Original Article
African Journal of Paediatric Surgery
Vol. 3 (2); Jul - Dec 2006

Complications Following One-Stage Repair of Intermediate Anorectal Anomalies in children

Complications consécutives à la réparation d'anomalies anorectales intermédiaires chez les enfants

Adeniran J. O., Taiwo J. O.
Paediatric Surgical Unit, University Of Ilorin Teaching Hospital, Ilorin, Nigeria

Abstract

Background: To assess complications associated with one-stage repair of intermediate anorectal anomalies in boys and rectovestibular fistula in girls.

Patients and Methods: All patients seen between 2000 and 2005 at the University Teaching Hospital, Ilorin, Nigeria, with anorectal anomalies who had posterior sagittal anorectoplasty without initial defunctioning colostomy were retrospectively re-viewed. Presenting complaints, initial investigations, pre-operative management, intraoperative and postoperative complications and period of follow-up, were extracted from patient's records.

Results: There were 51 patients (23 boys and 28 girls). Age range for boys was 3-5 days (mean 3.5 days), and for girls 6 months to 7 years (mean 11 months). There was no complication in 87% of boys and 82.1% of girls. Immediate postoperative complications included perianal skin excoriations, and superficial wound dehiscence. Late complications included anal mucosal prolapse and anal stenosis

Conclusion: With good large bowel preparation, adequate preoperative resuscitation, intra-operative protection of the posterior sagittal wound with syringe vent, and good choice of peri-operative antibiotics, it is safe to perform posterior sagittal anorectoplasty without colostomy on children with intermediate anorectal anomalies.

Key Words: anorectal anomalies, posterior sagittal anorectoplasty, colostomy

Résumé

Arrière-plan: L'évaluation des complications liées à la réparation d'anomalies anorectales intermédiaires chez des garçons et de la fistule rectovestibulaire chez des filles . ***Malades et méthodes:*** Nous avons revu tous les malades qui, entre 2000 et 2005, s'étaient présentés au centre hospitalo-universitaire d'Ilorin, souffrant d'anomalies anorectales et qui avaient été soignés par l'anorectoplastie sagittale postérieure sans colostomie déstabilisante initiale. A partir des dossiers médicaux, nous avons rassemblé des données concernant les plaintes au moment de l'hospitalisation, les enquêtes initiales, la gestion préopératoire, les complications intraopératoires et postopératoires et l'intervalle du suivi. ***Résultats:*** Il y avait 51 malades (23 garçons et 28 filles). La tranche d'âge pour les garçons était de 3 à 5 jours (moyenne 3,5 jours), et pour les filles de 6 mois à 7 ans (moyenne 11 mois). Il n'y avait aucune complication chez 87% des garçons et chez 82,1% des filles. Les complications postopératoires immédiates comprennent des excoriations périanales cutanées et la déhiscence superficielle. Les complications ultérieures comprennent le prolapsus de la muqueuse anale et la sténose anale. ***Conclusion:*** En assurant une bonne préparation de l'intestin, une réanimation préopératoire adéquate, la protection intraopératoire de la blessure sagittale postérieure, et à l'aide de bons antibiotiques périopératoires, on peut entreprendre une anorectoplastie sagittale postérieure sans colostomie sur des enfants atteints d'anomalies anorectales intermédiaires. ***Mots-clés:*** anomalies anorectales, anorectoplastie sagittale postérieure, colostomie.

Introduction

Despite advances in stoma care, new receptacles and well-trained stoma nurses, colostomy continues to be a major cause of morbidity and mortality in developed countries,[1-4] and even more so in many developing countries.[5,6] Less than 50% of patients who have colostomy in developing countries eventually have definitive operations and colostomy closure.[5] This is not only due to the financial burden of 3 major operations within 1 year, and great psychological strain of leaving the large families for these admissions, but

Correspondence: Dr. J. O. Adeniran. 3 Veterinary Road, P.O. Box 5708, Ilorin, Nigeria.
E-mail:adeniranjodr@yahoo.com. Tel: 0803-358-7366

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also to the frequent complications of colostomy.[3,6] Because of these, a prospective study was started to assess posterior sagittal anorectoplasty (PSARP) without initial defunctioning colostomy on these patients. The study on girls with rectovestibular fistula was started in 2000, and boys with intermediate anomalies in 2002. This paper details the result of this clinical trial from 2000 to 2005 and the complications so far experienced.

