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## One Stage Transanal Swenson-Like Pull-Through Operation: Our Early Experience

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### Abstract

Operative management of Hirschsprung Disease (HD) has evolved from staged operation to one stage minimal invasive operation. One stage transanal Swenson-like pullthrough operation is the latest concept of one stage procedure in managing HD. We evaluate early outcome of one stage transanal Swenson-like pullthrough operation for managing PH located at rectosigmoid in our institution during 2017. Our follow up evaluate the incidence of post operative stricture or stenosis, anastomotic leakage, enterocolitis, urinary dan defecating function. Six patients underwent transanal resection with age ranging from 11 months to 5 years. Average length of resected intestinal is  $10 \pm 5$  cm. Mostly, patient came back to office after 3 months. No post operative incidence of urethral injury, anastomotic leakage or retraction at anastomotic site were reported. There were reports of 1 patient with intraoperative bleeding, 1 patient anal excoriation due to enterocolitis and 1 patient with stenosis. There were no patient reported with urinating and defecating disorders. There were no mortality incidence in this study. Despite the need of long term observation for evaluating urinating and defecating function, modification of transanal Swenson-like method might be used in managing HD.

**Keywords:** Hirschsprung Disease; Rectosigmoid; Transanal.

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## **1. Introduction**

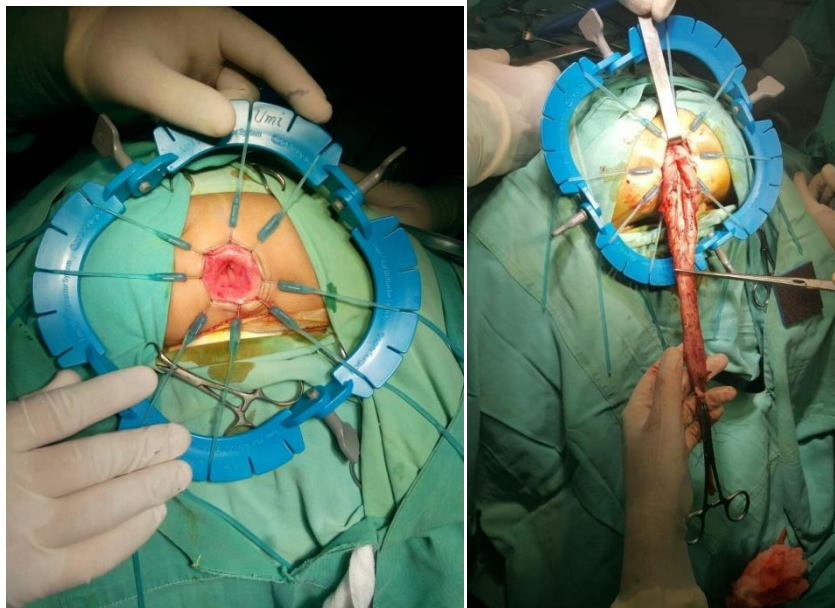
Hirschprung's disease (HD), also known as congenital megacolon is a hereditary disorder caused by absence of intramural ganglion cell and presence of neural hypertrophy on the distal part of the colon causing obstruction on the colon functionality [1]. Severe constipation and megacolon on proximal aganglionic intestine can cause enterocolitis that is life threatening if not treated [2]. Rectum is always involved, with 80% of the cases were found on rectosigmoid colon [3]. Surgical management goal for HD is to cut the aganglionic colon segment and reconstruct intestine by pulling the normally innervated intestine to anus while preserving normal sphincter and anal function [4]. Transanal approach was first described by De la Torre-Mondragon and Ortega-Salgado [5]. While minimally invasive access was described in 1990s, and laparoscopic procedure was reported by Georgeson and his colleagues Compared to the transabdominal approach, transanal approach was associated with shorter hospitalization period and fewer complication rate. Recently surgical management for rectosigmoid HD has evolved from multi-staged operation into one stage transanal pull-through operation. Rectal dissection method that has been used is transanal full-thickness pull-through procedure with Swenson approach continued by careful preservation of dentate line. Modified Swenson pull-through procedure that we used was described by Xu and his colleagues [6].

