there. 14 cases were with transanastomotic tube and 8 cases were without tube. Mean hospital stay duration was equal in both groups, 9 days.

	With transanastomotic jejunostomy tube	Without transanastomotic jejunostomy tube	Details of complications	With transanastomotic jejunostomy tube	Without transanastomotic jejunostomy tube
Number of cases	14	8	Incidence of anastomotic leak	1	2
Mean hospital stay duration	9 days	9 days	Incidence of anastomotic stricture/obstruction	1	2
Total number of case had Postoperative complications	2	4	Number of cases needed relaparotomy	1	3
			Mortality	1	1

Regarding complications, in the group with transanastomotic tube, 2 cases had post operative complications; whereas the other group 4 cases had post operative complications. Regarding the details of complications, incidence of anastomotic leak is 1 case in the group with tube and 2 cases in the group without tube. Incidence of anastomotic stricture/intestinal obstruction is 1 case in the group with tube and 2 cases in the group without tube. Incidence of relaparotomy is 1 case in the group with tube, and 3 cases in the group without tube. Incidence of mortality is one in each group, probably due to preterm, low birthweight, pneumonia and sepsis.

On comparing the statistical data, hypothesis that, “resection and end to end anastomosis in jejunoileal atresia, with insitu transanastomotic jejunostomy tube is better than, those without transanastomotic jejunostomy tube” was evaluated, with Chi Square test found to be significant, with Chi square value 4.0, P value 0.04 which is significant.

### Discussion

Gastrostomy/ jejunostomy tubes are not routinely used in intestinal atresia surgeries. For a very high jejunal atresia, however, some authors recommend using a gastrostomy tube/ jejunostomy tube passing as transanastomotic tube for early postoperative enteral drip feeding.<sup>[2]</sup> Another option for early postoperative enteral feeding is to pass an orojejunal transanastomotic tube.

According to Hall, a transanastomotic tube significantly shortens time to full enteral feeds,

significantly reducing the need for central venous access and parenteral nutrition.<sup>[10]</sup>

Yardley et al reported on a case of combined multiple jejunoileal and colonic atresia managed with nine primary anastomoses over a gastroperineal transanastomotic tube.<sup>[11]</sup>

Our study also shows that resection and end to end anastomosis in jejunoileal atresia, with insitu transanastomotic jejunostomy tube is better than, those without transanastomotic jejunostomy tube. In case of transanastomotic jejunostomy tube, early feeding can be started, so the dependence over IV access is less. Early enteric feeding improves the general condition of the baby. Anastomotic stricture is less, since the anastomosis will be having a minimum calibre of the tube. Anastomotic leak is less because, insitu tube avoid acute kink at the anastomotic site, and also keeps the anastomosis patent for the peristaltic movement of intestinal fluids.

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