Anorectal anomalies in Ilorin, Nigeria: a 10-year review

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Abstract

Background: The treatment of anorectal malformations has been a difficult challenge for surgeons and there is may be a need to modify management in the light of new developments.
Method: Forty-five patients admitted with anorectal malformations from January 1991 to December 2000 were retrospectively studied.
Results: There were 26 males and 19 females. Twenty-one (80.8%) males presented within three days of birth with lower large bowel obstruction. Only 7 (36.8%) of the females presented within the first week with abnormal anal orifices. Associated anomalies occurred in 12 (26.7%) patients. Fifteen patients (33.3%) had high type of anomalies, 14 (31.1%) intermediate, and 11 (24.4%) low type. Nineteen males (73% of males), and 11 females (60% of females) had initial diverting colostomies. Only 8 males (30.8% of the males) and 9 females (47% of the females) had definitive operations and eventual colostomy closure. Nine males died in the neonatal period, 2 discharged against medical advice, 2 were lost to follow-up after attending the clinic with colostomy for over a year, 4 were awaiting definitive operation at the time of the review. One female died after neonatal colostomy, 2 refused colostomy, 4 were lost to follow-up (3 with colostomy, 1 without colostomy) 2 were referred to other hospitals.
Conclusion: Colostomy is socially unacceptable in many third world countries. Colostomy related morbidity and mortality are high. Preliminary colostomy may be unnecessary in most females and certain categories of males. Definitive operations should be done early so that patients carry colostomy for as short a period as possible.

Key words: Anorectal malformations, posterior sagittal anorectoplasty, colostomy

Introduction

The treatment of anorectal malformations has been a difficult challenge for surgeons throughout the ages. [1] These children, some with complex malformations, despite major operations, even from the best centers in the world, end up with faecal and/or urinary incontinence and sexual inadequacies. [2] These problems are very distressing, not only to these patients, but to the whole household. Pena, de Vries and others have recently developed new approaches to these

problems, which allow direct exposure of the anatomy, better definition between the rectum and genitourinary tract, and more objective reconstructive methods. Better functional results are so achieved and better quality of life given to these patients. [1,2] This study was done to analyze the management given to these patients in University of Ilorin Teaching Hospital (UITH) over a 10-yr period so that mistakes can be highlighted and lessons learnt for the future, in the light of new developments in management of anorectal malformations.

Materials and Methods

Patients admitted with anorectal malformations from January 1991 to December 2000 were retrospectively studied. Age at admission, sex, main type of anomaly, associated anomalies, initial operative intervention, definitive operation and causes of mortality were retrieved from theatre, ward and central records department

Results

Of 60 patients on record, 45 complete case notes were available for analysis. There were 26 males (57.8%) and 19 females (42.2%), (male: female ratio 1.4:1). The age at presentation ranged from 1 day to 14 years. Twenty-one males (80.8%) presented within 3 days of birth and all the 26 (100%) within 7 days. Only seven of the females (36.8%) presented within the first week of life; 10 (52.6%) presented after 7 days, one at 7 years and one at 14 years. Ten males (38.5% of the males) had high type of anomalies, 8 (30.8%) intermediate and 5 (19.2%) low type. Four females had the high type, 5 intermediate, 6 low anomalies. Three males and 4 females did not complete investigations to determine the level of bowel obstruction. There were no associated anomalies detected in 33 patients (73.3%), while the remaining twelve (26.7%) had associated anomalies, mostly cardiac and limb deformities. Seventeen males were managed in the neonatal period operatively, with transverse loop colostomies: (8 for high, 8 for intermediate and 1 for low anomalies). One male had sigmoid loop colostomy, 2 had anoplasties for low anomalies and 2 had limited posterior sagittal anorectoplasty (PSARP) for low anomalies. A patient scheduled for sigmoid colostomy had caecostomy when the caecum was found in the left iliac fossa due to malrotation. He died of sepsis in the neonatal period. Eleven females (57.9% of the females) had transverse loop colostomies at presentation (4 for high, 3 for intermediate and 4 for low anomalies): two had anoplasties for low anomalies; two had PSARP without colostomy for intermediate anomalies. Three males and 4 females discharged against medical advice either because colostomy was socially unacceptable or due to poverty.

Of the 19 boys who had colostomy/caecostomy, only 4 (10.5%) had definitive operation (3 had PSARP, 1 had pull through). Nine (47.4%) died in the neonatal period (4 with septicaemia, 2 with suspected cardiac malformations, 3 from failure of parents to provide funds for treatment). 2 were lost to follow up after attending the clinic for over 6 months, 4 were awaiting definitive operation at the time of this review.

Only 5 of the 11 girls who had colostomy (45.5%) eventually had definitive operation; (2 had PSARP, 1 had pull-through, 1 had anoplasty, 1 had laparotomy and anoplasty). One died after colostomy in the neonatal period, 3 were lost to follow up, 2 were referred to other hospitals.

There were a total of 12 deaths (11 males and 1 female), giving an overall mortality of 26.7%. Causes of death include septicaemia before or after surgery, congenital cardiac disease and inability of parents to procure necessary

materials for management. Half of the mortality was from high type group.

Discussion

More cases of anorectal malformations now present to their local hospitals as the public becomes increasingly aware of possible operative correction for these unfortunate children. Half of the cases presented in the year 2000 alone. In this study, the

M: F incidence of 1.4:1 agrees with the range of 1.4:1 to 1.6:1 quoted by Shaul and Harrison. [3] Males differed from females in age at presentation. While males presented with lower large bowel obstruction within the first week, females, because of their decompressing rectovestibular fistula, presented much later. Thus, females rarely went into intestinal obstruction that necessitated emergency neonatal operation, unlike their male counterparts. Early presentations in females were only by the few parents who noticed abnormal anal orifices.

