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OUTCOMES OF ABDOMINOPERINEAL SWENSON PROCEDURE FOR HIRSCHSPRUNG'S DISEASE.

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ABSTRACT

OBJECTIVE: To share the outcomes of abdominoperineal Swenson procedure for Hirschsprung's disease**. METHODS:** A four-year retrospective observational study conducted from January, 2017 to January 2021 at PUMHS, Nawabshah after approval from ethical review board. We collected the medical records of 65 patients who were having Hirschsprung's disease diagnosed clinically, radiologically and confirmed by rectal biopsy. Abdominoperineal Swenson procedure performed in 65 patients by a single surgeon. Variables analyzed were demographic, early post-operative and late post-operative complications, dilatation compliance, and quality of life assessment. Initially the patients were followed weekly for 2months, once in a month for 6 months and after 3 months for a year. All statistical analyses were done by using IBM SPSS 25 version. Categorical variables were expressed in frequency number and percentages. Quantitative data were expressed as median or mean + standard deviation SD. **RESULTS:** There were 65 children, 48 boys and 17 girls M: F=2.8:1. The mean age of surgery was 2.43 years + 2.17 SD range 1-5 years. Out of 65 patients only 21 32.3% patients developed early post-operative complications wound infection in 8 12.3%patients, wound dehiscence in 34.6% patients, transient neurogenic bladder in 3 4.6 % patients, retraction of pulled segment in 4 6.1% patients, sepsis in 3 4.6% patients, death in 3 4.6% patients. In late complications, 46.45% patient had stricture, 23.2% patient developed post op adhesions, and night incontinence accidents seen in 5 8.1% patients. **CONCLUSION:** Swenson procedure is a good option to deal with Hirschsprung's disease in terms of low rate of complications. Fecal incontinence is the major determinant of quality of life which should be addressed aggressively so child can live social life comfortably.

KEY WORDS: Hirschsprung's, Swenson, Abdominoperineal pull through

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INTRODUCTION

Hirschsprung disease is a congenital anomaly having an incidence of 1 in 5000 live births, causing functional obstruction in infants. It is a complex genetic disorder characterized by aganglionosis at various levels in distal bowel leading to obstructive symptoms[1]. Different surgical techniques has been used to cure the problem either by totally removing or bypassing the aganglionic segment; most common procedures are Swenson, Duhamel and Soave's[2]. In 1940's, Swenson performed the first procedure that guided in understanding the Hirschsprung disease with subsequent good results[3]. Even in experienced hands, none of the procedure is without complications, persistence of constipation or incontinence is an important marker of surgical outcomes and had strong impact on quality of life[4]. In our hospital, Swenson procedure has been practiced for a long period that have been evolved from abdominoperineal to lap assisted Swenson procedure. The aim of study is to share the outcomes of abdominoperineal Swenson procedure for Hirschsprung's disease in our institution.

MATERIAL & METHODS

This is a retrospective observational study that conducted from January, 2017 to January, 2021 at PUMHS, Nawabshah after approval from ethical review board. We collected the data of 65 patients from medical records, who were having Hirschsprung's disease diagnosed clinically, radiologically and confirmed by rectal biopsy. Abdominoperineal Swenson procedure performed in 65 cases by single surgeon. All patients bowel preparation done at least 2 days by regular saline/pyodine washouts and kept nil per orally for 1 day before surgery. Along with

that fourth-generation antibiotics started to prevent sepsis.

Operative steps of Swenson's procedure:

After induction of anesthesia child is placed in a position where abdomen and perineum are prepared in somewhat lithotomy position. A nasogastric tube and Foleys catheter are placed and child is prepared circumferentially from abdomen to feet and the stockings placed under feet. The type of incision given based on stoma either pelvic or left transverse then bowel is mobilized proximal to stoma up to get adequate length for the pull through. Ureter is carefully identified and saved during dissection. Distal rectum is mobilized up to 4cm below peritoneal reflection and colostomy site removed if present. Dissection carried out in midline retro. rectally and space is created with finger dissection down to the pelvic floor and assistant finger can be felt from below up to 1.5 -2 cm from anus. After completion of retro rectal dissection then tacking sutures placed on distal rectum and pulled down thru anus taking care of antimesenteric and mesenteric sides not to twist the bowel and bring the bowel in correct orientation. The aganglionic portion is everted thru the anus and cut in oblique fashion leaving 1.5-2 cm anteriorly and 1 cm posteriorly. Now attention is carried to perineal end after pulled down colon. Retractors are place to apart anus avoiding overstretching and damage to sphincters. Surgeon at perineal end then insert long clamp into pelvis and take down the ganglionic part down thru anus. Once the bowel is pulled down in correct orientation without tension a single layer anastomosis is done with the portion of anus left above dentate line. Once the anastomosis is complete is completed the anastomotic area is pushed into anus .at the end inside abdomen colon is tagged with mesentery to prevent retraction of pulled bowel and then wound is closed in layers.

The variables analyzed were demographics, early and late postoperative complications, dilatation compliance and quality of life assessment. For assessment of quality of life above 3 years age child we made a simple proforma that can be understandable by our region people as the literacy rate is quite low and following parameters were included in it: soiling, diet modification, school absence, unhappy/anxious and peer rejection. The score was ranged from 0 to 2 for each component Table: A and graded accordingly. Initially the patients were followed weekly for 2months, once in a month for 6 months and after 3 months for a year. All statistical analyses were done by using IBM SPSS 25 version. Categorical variables were expressed in frequency number and percentages. Quantitative data were expressed as median or mean + standard deviation SD.

