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Research Article

A Preliminary Report on the Efficacy of The Lateral T-Stoma: Solution for Functional Obstruction and Short Bowel Sydrome in High Jejunoileal Atresia

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Yüksek Jejunoileal Atrezide Fonksiyonel Tıkanma ve Kısa Bağırsak Sendromu için Çözüm: Lateral T-Stoma'nın Etkinliğine İlişkin Bir Ön Rapor

ABSTRACT

Objective: *This study is a preliminary report in the efficacy of lateral T-stoma (LTS), which we developed as a solution for anastomosis dysfunction and/or short bowel syndrome in the jejunoileal atresia (JIA).*
Method: *The primary pathologies and results of all cases who underwent lateral t-stoma between July 2017-2020 were evaluated retrospectively.*
Results: *Case 1 with meconium pseudocysts secondary to intrauterine volvulus had Type-3A JIA at 50 cm from the Treitz, and end-oblique anastomosis was performed. The LTS was created proximal to the first anastomosis. on Day 15 due to abdominal distension with 5/1 diameter ratio. The patient was discharged 13 days later. The LTS was closed in the 10th month. In Case 2 with Type-2 JIA at 60 cm from the Treitz, primary LTS was created proximal to the anastomosis with 5/1 diameter ratio. Patient was discharged 15 days later. The LTS was closed in the 10th month. End-to-side anastomosis was performed in Case 3 with Type-2 JIA located 70 cm from Treitz. Anastomotic leakage occurred on Day 36, and the LTS was created with 6/1 diameter ratio. The LTS was closed in the 5th month. Prenatally diagnosed Case 4 was postnatally intubated due to pulmonary hypertension, and surfactant was applied. Intrauterine volvulus, meconium pseudocyst and intestinal perforation were detected at 50 cm from the Treitz, and jejunoileal anastomosis together with primary LTS was performed with 5/1 diameter ratio. Nasogastric feeding started on the 10th day, but patient was lost on Day 44 without extubation. Primary repair and end-stoma were performed in Case 5 with gastroschisis/intestinal atresia with perforation. Due to high-flow stomal discharge/weight loss, the ileo-colic anastomosis and LTS were performed proximal to anastomosis with 3/1 diameter ratio at 60 cm from Treitz on Day 68. Patient was discharged on Day 90. In Case 6 with prenatal diagnosis as meconium cyst with Type-2 JIA (at 65 cm from Treitz), primary LTS was created proximal to the anastomosis with 4/1 diameter ratio. The LTS was closed in the 14th month due to high-flow stomal discharge.*
Conclusion: *Creation of lateral T-stoma proximal to the anastomosis in JIAs with large differences in diameters may shorten hospitalization time and relieve functional obstruction/short bowel syndrome.*

Keywords: *Jejunoileal atresia, meconium ileus, neonatal obstructions, enterostomy, bishop-koop prosedure, santulli procedure*

