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ORIGINAL ARTICLE

One-stage correction of intermediate imperforate anus in males: preliminary results

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Abstract
Background: This prospective study was designed to assess the safety, cost effectiveness, and advantages of performing posterior sagittal anorectoplasty without colostomy on males with intermediate imperforate anus.
Method: Five consecutive males with intermediate imperforate anus were entered into the study. Chest and abdominal x-rays, skeletal surveys, renal ultrasound scans, and invertograms were done. Patients were resuscitated, and Pena's posterior sagittal anorectoplasty (PSARP) done in prone positions. Two-ml syringe vents were inserted into the new anus for 10 days. Cephalosporin and metronidazole were given as peri-operative antibiotics.
Results: All patients had intermediate anomalies. There were no other major associated congenital anomalies. Urethral catheter could not be inserted in one patient. One patient presented with septicaemia and jaundice. He was deemed too ill to withstand a major operation. These 2 patients therefore had diverting colostomies. There were no problems with posterior sagittal anorectoplasty in the other 3 patients. The father of one patient discharged him against medical advice on the 5th postoperative day. The mother had post-partum haemorrhage and they went for traditional treatment because they could not provide blood donors. The skin wound of 2 patients healed completely at removal of stitches. Both are having monthly dilatations 9months and 1 year post-operatively.
Conclusion: This preliminary study shows that it is feasible for males with intermediate imperforate anus to have safe posterior sagittal anorectoplasty without colostomy. The advantages of one, instead of 3 major operations, are many, especially in developing countries. If this result can be reproduced in high anomalies colostomy may be unnecessary in many cases of anorectal malformations with a lot of benefits to these unfortunate children and their poor families.

Key words: Imperforate anus, colostomy, posterior sagittal anorectoplasty, males

Introduction

Forty-five patients with imperforate anus were seen at the University Teaching Hospital Ilorin from 1991 to 2000. There were 26 boys and 19 girls. Of the 26 boys, 23 (88.5%) had neonatal colostomy. Out of the 23, 11 (42.3%) either died of colostomy-related complications or were lost to follow up, one after attending the clinic regularly for 2 years. Only 8 (30.8%) had definitive operation and colostomy closure. Four were awaiting operation at the time of the review. [1] Because of this high wastage rate from colostomy related complications, time for 3 admissions, and the cost of 3 major operations this prospective study was designed to perform posterior sagittal anorectoplasty on males with intermediate anomalies without preliminary diverting colostomy. The study was limited to intermediate anomalies because almost all cases could be managed definitively by posterior sagittal operation, whereas certain categories of high anomalies may need laparotomy in addition to the posterior sagittal anorectoplasty. [2] Ethical approval was obtained for the study.

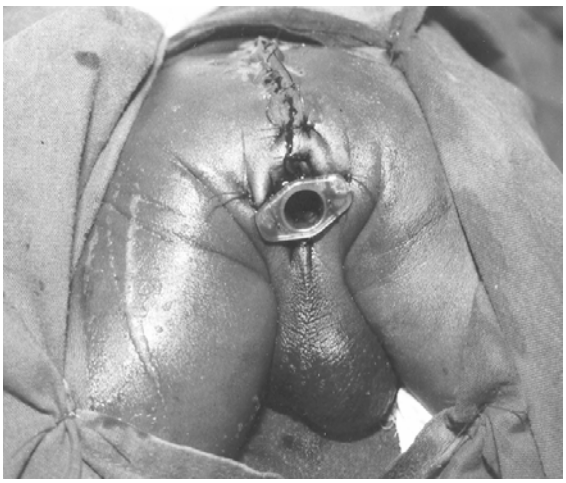
Materials and Methods

Five consecutive boys who presented with intermediate imperforate anus were included in the study. All presented at the age 3 days. Apart from routine blood tests, chest, abdominal x-rays and skeletal surveys were done to rule out gross cardiac, pulmonary or limb pathologies. Abdominal ultrasound scans were done to assess renal anomalies. Invertograms were done to assess level of rectal descent. Facilities were not available to identify the fistulas. Parents signed informed consent with the understanding that

a colostomy may be necessary if postoperative peri-anal sepsis became unacceptable. Nasogastric tubes were inserted to decompress the stomach and patients resuscitated with intravenous fluids and electrolyte supplements. A Cephalosporin and metronidazole were given intravenously on admission and continued post-operatively for 72 hours, then orally for a week. After endotracheal intubation, pharynx was packed with gauze to prevent aspiration in prone position. Patients were catheterized, and positioned prone.

Posterior sagittal anorectoplasty (PSARP) as described by de Vries and Pena were done [3]. Rectal pouches were opened early between stay sutures to allow gas and liquid faeces to escape thus decompressing the abdomen to make ventilation easier. The rectum was then packed with gauze to prevent faeces contaminating the wound during rectal mobilization. The new anus was fashioned to accept a size 10 Hegar's dilator. After the operation, a 2-ml syringe with nozzle cut off (but plunger preserved as obturator) was inserted as vent. The plunger was then removed and the syringe flanges stitched to peri-anal skin (Picture 1). Babies were nursed in prone positions. Breast milk was allowed on babies' demand from the 2nd post-operative day. Catheters were removed 48 hours post-operatively-and the syringe vents during removal of stitches on the 10th post-operative day. Anal dilatations to size 10 Hegar's were done after removal of stitches and weekly for 1 month, then monthly. Mothers were taught to dilate the anus every morning with a lubricated, gloved little finger after the 1st monthly dilatation.