Patients and Methods

Fifty-one patients (28 girls, 23 boys) recruited into the study had their records available for review. They all had routine haemograms and blood cross-matched for the operations. Lateral fistulogram was done in girls to assess the level of rectal descent. The girls then had large bowel preparation in the conventional way with low-residue diet for 3 days, oral phthalylsulphathiazole and neomycin, and twice daily enema through the fistula. The boys were resuscitated with intravenous fluids and invertogram done. The criteria for including boys into the study included: intermediate anomalies (Wingspread Classification) on the invertogram, no other major anomalies, early referral, good clinical condition of the patient at presentation. Patients with high anomalies, other major congenital anomalies, sepsis from late presentation, or other clinical conditions which may jeopardize general anaesthesia ,were excluded. In the suitable boys, nasogastric decompression was then instituted. Cefuroxime and metronidazole were given parenterally preoperatively, and gentamycin added postoperatively for 3 days. Since there was no colostomy, distal colostography could not be done preoperatively to identify the fistula. But all patients had the fistula identified and closed under direct vision intraoperatively. Posterior sagittal anorectoplasty was done in prone positions under general anaesthesia and endotracheal intubation as described by Pena and de Vries.[7] In the girls, a skin bridge was always left between the posterior sagittal incision and the vestibule. The fistula was closed inside with appropriate-size delayed-absorbable suture. In the boys, the rectal ampulla was opened between stay sutures as soon as properly identified to decompress the bowel and make ventilation easier. After the PSARP, syringe vents were inserted into the neo-anus as described by us earlier[8] (Fig. 1). The patients were nursed post-operatively in prone positions. Syringe vents were removed during removal of sutures on the 10th postoperative day. Monthly dilatations were done, until the mothers were taught to dilate the anus with lubricated gloved little fingers. Ethical approval was obtained for the study. Follow-up ranged between 6 months and 5 years.

Results

Thirty girls with anorectal anomalies presented during the study period. Two girls who had cloaca extrophy had defunctioning colostomies but died of other associated congenital anomalies. Twenty-eight girls with rectovestibular fistulas were entered into the study. Their ages ranged between 6 months and 7 years (mean11 months). Two girls presented pre-preoperatively with stenosis of the rectovestibular fistula and intestinal obstruction. The fistulas were dilated and several enemas given to clear the rectal ampulla. The other girls presented with decompres-sing rectovestibular fistula through which enema was given for preoperative large bowel preparation. At

Table 1:
Immediate Postoperative complications of one-stage PSARP in anorectal anomalies in girls and boys

	Girls	%	Boys	%
None	23	82.1	20	87
Perianal Excoriations	3	10.7	Nil	-
Superficial wound dehiscence	2	7.1	2	8.7
Complete wound dehiscence	Nil		1	4.3
Total	28		23	

Table 2:
Complications at follow-up

	Girls	%	Boys	%
Anal mucosal prolapse	2	7.1		
Recurrence of fistula	1	3.6		
Anal canal Stenosis/Intestinal obstruction	-	-	2	8.7

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Fig. 1. Anal venting with syringe after posterior sagittal anorectoplasty