ÖZ

Amaç: *Bu çalışma, jejunoileal atrezide (JIA) anastomoz disfonksiyonu ve/veya Kısa Barsak Sendromu (SBS) için bir çözüm olarak geliştirdiğimiz lateral T-stomanın (LTS) etkinliğine ilişkin bir ön rapordur.*
Yöntem: *Temmuz 2017-2020 tarihleri arasında lateral T-stoma yapılan olguların birincil patolojileri ve sonuçları geriye dönük olarak değerlendirildi.*
Bulgular: *İntrauterin volvulusa sekonder mekonyum psödokistli ilk olguda Treitz'den 50 cm uzaklıkta Tip-3a JIA mevcuttu, uç oblik anastomoz yapıldı. Abdominal distansiyon nedeniyle 15. gün 5/1 çap farkı nedeniyle anastomoz proksimalinden LTS oluşturuldu. Hasta 13. gün taburcu edildi, 10. ayda stoması kapatıldı.*
Treitz'den 60 cm uzaklıkta Tip-2 JIA'li ikinci olguda, 5/1 çap farkı nedeniyle anastomoz ve proksimalinde primer LTS oluşturuldu, 15. gün taburcu edildi, 10. ayda stoması kapatıdı. Treitz'e 70 cm uzaklıkta bulunan Tip 2 JIA'lı 3. olguda uç-yan anastomoz yapıldı. 36. gün anastomoz kaçağı nedeniyle yeniden opere edildiğinde 6/1 çap farkıyla LTS oluşturuldu, 5.ayda stoması kapatıldı. Prenatal tanılı 4.olgu pulmoner hipertansiyon nedeniyle doğum sonrası entübe edildi, sürfaktan uygulandı. İntrauterin volvulus, mekonyum psödokisti ve Treitz'den 50 cm'de barsak perforasyonu ve 5/1 çap farkı nedeniyle primer LTS yapıldı. Nazogastrik beslenme 10. gün başladı, ancak hasta 44. gün ekstübe edilemeden kaybedildi. Gastroşizis, intestinal atrezi ve barsak perforasyonu olan 5.olguda primer onarım ve end-stoma yapıldı. Yüksek debili stomadan kilo kaybı nedeniyle, 68. gün Treitz'den 60 cm'de 3/1 çap farkıyla ileo-kolik anastomoz proksimalinden LTS oluşturuldu, 90.gün taburcu edildi. Prenatal intrauterin volvulus/mekonyum kisti tanılı 6. olguda Treitz'den 65 cm'de Tip-2 JIA'ya 4/1 çap farkı nedeniyle anastomoza proksimalde primer LTS oluşturuldu. Yüksek debili stoma gelenleri nedeniyle 3,5. ayda stoması kapatıldı.
Sonuç: *Büyük çap farklılıkları olan JİA'lerde anastomozun proksimalinde lateral T-stoma oluşturulması hastanede kalış süresini kısaltabilir, fonksiyonel obstrüksiyon ve kısa bağırsak sendromu bulgularını hafifletebilir.*

Anahtar kelimeler: *Jenunoileal atrezi, mekonyum ileus, yenidoğan tıkanıklıkları, enterostomi, bishop-koop prosedürü, santulli prosedürü*

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INTRODUCTION

Jejunoileal atresia (JIA) is a congenital gastrointestinal defect that occurs in one of 5,000 live births [1]. The type of atresia, remaining bowel length, and accompanying anomalies are among the factors affecting the transition to enteral feeding and the duration of hospital stay in cases with jejunoileal atresia [1]. In recent years, improvements have been made in the treatment of patients with intestinal atresia due to the improvements in neonatal intensive care units, the development of anesthesia methods and the widespread use of total parenteral nutrition [2,3].

Basic treatment methods for cases of jejunoileal atresia include primary anastomosis or the creation of intestinal stoma. The Mikulicz double-barreled enterostomy was defined firstly by Gross et al. [4]. Bishop and Coop created a distal chimney enterostomy in 1957 [5]. The opposite of the Bishop-Koop enterostomy was the proximal enterostomy described by Santulli and Blanc four years later [6]. In 1970, O'Neill et al. [7] described tube enterostomy with or without resection. A similar tecnique as a T-tube enterostomy was created by Harberg [8]. A method of the appendiceal stump for irrigation and evacuation of impacted meconium was described by Fitzgerald and Conlon [9]. Despite all of these technological advances in medicine; being of great diameter difference between the atretic tips, functional obstruction of adynamic enlarged intestinal loop in the proximal, anastomotic leak and short bowel syndrome (SBS) are still the most important complications in cases with high jejunoileal atresia.

The intent of this study is to show the preliminary results of the lateral T-stoma (LTS) technique which was developed as a solution to the anastomotic dysfunction and short bowel syndrome in cases with jejunoileal atresia by Aysenur Celayir.

MATERIAL and METHODS

After the approval of the ethics committee of our hospital, retrospective study was performed in cases that had undergone lateral T-stoma procedures. Informed consent of the families was obtained both during the hospitalization and before this procedure. The parents of all cases had been informed about the disease, all procedures performed before the treatment and surgery, and their consent was obtained.

All patients who had undergone the LTS between July 2017 and January 2020 were evaluated retrospectively. The lateral T-stoma was used in some cases with high jejunal atresia and large difference between luminal diameters of proximal and distal loops.

The success and effectiveness of the LTS were revealed by evaluating the findings in terms of age, gender, prenatal diagnosis, diagnosis, intraoperative findings, clinical condition before and after opening the LTS and its outcomes. Stool passage from the lateral T-stoma and the rectal route, transition to the enteral feeding, weight gain, duration of the total parenteral nutrition and enteral nutrition were evaluated. The results were evaluated with percentage distributions, statistical analysis was not performed because the number of cases was not sufficient yet.

