ORIGINAL ARTICLE

Single Stage Anterior Sagittal Anorectoplasty for Rectovestibular Fistula in Neonate

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Abstract:

A prospective study was carried out in the department of Paediatric surgery, Dhaka Shishu (Children) Hospital, Dhaka for the period of three years since January 2002 to December 2004 on anorectal malformation with rectovestibular fistula in neonate. The aim of this study was to see the safety and feasibility of the single stage ASARP operation in neonates. Total 18 neonates were included in the study. The weight of the neonates ranged from 2.5 Kg to 3.7 Kg. They underwent single stage ASARP as described by Okada et al and followed up post operatively one year or more to observe the operative complications and functional status of the anus. Among the 18 cases, all were continent, only two cases suffered from occasional perianal soiling which improved subsequently. There was no mortality. Thus the operative procedure can be used effectively in keeping with the objective of restoring anatomy and normal bowel and urinary control.

Introduction:

Imperforate anus has been a well known condition since antiquity[1]. It encompasses multiple congenital defects with varying degrees of complexity, whose repair implies varying degrees of technical difficulties[2]. Although imperforate anus is the name given to this condition, most anorectal malformation (ARM) communicate by a fistula with either the urinary or genital tract or open to the skin of the perineum[3]. Imperforate anus occurs in one of every 4000 to 5000 newborns with a slight preponderance in males[1]. The most frequent defect in female patients is rectovestibular fistula[4]. Despite a better understanding of embryology and the anatomy and physiology of continence, the management of children born with ARMs continues to be a surgical challenge and is still fraught with numerous complications and often leads to less than perfect qualitative results[5-7].

Paediatric patients with rectovestibular fistula have excellent functional prognosis in terms of bowel function when properly treated. The clinician will observe a normal urethral meatus and vagina, with a third whole in the vestibule, which is the rectovestibular fistula. Immediately above the fistula, rectum and

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vagina separate by a thin common wall. These patients usually have well developed muscles and normal sacrum and nerves. Meticulous inspection of the newborn genitalia is needed for the diagnosis[1].

deVries and Pena, in 1982, reported posterior sagittal anorectoplasty as an operative procedure for high or intermediate imperforate anus[8]. With reference to the idea of this operative procedure, Okada et al devised a new approach, anterior sagittal anorectoplasty (ASARP), for repair of vestibular fistula, in which, in the lithotomy position, sphincter muscles are cut from the anterior aspect longitudinally through a median perineal skin incision and then the rectum was passed through the central portion of the external sphincter muscle[9]. Paediatric surgeons repair this defect, primarily without a protective colostomy[1, 10, 11].

Here, experience with single stage ASARP for rectovestibular fistula without colostomy in neonates is shaved.

Materials and method:

This is a prospective study of 18 full term neonates, who underwent anterior sagittal anorectoplasty in the neonatal period at Dhaka Shishu (Children) Hospital, Dhaka from January 2002 to December 2004. During this period 18 neonates were admitted in the department of Paediatric Surgery with anorectal malformation with rectovestibular fistula, diagnosed initially by careful inspection of the perineum and vestibule. Ultrasonography of perineum (to measure pouch-perineal distance) and KUB region was done to rule out other associated anomalies. X-ray sacrum lateral view was routinely done to rule out vertebral anomalies. Operation was begun with the patient held in the lithotomy position with legs hanging the from up. All patients underwent ASARP as described by Okeda et al[9]. While confirming the responsiveness of muscles to electrical stimuli the direction of running muscle fibers was determined by means of a nerve stimulator to locate the site of neoanus. No attempt was made to taper the distal bowel, as this was found to be unnecessary. In this way, an anal opening could be made at the normal position, adequately spaced from the vaginal vestibule and the posterior perineal commisure. An early assessment was done on the 14th post operative day. The appearance of the anus was noted and anal size calibrated with Hegar's dilator. Dilatation was done up to 9 size Hegar dilator for neonates.