## **2. Material and Method**

Patient's data were taken from medical records in Paediatric Surgery Division of Wahidin Sudirohusodo General Hospital and other network hospital from January 2017 until August 2017, where we found 6 patients with rectosigmoid HD that have undergone one stage transanal full thickness pull-through operation (transanal approach similar to Swenson method). All patients have history of delayed meconal passage or constipation, and were diagnosed with HD from barium enema examination and rectal biopsy. We exclude patients with stoma. HD patient's characteristics were collected including age, gender, length of aganglionic segment, bleeding, urinary tract injury, length of operation, as well as short term prognosis like anastomosis leakage, enterocolitis, and post-operative stenosis. Evaluation was done during hospitalization, and in Paediatric Surgery outpatient clinic for 0-6 months.

### ***Operation Technique***

Pre-operative preparation was done by rectal irrigation and antibiotic administration. Under general anaesthesia, all patient prepared with pre-urethral catheterization, and rectal irrigation with povidone iodine solution. In prone position, perianal retraction was done using lonestar placement, a little bit proximal from dentate line and make sure that the dentate line will be protected during surgery. Full thickness incision was done in circumferential fashion, incise until full thickness of the rectum wall, continued proximally until peritoneal cavity until rectum can be mobilized and sigmoid colon came from anus, and we can also see transitional zone. After that we make marking using silk on 12 o'clock to prevent intestine rotation. Aganglionic colon segment will then resected and continued with full thickness colon-anal anastomosis, 11.0 cm proximal to dentate line.



**Figure 1**

### **3. Result**

Six children, consists of 4 man and 2 women aged 11 months until 5 years (median 22.33 months) underwent one stage transanal full thickness pull-through operation similar to Swenson method. Operation duration varies from 105 minutes until 210 minutes (mean 145 minutes). Length of intestine being resected is  $10 \pm 5$  cm (mean 8.3 cm). There was no patient experiencing post-operative urethral damage, anastomosis leakage, or retraction in anastomosis area. However, we found 1 patient experiencing intraoperative bleeding and require transfusion. Oral feeding was given within 48 hours post-operative, and full feeding given at 72 hours post-operative. Patients were discharged within 5-7 days. One patient suffers from perianal excoriation due to post-operative enterocolitis. One patient suffers from stenosis and recover after anal busination. No mortality was found in this patient group.

### **4. Discussion**

Corrective surgery technique has evolved from time to time. Soave and Swenson Transanal operation (open, laparoscopic, or transanal) is the most common technique used to treat short segment in HD. Those technique can be done in 2 step (with colostomy for initial diversion) or in single step. Swenson and Soave technique can also be done completely from transanal approach. Primer transanal pull-through technique with several modification have been a standard treatment in all over the world, each with its own limitation and advantages. The advantage of one step transanal procedure is it prevent multiple laparotomy and colostomy along with all their complications, reduced operation time and reduced blood loss, reduced hospitalization period and costs, no external wound as well as better cosmetic result without sacrificing functional quality. The most important advantage of this technique is it reduce parent's burden in nursing colostomy after the operation. We did one stage transanal full thickness pull-through operation (transanal approach similar to Swenson method) in HD cases after confirmed diagnosis with enema contrast and rectal / full thickness biopsy. In intra-operative, we

start rectal incision 1 cm above dentate line so that we can cut all aganglionic intestine segments. In this case, we didn't find any leakage or anastomosis damage. Enterocolitis is one of the most feared complications during early HD post-operative period, and in this study we found 1 patient suffering from enterocolitis (16.6%). From historical perspective, it was said that Swenson surgery can cause risks to pelvic structure as well as long term risk for voiding and sexual function. Zahid and his colleagues reported that from 15 patient that underwent transanal approach such as Swenson method, they didn't found any patient suffering from incontinence or sexual dysfunction. They speculated that those complications only occurred if rectal dissection was done too wide. Basic for Soave operation is to reduce injury risks to pelvic structure, such as autonomic nerve, urethra, prostate, or vagina that can cause sequel. Swenson approach have advantage to carefully resects rectal wall and in reducing anastomosis stenosis risk. Patients that underwent transanal endorectal pull-through (transanal Soave) can suffer from stenosis due to muscle cuff, which causes functional obstruction leading to stasis, colon dilatation, faecal spoiling, and intestine emptying process disturbances. Full thickness surgery using transanal approach such as Swenson technique that we used aimed to prevent cuff residual or pouch that can cause obstruction. Main complications for pull-through procedure including perianal excoriation, anastomosis stenosis, repeated constipation, soiling, enterocolitis, prolapsed intestine, and anastomosis fistula.