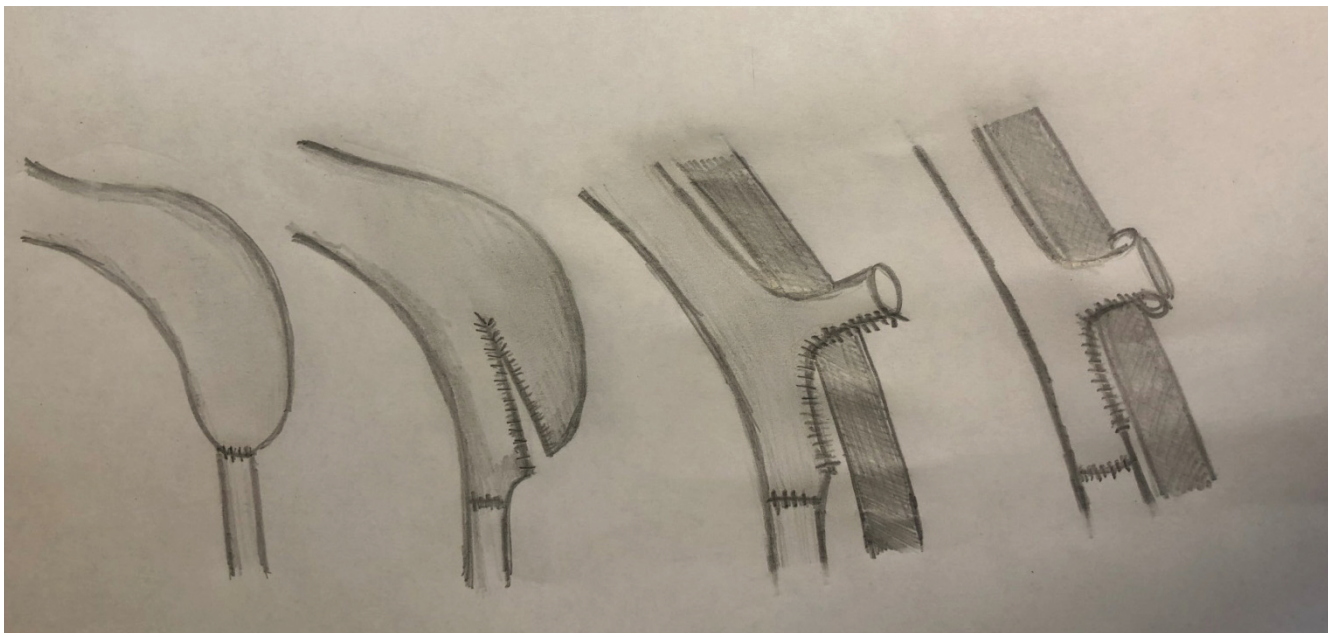
Surgical technique of the Lateral T-Stoma:

Firstly, the wide jejunum at the proximal and the narrow ileum at the distal end were anastomosed from antimesenteric edge (Figure 1A).

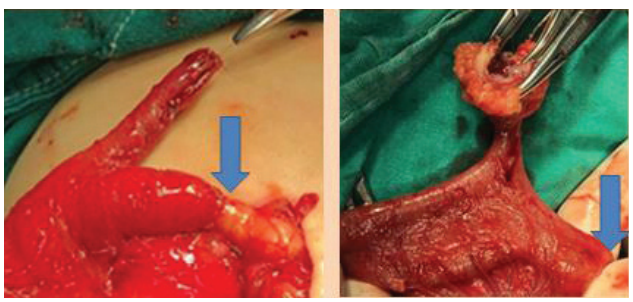
Secondly, approximately 4cm-long middle incision between the trouser legs was made along the antimesenteric edge of the enlarged jejunal loop at the proximal of the anastomosis leaving an equal-sized bowel lumen on both sides (Figure 1B).

Thirdly, the incision was sutured starting from the anastomosis as a single line continuously with 5/0 Vycril or PDS, and approximately 7-8 cm- suture line was created along the antimesenteric edge of the proximal loop. Thus, the diameter of the upper large loop was equal to that of the lower loop and the continuity of the bowel was provided with an anastomosis (Figure 1C).