Component	Criteria	Score
Soiling	Absent	2
	Accidental	1
	Frequent	0
School absence	Never	2
	Accidental	1
	Frequent	0
Diet modification	No	2
	Somewhat	1
	Frequent	0
Unhappy/ anxious	Never	2
	Accidental	1
	Frequent	0
Peer rejection	Never	2
	Accidental	1
	Frequent	0
Total score: Good 7- 10, Fair 4- 6, Poor 0 – 3		

Table A: - Modified Quality of Life Assessment Scoring

RESULTS

There were 65 children, 48 boys and 17 girls M: F=2.8:1. The mean age of surgery was 2.43 years + 2.17 SD range 1-5 years. In 36 patients, stoma was pelvic and 29 patients had transverse stomas. Out of 65 patients, only 21 32.3% patients developed early post-operative complications. Wound infection was the most common complication seen in 8 12.3% patients, wound dehiscence in 34.6% patients, transient neurogenic bladder in 3 4.6% patients, retraction of pulled segment in 4 6.1% patients, sepsis in 3 4.6% patients, death in 3 4.6% patients and in 1 patient we observed vaginal fistula that is a rare complication on the 6th postoperative day.

Wound infection managed by daily dressing and fourth generation antibiotics, wound dehiscence patients explored and managed accordingly. Transient neurogenic bladder was monitored closely and catheter is place for a long period. Those patients whose segment retracted, diversion of the segment done and patient who developed vaginal fistula, her fistula repaired and diversion of the pulled segment done. Overall late complications rate was 34 % that we observed in 62 patients. Stricture and enterocolitis in 4 patients each 6.45%, post op adhesions developed in 2 3.2% patients, night incontinence accidents seen in 5 8.1% patients, perianal excoriation 3 5% patients, mucosal prolapse 23.2% patients and perianal fistula 1 2% patients. Patients who developed enterocolitis and post op adhesions were managed medically. For night incontinence and perianal excoriation parents were counselled about bowel management program and skin barriers with local antiseptics were given in later condition. Those patients who developed mucosal prolapse, they were managed by injection sclerotherapy 5% phenol almond oil and patient having perianal fistula that was low type fistula so fistulotomy done under general anesthesia.

Regarding dilatation program, 50 patients were compliant and 12 patients were non-compliant. Out of this 12 non-compliant to dilatation program, 4 developed stricture and remaining 8 lost from follow-up. These patients underwent dilatation under sedation and then program continued with strict follow-ups.

A modified quality of life assessment scoring Table: - A is used so that can be understandable by parents. We excluded those patients who were below 3 years 12 patients, and 10 patients lost from follow-ups. Only 40 patient's parents were willing to co-operate. 8 patients had soiling, 12 patients required diet modification, 5 patients never went to school, 7 patients were unhappy/anxious and peer rejection observed in 8 patients.

DISCUSSION

Hirschsprung's disease is a complex genetic disorder. Different surgical procedures has been introduced from bypass to complete removal of aganglionic segment, either by single stage abdominoperineal, transanal endorectal pull through or lap assisted pull through method or by two stage surgeries with variation in results[5,6]. Swenson procedure is the best way to completely excise the aganglionic segment in Hirschsprung's disease, however some surgeons still reluctant to do it because of extensive pelvic dissection and high post-operative complications. In our study, age range of patients were from 1 year to 5 years with male predominant that is comparable with other studies[7, 8]. In this study, we have observed wound infection 32.3% patients despite good antibiotic coverage as the commonest complication in early postoperative period which is quite high compared to other study[8].Ghawalby AE et al reported one case of rectovaginal fistula, a rare complication, we also observed one case in our study[9]. Maryam khazdouz et al[10] reported constipation and incontinence was the most frequent complication. They reported enterocolitis 6% to 8% early/late complication but in our study we observed it as a late complication in 6% patients.

In our study, 6.4% patient had stricture, 2% patient had perianal fistula and 3.2% patient had post-op adhesions that is comparable with other studies[11].

Post pull through dilatation is important and highly recommended by surgeons to prevent and avoid anal stenosis[12]. Anastomotic strictures responds well with anal dilatations in order to avoid redu operations[13]. In this study, we noticed that those patients who were non-compliant to dilatation program developed stricture, but those strictures responded well with dilatation afterwards.

Assessing quality of life is a multidimensional concept that includes social, physical and psychological function of an individual. Different scoring criteria's and questionnaires are formulated, HAQL is considered valid and reliable for the evaluation of quality of life in Hirschsprung disease as it is translated in multiple languages but the minimum age to participate in this criteria is 6 years[14]. In our study, we adopted a simple and understandable form of questionnaire as the literacy rate is quite low. As compared to other studies, we observed soiling in 20% patients and that is because of overflow incontinence due to constipation that is quite low[15, 16]. Soiling is one of the reason for the embarrassment of child in social environment leading to absentee from school and negative impact on the psychological development of child. Diet modifications and regular washouts helps child who are having constipation as the cause of soiling. YZ Bai et al reported[16] that 55.7% patients modified their diet, 13.3% patients were absent from school and 16% patients had problem with peer relations. In our study, 30% patients required diet modification, 13% patients were absent from school and 20% had peer rejection that is not statistically significant.

CONCLUSION

Swenson procedure is a good option to deal with Hirschsprung's disease in terms of low rate of complications. Fecal incontinence is the major determinant of quality of life which should be addressed aggressively so child can live social life comfortably.

ETHICS APPROVAL: The ERC gave ethical review approval.

CONSENT TO PARTICIPATE: written and verbal consent was taken from subjects and next of kin.

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CONFLICT OF INTEREST: No competing interest declared.

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