## **5. Conclusion**

Modified transanal approach concept similar to Swenson method can be used as one of the surgery approach technique for HD treatment, but it still needs long term research to assess voiding and defecation disturbances. We have limitation in numbers of population study and a short period of observation.

## **6. Recommendation**

We recommend to extend the period of this study for at least 5 years so that we could achieve a significant numbers of sample population. Complications could also be observed in a longer period to achieve a more reliable data.

## **Acknowledgmenets**

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## **7. Footnote**

Conflicts of Interest: The authors have no conflicts of interest to declare

## **References**

- [1]. Green, Holly L. MPAS, PA-C; Rizzolo, Denise PhD, PA-C; Austin, Mary MD, MPH. Surgical management for Hirschsprung disease: A review for primary care providers. *Journal of the American Academy of Physician Assistants*: April 2016 - Volume 29 - Issue 4 - p 24-2doi: 10.1097/01.JAA.0000481397.68475.41

- [2]. A. K. M. Zahid Hossain, Gazi Zahirul Hasan, Susankar Kumar Mandal, Md. Nooruzzaman, A. Shahinoor and Dinesh Prasad Koirala. One stage transanal full thickness pull-through operation for rectosigmoid Hirschsprung's disease. *Bangabandhu Sheikh Mujib Medical University Journal*, Vol 9, No 3 (2016)
- [3]. Schäppi MG, Staiano A, Milla PJ, et al. A practical guide for the diagnosis of primary enteric nervous system disorders. *J Pediatr Gastroenterol Nutr.* 2013;57(5):677–686.
- [4]. Langer JC, Seifert M, Minkes RK. One stage Soave pull-through for Hirschsprung's disease: A comparison of the trans anal VS open approaches. *J Pediatr Surg.* 2000; 35: 820-22.
- [5]. De La Torre L, Langer JC. Transanal endorectal pull-through for Hirschsprung disease: technique, controversies, pearls, pitfalls, and an organized approach to the management of postoperative obstructive symptoms. *Semin Pediatr Surg.* 2010;19(2):96–106.
- [6]. Xu ZL, Zhao Z, Wang L. A new modification of transanal Swenson pull-through procedure for Hirschsprung's disease. *Chin Med J* 2008;121:2420–3.
- [7]. Kessmann J. Hirschsprung's disease: diagnosis and management. *Am Fam Physician.* 2006;74(8):1319–1322.
- [8]. Vult von Steyern K, Wingren P, Wiklund M, et al. Visualisation of the rectoanal inhibitory reflex with a modified contrast enema in children with suspected Hirschsprung disease. *Pediatr Radiol.* 2013;43(8):950–957.
- [9]. Friedmacher F, Puri P. Rectal suction biopsy for the diagnosis of Hirschsprung's disease: a systematic review of diagnostic accuracy and complications. *Pediatr Surg Int.* 2015;31(9):821–830.
- [10]. Hayes CE, Kawatu D, Mangray S, LeLeiko NS. Rectal suction biopsy to exclude the diagnosis of Hirschsprung disease. *J Pediatr Gastroenterol Nutr.* 2012;55(3):268–271.
- [11]. Langer JC, Durrant AC, de la Torre L, et al. One-stage transanal Soave pullthrough for Hirschsprung disease: a multicenter experience with 141 children. *Ann Surg.* 2003;238(4):569–583.
- [12]. Weidner BC, Wald hausen JH. Swenson revisited: A one-stage transanal pull-through procedure for Hirschsprung's disease. *J Pediatric Surg.* 2003; 38:1208-11.
- [13]. Mahajan JK, Rathod KK, Bawa M, Narasinhani KL. Transanal Swenson's operation for recto-sigmoid Hirschsprung's disease. *Afr J Pediatr Surg.* 2011; 8: 301-05.
- [14]. Temple SJ, Shawyer A, Langer JC. Is daily dilatation by parents necessary after surgery for Hirschsprung disease and anorectal malformations. *J Pediatr Surg.* 2012;47(1):209–212.
- [15]. Nasr A, Langer JC. Evolution of the technique in the transanal pull-through for Hirschsprung's disease: effect on outcome. *J Pediatr Surg.* 2007;42(1):36–40.
- [16]. Levitt MA, Dickie B, Pena A. Evaluation and treatment of the patient with Hirschsprung's disease who is not doing well after *pull*-through procedure. *Semin Paediatr Surg.* 2010; 19: 146-53.