Finally, an approximately 3-4 cm-long tubularized intestine extending laterally from the antimesenteric



Figures 1A, B, C, D. (A) Diagram of the first step of this technique; end-to-end anastomosis of the intestinal loops from the mesenteric edge. (B) Diagram of the second step of this technique; 4-cm long middle incision on trouser legs was made along the antimesenteric edge of enlarged proximal loop. (C) The incision made between trouser legs was sutured starting from the anastomosis side through the other side as a single line with 5/0 Vycril or PDS continuously, and approximately 7-8 cm-long suture line was created on the antimesenteric edge of the proximal loop. The continuity of the bowel was provided with an anastomosis made with the same caliber. Thus, the diameter of the anastomosed bowel was equalized. (D) Finally, an approximately 3-4 cm-long tubularized intestine extending laterally from the antimesenteric edge of the proximal loop at 4 cm above the anastomosis was anastomosed to the abdominal wall in the form of a lateral end stoma. Thus, the anastomosis and suture line remained under the stoma.



Figures 2A, B. (A) Intraoperative photo (B) Closure of the lateral T-stoma is demonstrated. Anastomosis line is marked with blue arrow in each picture.

edge of the proximal loop at 4 cm above the anastomosis was anastomosed to the abdominal wall in the form of a lateral end stoma. Thus, the anastomosis and suture line remained under the stoma (Figure 1D).

In all cases, ganglion cells in the edge of lateral T stoma, and all removed intestinal tissues were evaluated.. Before the creation of LTS, the stoma mouth was closed with a dressing, and complete stool passage was observed rectally for fifteen days. Rectal biopsies of all patients were performed before the stoma closure; and the stoma edge biopsies were evaluated.

RESULTS

The lateral T-stoma was created in six cases over a 2.5 years period; 4 of them were created as primary and 2 of them as secondary procedures.

Case 1: A Type 3a JIA at 50th cm from the Treitz was detected during the operation in a male neonate who was born with a prenatal diagnosis of meconium pseudocysts secondary to intrauterine volvulus. Distally a 35 cm ileum was detected, and end-to-oblique anastomosis was performed with a diameter difference of 5/1. Due to the development of abdominal distention and the absence of stool passage, an explorative laparotomy was performed on the 15th day. It was observed that the intact anastomosis did not work due to the diameter difference; and in the dilated jejunum loop LTS was created from the proximal of the anastomosis. A little amount stool came out from the stoma at the

third day, and the stool passage started on the 6th day. Enteral feeding was started on the 8th day, and full dose oral feeding was passed on the 11th day, TPN was tapered gradually and terminated three days later, and the patient was discharged on the 13th day. The stoma was closed due to the fact that the majority of the stool passage was achieved rectally at the 10th month. The 3.5 years old child is still devoid of any relevant complications.

Case 2: An abdominal exploration was performed on the postnatal 3rd day in a girl baby born 3900 g with the prenatal diagnosis of an intestinal dilatation. A Type 1 JIA atresia was found at 60th cm from Treitz. Primary anastomosis of the dilated jejunum and ileum was performed, and at the same session the LTS from the proximal to the anastomosis was created primarily. Discharges from the stoma and rectal route started on the 4th day, and the oral feeding was started on the 6th day as a trophic feeding, and full feeding by mouth was initiated on the 12th day. She was discharged on the 14th day. At the 10th month, the stoma was closed due to the large amount of rectal discharge. An intraoperative photo taken during the surgery of the LTS and closure of the stoma closure is demonstrated in Figures 2A, and B. Now she is 3.5 years old and is still devoid of any relevant complications.

Case 3: A 3250 g male neonate was born with the prenatal diagnosis of intestinal obstruction. In the abdominal surgery, end-to-side anastomosis was performed due to Type 2 JIA at 70th cm from the Treitz. On the 36th day, a second laparotomy was made due to intolerance of the feeding, incomplete gastrointestinal passage, abdominal distension, and a closed perforation on the anastomosis line was detected. The LTS was opened from dilated proximal loop because of the diameter difference as 6/1. In this case full-dose oral feeding was initiated on the 4th day after stool discharge from the stoma and rectal route, and the stoma was closed after observing high flow rate of rectal discharge at the 5th month.