Using Wingspread classification system, [3] 15 (33.3%) of the defects were high, 14 (31.1%) were intermediate and 11 (24.4%) were of the low types. The higher percentage of high defects in males, and intermediate or low defects in females agree with the results of Nwako, [4] Javid et al, [5] and Heinen. [6] Forty to 70% of patients may have other minor congenital anomalies, with urogenital malformations having the highest incidence (renal dysplasia, renal hypoplasia), followed by anomalies of the spine (hemivertebra, fused vertebra etc) and extremities (radial deformities) and then by cardiovascular anomalies (atrial- or ventricular septal defects). [7] In this study, only 26.7% of the patients were detected to have associated anomalies. Cardiovascular anomalies top the list, followed by anomalies of the extremities.

The most important initial decision to make in a new born with anorectal anomaly is the need (or otherwise) for a colostomy. [2,8] In this review, 30 of the 45 patients had colostomy, including 5 patients with low defects. Twenty-eight of these were transverse loop colostomies, 1 sigmoid colostomy, and 1 caecostomy. Colostomy represents a significant source of morbidity. Colostomy prolapse, skin excoriation and diarrhea on and off are causes of multiple admissions. [8 - 10] From recent developments in operations on anorectal malformations, preliminary diverting colostomy is unnecessary in females, [11] boys with intermediate anomalies (usually with recto-urethral bulbar fistula), [12] and males with high anomalies associated with rectoprostatic fistula. [13] Only patients with high anomalies associated with rectobladder neck or rectovesical fistula, which may also require laparotomy during the posterior sagittal anorectoplasty absolutely require neonatal colostomy. These form only 10% of the total. [2] The good outcome obtained with PSARP without colostomy in 2 intermediate defects lends credence to this decision; as against 10 of 31 patients with colostomy who died or was lost to follow-up.

Thomas Moore also reported cases, though not a large series, of high defects successfully repaired by perineal sagittal method at birth without colostomy. [14]

The overall mortality rate of 26.7% is comparable to that reported by Nwako. [4] The higher mortality in males is due to higher incidence of high defects, more associated anomalies and presentation with intestinal obstruction necessitating operation during a delicate neonatal period. Poverty and infection-related deaths are preventable. Most patients with anorectal malformations have no other major associated anomalies. Neonatal colostomy causes an unacceptably high morbidity and mortality. The trend should, therefore, be performing definitive operations on these children without colostomy. If neonatal colostomy is deemed necessary, definitive operations should be done within 2 to 3 months, as

delay not only causes prolonged contamination of the urinary tract which may jeopardize long term renal function, but also contributes to hypertrophy of the rectal ampulla which may make tapering necessary during the posterior sagittal repair. 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. By delaying definitive repair of anorectal anomalies, critical time may be lost in which neuronal networks and synapses would have formed resulting in normal or near-normal rectal function. [13] Therefore, theoretically, the earlier the definitive operations are done the higher the chances of achieving continence.

References

1. Lin J. N. Anorectal malformations-update 1998. Changgeng-Yi-Xue-Za_Zhi 1998; 21: 237-250.
2. Pena A. Anorectal malformations. Semin Pediatr Surg 1995; 1: 35-47.
3. Shaul D. B, Harrison E. A. Classification of anorectal malformations initial approach, diagnostic tests and colostomy. Semin Pediatr Surg 1997; 4: 187-195.
4. Nwako F. A. A textbook of paediatric surgery in the tropics. Macmillan, London. 1979; 209-212.
5. Javid P. J, Barnhart D. C, Hirschi R. B, Coran A. G, Harmon C. M. Immediate and long term results of surgical management of low imperforate anus in girls. J Pediatr Surg 1998; 2: 198 203.
6. Heinen F. L. The surgical treatment of low anal defects and vestibular fistulas. Semin Pediatr Surg 1997; 4: 204-216.
7. Lerone M, Bolino A, Martucciello G. The genetics of anorectal malformations: a complex matter. Semin Pediatr Surg 1997; 4: 170-179.
8. Pena A. Advances in anorectal malformations. Semin Pediatr Surg 1997; 4: 165-169.
9. Sowande O. A, Adejuyigbe O, Ogundoyin O, Akinkuolie A. A, Abubakar A. M. Colostomy complications in infants and children. Nigerian Journal of Surgery 1999; 1: 19-22.
10. Patwardhan N, Kiely E. M, Drake D. P, Spitz L, Pierro A. Colostomy for anorectal anomalies: high incidence of complications. J Pediatr Surg 2001; 36: 795-798.
11. Adeniran J. O. One stage correction of imperforate anus and rectovestibular fistula in females. J Pediatr Surg 2002, 37: 16-19.
12. Adeniran J. O. Posterior sagittal anorectoplasty without colostomy in females. Paper presented at the Nigerian Surgical Research Society meeting, Ilorin, Nigeria. 30 November – 2 December 2000.
13. Albanesse C. T, Jennings R. W, Lopoo J. B, Bratton B. J, Harrison M. R. One stage correction of high imperforate anus in the male neonate. J Pediatr Surg 1999; 5: 834-836.
14. Moore T. C. Advantages of performing the sagittal anoplasty operation for imperforate anus at birth. J Pediatr Surg 1990, 2: 276-277.