operation the girls had intermediate anomalies. The wounds of 23 girls healed primarily (82.1%), although 3 had perianal skin excoriations in the immediate postoperative period. Two girls (7.1%) had superficial wound dehiscence. They all healed within 2 weeks of dressing twice daily with honey. At follow-up, 2 girls (7.1%) had anal mucosal prolapse, and 1 (3.6%) had recurrence of the rectovestibular fistula. There was no girl with complete breakdown of the wound (Table 1). A total of 43 boys presented with anorectal anomalies during the period of review. Their ages ranged between 3 to 5 days (mean 3.5 days). Twenty- five patients had intermediate anomalies. One boy presented on the 5th day of birth with jaundice and septicaemia. Another patient could not be catheterized even under general anaesthesia. Both had defunctioning transverse colostomies under local anaesthesia and were managed with the traditional 3-stage operations. Twenty-three boys with intermediate anomalies had posterior sagittal anorectoplasty without colostomy. The parents of 1 boy (Fulani normad) took him away from the hospital against medical advice on the 5th postoperative day for traditional management. The boy subsequently represented at 6 weeks with malnutrition, pneumonia and rectal prolapse. He died of pneumonia 3 days later. The sagittal wounds of 20 boys (87%) healed primarily. Two boys (8.7%) had superficial wound infection. The wounds were dressed daily with honey, and healed completely within 2 weeks. During the follow-up period, 2 boys presented with neo-anal stenosis and intestinal obstruction because they did not come for dilatation for 6 months. The anus was dilated, several enemas given, and the mothers re-educated on need for regular dilatation. Follow-up for the girls was 1-6 years, and the boys 6 months-4 years.

Discussion

Although earlier reports[9,10] enumerated the advantages of neonatal single-stage operations for patients with anorectal anomalies, most paediatric surgeons world-wide still follow the traditional three-stage method involving initial diverting colostomy, definitive operation, and colostomy closure for girls and boys.[1-3] The rationale is that the colostomy helps to protect the future operated site, diminish the frequency of infection and breakdown of the wound and allows a distal colostogram to allow a better radiological definition of the malformation.[4,11] But this three-stage operation 'burdens the patient and their parents physiologically, psychologically and financially,[12] and colostomy has its many complications.[3-6,13] Operations in the neonatal period also prevent prolonged faecal contamination of the urinary tract, and allows the brain-bowel neuronal circuit to develop early for optimal bowel function.[4,14,15] Recent reports[12,15] are therefore reassessing the advantages of one-stage operations. Although Albanese's[15] cases were few, the points were, nevertheless, made that high anomalies could have posterior sagittal operations without initial colostomy. Adeniran reported that girls with rectovestibular fistula and boys with intermediate anomalies could have safe definitive operations without defunctioning colostomies.[16,17] Lui[12] compared the rectal functional results in patients who had the traditional three-stage operations with those who had one-stage operations and found no statistical significance. But there is paucity of literature on complications following single-stage operations.

The wounds in 92.9% of our girls and in 87% of the boys healed primarily. Only two girls and boys each had superficial wound dehiscence. This was defined as dehiscence of the posterior sagittal wound that did not disrupt the muscle-sphincter complex.[1] With the traditional twice daily sitz bath and honey dressing the superficial wounds healed within 2 weeks. The only boy who had complete

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disruption of the sphincter was taken by the parents away from the hospital on the 5th post-operative day. He had malnutrition and pneumonia which led to a complete rectal prolapse. His co-morbid condition must have weakened his sphincter that led to the rectal prolapse. Peri-anal skin excoriations in the immediate postoperative period occurred in only three girls. We advised the mothers to change the nappies as soon as the babies passed stool, apply vaseline cream to the peri-anal region and expose the anus as much as possible. The girl that had recurrence of the fistula had faeces passing through the new anus and the recto-vestibular fistula. It was difficult to explain how this happened. She was followed up for about 4 months. We lost her to follow-up just when we were contemplating a re-operation. Our hope is that the fistula has closed spontaneously. Anal mucosal prolapse is unsightly, but apart from that, has not caused either constipation, diarrhoea or bleeding. Long-term follow-up has been our problem in this prospective trial. This is because patients travel long distances to get to us after referral. Unless there is a major problem, the patients do not come back to hospital for follow up. Stenosis of the neo-anus due to failure of regular dilatation was the most common long-term complication in the boys. This was why we taught the mothers to dilate the babies with a vaseline-lubricated-gloved little finger regularly.

It will be too early to draw definite conclusions from this short prospective study. More research and long term follow-up must be done especially on faecal continence. But it is encouraging to note that in our present study, girls with imperforate anus and rectovestibular fistula, and boys with intermediate imperforate anus who had one-stage posterior sagittal
anorectoplasty, protected with a syringe vent, did not have serious short-term complications.

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