Case 4: A male neonate with prenatal diagnosis as intestinal dilatation and suspected cystic fibrosis was born at the 36th gestational week as 2680 g. He was intubated due to low APGAR scores, and pulmonary hypertension in delivery room and the surfactant was applied. The meconium pseudocyst secondary to the intrauterine volvulus and perforation of jejunum at 50th cm from the Treitz were detected in the exploration performed on the second day after birth. All proximal and distal intestines were filled up with sticky meconium and meconium beads suggestive of cystic fibrosis. The end-to-end anastomosis with 5/1 diameter difference and primary LTS from the proximal dilated loop were performed. The patient tolerated feeding on the postoperative 8th day, and he had complete stomal and rectal passage, but still intubated infant died on the 44th day due to sepsis because he was unresponsive to treatment of severe pulmonary hypertension and heart failure.

Case 5: This male neonate was born as 2220 g with gastroschisis at 32 weeks of gestation without prenatal diagnosis. During the primary abdominal repair of gastroschisis at the postnatal first hour; an end-stoma from the site of the intestinal perforation was also created. The short bowel syndrome developed due to a very high output stoma, and the patient was not able to gain weight despite total parenteral nutrition. Breast milk was definitely not given to the patient because of bacterial growth in the breast milk sample taken from his mother, and the patient suffered from the sepsis caused by Serratia Marcencens. During the laparotomy performed on a 3380 g, and 68-day-old male newborn, it was determined that the end ileostoma was 60 cm from Treitz and only 30 cm of unused colon remained distally. These operative findings suggested that the patient had short bowel syndrome secondary to a possible volvulus in the intrauterine period together with high type jejunoileal atresia and gastroschisis. The end-stoma was excised from the abdominal wall, and an end-to-end jejunocolic anastomosis was performed with 3/1 diameter difference at both bowel ends. Then the lateral T-stoma was created from the enlarged proximal jejunum. The patient still had short bowel syndrome. Stomal and rectal passage started from the 6th day, oral feeding on the 8th day, and increased to full dose at 14th day. Total parenteral nutrition was gradually

reduced and ceased at an average of 80th days. The patient was fed with 75 cc oral formula containinig medium chain fatty acid at every three hours with 75 cc oral water intake before each feeding. Weight gain was between 10-20 g per day and he was discharged on the 90th day after treatment of second episode of sepsis caused by Serratia Marcescens completed. However, it was learned that a 17-year-old mother who was admitted to our department again one week later did not feed her baby with severe dehydration and weight loss. Rotavirus was grown in his stool. Total parenteral nutrition and enteral nutrition were started again due to the patient's excessive dehydration and weight loss. Despite the complete passage through the stoma and rectal route and weight gain, he was lost at the age of 4.5 months due to severe sepsis.

Case 6: A male neonate with prenatal diagnosis as intestinal dilatation, suspected volvulus and meconium cyst was born at the 36th gestational week as 3000 g. The meconium pseudocyst secondary to the intrauterine volvulus and jejunoileal atresia Type II at 65th cm from the Treitz was detected in the exploration on the first day of his life. Volvulated intestine was excised aproximately for 25 cm, and end-to-end anastomosis with 4/1 diameter difference and primary LTS from the proximal dilated loop were performed. The patient tolerated feeding after the postoperative 5th day, and he was discharced on the 30th day when he had complete stomal and rectal passage. At the 3.5th month, the stoma was closed due to the large amount of rectal discharge.

Fecal discharge from the stoma and rectal route was completely achieved in 6 patients at the time of discharge from the hospital. The mean time to rectal and stomal passage was 5.6±1.66 days, and to the initiation of full oral feeding was 8.4±1.41 days. All stomas worked without any complications. Amount of rectal discharge was lower than the stomal passage in all cases initially, but during the discharge of patients amount of the rectal discharge was higher than the discharge from the stoma The mean time to discharge was 21.6±13.01 days. The causes of death of two cases were not related with their stomas, and parents of both cases were second-degree relatives (both of them were cousins). These cases had jejunal

Table 1. The demographic characteristics, diagnoses, operations and final results of our 6 patients.