Results:

The body weight at operation ranged from 2.5 Kg to 3.7 Kg. Pelvic muscles were good in all cases. There was no mortality. The mean operating time was 90 minutes. In all cases, the post-operative course was uneventful except in three cases. These three cases developed partial wound disruption post-operatively which healed later on. Catheter was removed on the third post-operative day and oral feeding started on fourth post-operative day. The mean hospital stay was seven days. During the subsequent follow up, anterior displacement of the anus was not seen in any of the cases. Anal dilatation was started on fourteenth post-operative day. Three patients were found anal stenosis due to non-compliance of the mother in anal dilatation schedule, which improved under supervised anal dilatation. Four patients had associated anomalies (Table-I).

Table–I: Types of associated anomalies (n=4)

Types	Number of patients
Right renal agenesis	01
VSD	01
Polydactyle (right hand)	01
Incomplete cleft palate	01

All the patients were followed up for the period of one year or more. During the follow up, state of continence and bowel habits was observed. Among the 18 cases, all were continent, only two cases suffered from occasional perianal soiling which improved subsequently. All of them had regular bowel habits without the use of laxatives. It is too early to comment on the outcome of operation in these patients, particularly with respect to anorectal function, but early bowel movements are encouraging for future continence.

Discussion:

There is no doubt as to the benefits and advantages of single stage anorectal reconstruction. The need for only one operation, shorter total hospital stay, and avoidance of the troublesome colostomy makes it a very attractive possibility[12]. The previously used surgical techniques include cutback[13], perineal anal transplant[9], Y-V and X-Z plasty[14], colostomy followed by minimal posterior sagittal anorectoplasty (PSARP) [8], and Sacroperineal repair[5]. Results of these procedures have not always been satisfactory. In cut back operations, contamination of the vagina and urethra with consequent vaginitis and urethritis often result, and soiling or straining due to mucosal involvement may occur[9]. These procedures have been limited by incomplete anatomical exposure, blind tunneling of the rectum, lack of reconstruction of the perineal body, need for a colostomy, and a displeasing appearance of the perineum, with anterior migration of the anus in the long term[15]. Single stage ASARP can avoid these disadvantages; colostomy is obviated, mobilization of the rectum is visualized, only the anterior aspect of the sphincter muscle complex is divided, and the continence mechanism is preserved. Additionally, the operation allows placement and anchoring the mobilized rectum within the muscle complex; the sphincteric muscle and the perineal body are accurately reconstructed, and a normal perineum reconstructed[15]. This approach is based on the concept of improved faecal continence after early perineal training for patients with high and intermediate variety of imperforate anus[16]. For attainment of normal defaecation process and normal maturation of autonomous system, an intact ano-cerebro-cortical reflex since birth is very important.

Continence depends on the integrated function of the puborectalis, the internal and external sphincters, normal sensation of the rectal fullness and normal discrimination by the anoderm[17]. The presence of a normal rectal reservoir is also desirable. The anterior approach minimizes damage to the posterior nervi erigentes while providing adequate exposure. The internal sphincter is preserved so that normal rectoanal reflexes remain intact[7].

This study shows no prolapse, stenosis, persistent soiling or constipation, and adequate rectal tone is maintained following ASARP.

Operating on these babies in the first few days of life should reduce the wound infection rate, because the meconium will still be relatively under-colonized by bacteria[12]. This small

series does however highlight several advantages of this approach over the staged procedures: (i) there is only one operation and general anaesthesia. (ii) continued genital tract colonization through the fistula is avoided, and (iii) avoids the frequently cited complications that can occur with colostomy, such as wound infection, dehiscence, and soilage are avoided.

Single stage ASARP in neonate is a good procedure for anorectal malformation with rectovestibular fistula as it is quick and cost effective and requires no colostomy, laparotomy or laparoscopy. Although this series is too small and follow up is of short duration to reach a definite conclusion on the outcome of single stage ASARP, but early bowel movement patterns are encouraging for future continence, that is, dry, unsoiled perineum in all cases, gradually reducing number of bowel movements and formed stool. This procedure needs minimal tissue dissection and adequate use of surrounding tissues and reproduces nearly normal anatomy.

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