Figure 1: Syringe in anus with flanges stitched to perianal skin



Results

Five males seen during the period were included in the study. There were no gross cardiac, pulmonary, renal or skeletal anomalies. Invertogram showed intermediate anomalies in all patients. One patient could not be catheterized even under general anaesthesia. Posterior sagittal anorectoplasty was deemed unsafe without a urethral catheter. Another baby presented with septicaemia and jaundice. He was too ill for major operation. Both babied had defunctioning colostomies and will be managed with the traditional 3-stage method. No particular intra-operative problems were encountered with the other 3 patients. At operation the fistula of 2 boys were recto-urethral bulbar, the other recto-urethral prostatic. Post operatively, in prone positions, the syringe vents allowed gas and liquid faeces to flow freely away from contaminating the skin incisions.

The father of one baby (a nomadic Fulani) discharged him against medical advice on the 5th post-operative day. The mother (Para 10) had postpartum haemorrhage. When they couldn't find blood donors they went for traditional treatment. Before discharge he was well and the wound was healing satisfactorily. The wound of the other 2 boys healed primarily. One patient presented 4 months after operation with partial intestinal obstruction. He had failed to come for dilatation for 3 months because he needed to travel for 4 hours on a dusty road to get to hospital. He was dilated, had several enemas to clear his faeculoma, and was discharged the following day. He has remained well. The other patient lives locally and has been regular with his dilatations. One patient has been followed up for 9 months the other 1 year.

Discussion

Efficacious and cost-effective care of patients with anorectal malformations begin with a carefully thought-out plan in the neonatal period. [4]These patients are traditionally treated in 3 stages viz: diverting colostomy in the neonatal period, definitive surgery when 6 to 8 months old, then closure of colostomy a few months later. [4, 5] Pena [6] and Heinen [7] proposed formation of initial colostomy for these children not only to decompress them in the neonatal period, but to protect the subsequent definitive operation. They, however, expressed that colostomy represents a significant source of morbidity and mortality. Colostomy complications in these children were recently highlighted by Patwardhan et al [8] at the Great Ormond Street Hospital London. These complications are even more serious in developing countries where most of the parents are illiterates and there are no colostomy bags and no stoma nurses. [9] Sixty-seven patients who had colostomy were reviewed by Sowande [10] et al in Obafemi Awolowo University, Ile-Ife, Nigeria. Fifty complications occurred in 32 patients (47.8%). Only 30 patients (44.8%) had definitive operations and eventual colostomy closure. In a 10-year review of anorectal malformations at the Teaching Hospital Ilorin, Nigeria, only 10 boys out of 26 (38.5%) and 9 girls out of 19 (47.4%) lived to have definitive operations after preliminary colostomies. [1] Overall, less than 50% of patients who had colostomy eventually had definitive operation and colostomy closure. This represents an intolerably high wastage rate. We therefore support those who advocate early definitive operations without colostomy provided the operations are safe. The traditional method involves 3 admissions when the mother may have to travel long distances during which she would be separated from the rest of

her family with several other children and dependants. To do this 3 times a year and to have to bring the patient for regular weekly anal dilatations will certainly put enormous strain on her. If a single operative procedure and one hospital admission (rather than three) effectively caters for the condition, the costs would be very significantly reduced. This would provide immense financial relief for the poor peasant families from where these patients come. We have devised the use of syringe as a vent after these operations. The vent not only allows the faeces to flow freely without the patient pushing in pain, it also directs the fluid faeces away from contaminating the posterior sagittal wound.

We agree with Alberto Pena's comment on Albanese review that "we should all move in the direction of repairing anorectal anomalies earlier and in a single operation." [5] It is now theorerized that neuronal framework for normal bladder and bowel function exist at birth. But there is learning or 'training' period when long-lasting, activity-driven, neuronal changes take place during neuronal circuitry development. If definitive repairs are delayed, critical time may be lost in which neuronal networks and synapses would have formed resulting in normal rectal function. [5, 11] Theoretically, therefore, the earlier the definitive operations are done the higher the chances of achieving continence.

In conclusion, colostomy causes an unacceptably high morbidity and mortality. The traditional 3-stage operation puts the parents in very difficult situations psychologically and financially. Use of syringe vent prevents contamination of the posterior sagittal wound. Early definitive operation prevents prolonged contamination of the urinary tract and increases the chances of achieving continence. Therefore, the current desire of paediatric surgeons should be definitive operations on these patients in the neonatal period without initial diverting colostomy. Many of the patients travel long distances to get to us. They tend not to keep their anal dilatation appointments. We therefore teach the mothers to dilate the anus regularly with a lubricated gloved little finger. A larger series will be necessary for definitive conclusions. This preliminary result, if maintained, offers a brand new hope for these children and their poor families. The hope will be sustained most comprehensively if patients with high anomalies can also have definitive operations so that preliminary colostomy is virtually eliminated in anorectal malformations.

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