n	Gender	Diagnosis	1. operation and anastomosis	From Treitz (cm)	Diameter Difference	Lateral T-Stoma	Oral İntake (day)	Before Stoma/ Discharge (day)	Stoma Closure
1	Male	Meconium cyst, Type3aJIA	end-to-oblique	50.	5/1	secondary	22./7.	30./13.	10. months
2	Female	Type1 JIA	end-to-end	60.	5/1	primary	7.	14.	10. months
3	Male	Type2 JIA	end-to-end	70.	6/1	secondary	44./8.	56./15.	5. months
4	Male	Meconium Cyst: Meconium İleus, Volvulus, Perforation	end-to-end	50.	5/1	primary	10.	44. exitus	exitus
5	Male	Gastroschisis with İntrauterin (Jejunum) Perforation	primary repair with end-stoma	60.	3/1	secondary	78./10.	98./22. sepsis exitus	exitus
6	Male	Meconium Cyst: Volvulus, Tip2 JIA	end-to-end	65.	4/1	primary	5.	30.	3.5 months

n=6	Stool passage from	Oral intake
Mean day	5,6	8,4
Standart deviation	±1,66	±1,41

perforations secondary to intrauterine volvulus, and possibly cystic fibrosis disease.

Biopsies obtained from stoma edge and rectum were reported as ganglion-positive in all cases. The demographic characteristics, diagnoses, operations and final results of the patients are summarized in Table 1.

DISCUSSION

In Type 1 and Type 2 atresia where the length of the distal intestine is sufficient, removal of the adynamic dilated bowel is recommended for anastomotic safety and passage. However, the slightest resection in Type 3b and Type 4 jejunoileal atresia, or complicated intrauterine atresia, may aggravate the short bowel condition. Atresia, such as the presence of meconium peritonitis with Type 3b and Type 4 jejunoileal atresia called severe intestinal atresia requires long-lasting parenteral nutrition with higher mortality rates and re-operation [10,11].

Treatment of cases with intestinal atresia include primary anastomosis and/or the stoma opening. Both of these techniques have its potential complications as well as variable success rates [12-15]. In cases where a stoma needs to be opened, different stoma opening methods have been defined in consideration of the length of the intestine up to the stoma as well as facilitating stool passage distally. The Mikulicz double-barreled enterostomy is preferred by some because complete evacuation of thickened meconium is not necessary and intra-abdominal anastomosis is avoided, thereby preventing the risk of anastomotic leakage [4]. In addition, the bowel can be opened after complete closure of the abdominal wound, thereby reducing the risk of intraperitoneal contamination. A distal chimney enterostomy, described by Bishop and Koop, involves resection with anastomosis between the end of the proximal segment and the side of the distal segment of bowel. The opposite of the Bishop-Koop enterostomy is the proximal enterostomy described by Santulli and Blanc [4-6]. Like the distal chimney enterostomy, catheter inserted into distal limb is pulled out through the stoma, thus providing means of irrigating the distal bowel. Performing a Santulli or Bishop-Koop type enterostomy allows progressive transanastomotic enteral feeding by slight flow of luminal nutrients, which has a trophic influence on the distal intestinum and stimulated maturity of bowel motility and function [4-6,10-15]. Bishop-Koop ileostomy shortened the median hospital stay and TPN duration in severe intestinal atresia [13]. Bishop-Koop or Santulli ileostomies can be preferred as a more effective method than divided stoma in patients with meconium ileus, intestinal atresia and necrotizing enterocolitis [13]. Despite medical and surgical management, cases with short bowel syndrome (SBS) and discrepancy between the luminal diameters of proximal small bowel and distal colon, have persistent feeding intolerance; and the apparent disadvantage with these techniques is the presence of a high output stoma and the inherent risk of dehydration [4].

The lateral T-stoma procedure developed by Aysenur Celayir. involves end- to- end anastomosis between proximal and distal segments and tapering a part of the antimesenteric side of the dilated proksimal segment as a stoma. Actually LTS can be considered as a modification of the Santulli procedure. Lateral T-stoma is more advantageous than the Santulli procedure; since the anastomosis and tapering suture line remain under the stoma in the lateral T-stoma technique, and also complications such as anastomotic leak or detachment are not observed.

In the lateral T-stoma procedure, since the disadvantages of adynamic ileal loop are eliminated by tapering the large adynamic loop at the proximal of the lateral T-stoma as inspired by Santulli or Bishop-Koop ileostomy, the possibility of leakage from sutures decreases. Thus sutures of the tapering and anastomosis are located approximately 3-4 cm distally from the stoma which reduces the risk of anastomotic leakage from sutures. This tecnique provides the enteral continuity and anastomotic line and tapering line retain its distal position for treatment or inspection. Secondarily since the diameter of the intestine proximal to the anastomosis created by the tapering is larger at least as wide as

the distal bowel, easy transition to the distal part is achieved. This method, which was applied for the first time in a secondary case, was thought to be useful in the treatment of high jejunal atresia with a large diameter difference between the blind ends. It was thought that this procedure can be applied primarily in cases with an increased difference between luminal diameters.

A high-output stoma occurred in all patients after creation of a lateral T-stoma. In all patients with LTS, functions of stomas were good after stomas matured, with regression of the mucosal edema and restart of bowel movement, and gastrointestinal passages under the level of stoma were opened, and rectal outputs were much more than the stomal outputs in all patients. No patient with lateral T-stoma required premature closure of the stoma thanks to achievement of a high-output stoma. Surgical choice for lateral T-stoma procedure allowed maintenance of enteral continuity with the distal anastomosis and tapered suture lines, therefor were provided in reducing the risk of short bowel syndrome and the duration of TPN and hospitalization even in “severe” cases.

Anastomotic leaks are serious complications occurring after repair of intestinal atresia. The high incidence of anastomotic leaks in apple peel atresia (14%) compared with the other types of intestinal atresia (4%) is due to inadequate blood supply at the anastomotic site owing to its retrograde blood supply provided by only a single artery [11]. Due to the large diameter difference in high jejunoileal atresia and the long suture line in tapering, anastomotic leaks can be seen at very high rates. Some studies have reported that half of the cases of sepsis were caused by anastomotic leakage, and therefore a functional anastomosis appears to be a key prognostic factor for the early survival of these children [11]. Since the patency of the passage could not be achieved due to the adynamic bowel loop at the proximal of the anastomosis because of the high difference in luminal diameters, the LTS technique was applied in two cases as a secondary procedure. Anastomotic leakage did not develop in any patient after the creation of the LTS as primary or secondary procedure.

According to preliminary results of our six cases; LTS can be applied as a primary alternative in appropriately selected cases, and it can be safely applied as a secondary procedure to all other cases in functional obstruction with greater difference in luminal diameters. Although the number of our cases is not sufficient yet, according to our preliminary results, the opening of gastrointestinal passage was achieved in cases in which LTS was applied as primary or secondary procedures. In these patients, the use of a lateral T-stoma in continuity as a salvage method to decompress the proximal intestine with or without maintaining maximal intestinal length can be proposed. In addition, a rectal biopsy was performed in all cases to exclude a possible Hirschsprung disease or neuronal intestinal dysplasia before closing the neonatal stoma. In cases with lateral T-stoma, it is also possible to close the lateral T-stoma without biopsy in cases where the stoma is closed with dressing and the rectal passage is seen to be uneventful. Therefore, lateral T-stoma seems to be more advantageous compared to other methods in neanatal intestinal obstructions with increasd difference in luminal diameters in terms of ease of application and decreasing the need for rectal biopsy.

In selected cases of candidates carrying higher risk for developing short bowel syndrome such as jejunoileal atresia, total colonic aganglionosis or meconium ileus where difference between the diameters of proximal distal ends is greater than 5/1, the lateral T-stoma procedure seems to be a promising option. LTS is a feasible and safe surgical chois for the management of congenital anomalies resulting in SBS. LTS provides early intestinal continuity, creates intestinal tapering from congenitally dilated intestinal loop, and appears to prevent the need for creating interval stomas and their associated loss of intestinal length in newborns with congenital SBS. However, additional studies with recent changes in SBS treatment emphasizing intestinal rehabilitation are needed to assess long-term impact on bowel adaptation of the lateral T-stoma performed in neonates prior to adoption of this method.

Ethics Committee Approval: Zeynep Kamil Gynecology and Pediatrics Training and Research Hospital Clinical Research Ethics Committee approval was obtained (18.09.2019/91).

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