

Management of ectopia vesica in Ibadan: An 8-year review

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Summary

Context: The management of children with ectopia vesica is intricate and complex. Repair of the bladder soon after delivery is desirable, particularly in our environment as the social stigma associated with such an anomaly can lead to child abandonment or infanticide.

Objective: To report our experience in the management of children with ectopia vesica at the University College Hospital (UCH), Ibadan, over an 8 - year period.

Study design, setting and subjects: All children who presented at the UCH, Ibadan between January 1995 and December 2002 with ectopia vesica had the bladder closed primarily. The children that presented between 1995 and 1998 had the symphyseal diastasis approximated with no. 1 nylon suture, while those that presented subsequently had the muscle and fascial layer closed with a darning suture of no. 1 nylon.

Result: A total of 13 children presented with ectopia vesica during the period of the study. The bladder was closed in all cases. Abdominal wound dehiscence occurred less frequently in patients who had darning suture approximation of the muscle and fascial layer, compared with those who had simple symphyseal approximation with nylon suture.

Conclusion: The result of immediate bladder closure in children with ectopia vesica can be satisfactory in this environment. There is a need for continuing experience in the management of these children to improve outcome.

Key- words: Ectopia vesica, Darning sutures, Ibadan.

Résumé

Introduction: La prise en charge d'ectopie vésicale chez des enfants est compliquée et complexe. La réparation de la vessie peu après accouchement est souhaitable en particulier dans notre milieu, parce que la honte liée avec une telle anomalie pourrait provoquer l'abandon d'un enfant ou infanticide.

Objectif: Rapporter notre expérience dans la prise en charge des enfants atteints d'ectopie vésicale au centre hospitalier universitaire, Ibadan au cours d'une période de 8 ans.

Plan d'étude, cadre et sujets: Tous les enfants qui se sont présentés au centre au UCH, Ibadan entre janvier 1995 et décembre 2002 atteints d'ectopie vésicale avaient la vessie originellement fermée. Des enfants qui se sont présentés entre 1995 et 1998 avaient la symphyse diastases approximativement avec no. 1 suture nylon, tandis que ceux qui se sont présentés plus tard avaient le muscle et la couche fascia fermée avec la suture à repriser de No. 1 nylon.

Résultats: Un nombre total de 13 enfants atteints du vésicle ectopie au cours de cette période d'étude. La vessie était fermée dans tous les cas. La blessure dehiscence abdominale était arrivée moins fréquemment chez des patients qui avaient eu la suture à repriser approximativement de la couche faciale

et du muscle, par rapport aux ceux qui ont eu symphysiale approximative simple avec suture nylon.

Conclusion: Le résultat de la fermeture du vessie immédiate chez des enfants avec ectopie vésicale pourrait être satisfaisante dans ce milieu. C'est nécessaire de continuer l'expérience de la prise en charge de ces enfants afin d'améliorer le résultat.

Introduction

The management of children with extrophy of the bladder (Ectopia Vesica) is quite intricate and complex. Reconstructive procedures required are quite tasking and could be prolonged. The management requires considerable efforts and patience from the parents of the child who, in our environment often consider themselves unlucky to have had a child with such a birth defect (fig. 1) in the first place. Continuous and consistent experience in the management of this condition is required from the urologist to obtain a favourable outcome all the time. It is not a procedure for the occasional operator. In this environment, it is not unusual to have such children killed deliberately soon after delivery by the relatives of the parents because of the social stigma that could be attached to having a child with such an anomaly.

We have reviewed our experience in the immediate management of these children at the UCH Ibadan, between January 1995 and December 2002, detailing our management protocol as well as the outcome in children with ectopia vesica who were treated during this period.

The aim of this presentation is to highlight the outcome of our management protocol in this group of patients.

Patients, methods and surgical technique

At the first contact with the patients, the aim is usually to close the bladder and the resulting anterior abdominal wall defect. We thus convert the extrophy to incontinent epispadias.

The pregnancy and the ante-natal, history is obtained, highlighting the types of drugs taken during pregnancy, previous children with birth defects and mode of delivery and where child was delivered. The haemogram, electrolytes and urea are estimated, and the ultrasound of the kidneys and the ureters are done. No other contrast studies are done at this stage.

The procedure is usually performed under a general anaesthesia with endotracheal intubation.

The bladder capacity is usually assessed, by using the index finger to depress the bladder mucosa inwards. Where it is considered that the bladder capacity, after closure would be adequate, the decision is made to close the bladder. The skin incision is made at the bladder mucosa - skin interface. This incision is extended round the edge of the bladder and down to the bladder neck. The incision is subsequently deepened laterally to separate the remnants of the anterior

abdominal wall muscles from the bladder wall, taking care to enter into the proper plane. At the umbilical stump-bladder interface, the dissection is carried downwards to carefully separate the bladder wall from the flimsy peritoneal reflection, making sure to stay in the extra-peritoneal plane. When there is inadvertent entry into the peritoneal cavity, this is carefully closed with fine chromic catgut. The dissection at this level should proceed until the vesical ligaments are reached and ligated. The dissection is then carried behind the bladder in a blunt fashion until the seminal vesicles are seen in male children and as far as possible in female children. This would ensure that the dome of the bladder is quite free and ready for tension free closure. Inferiorly, the bladder neck is sharply separated from the medial edges of the widened pubic symphysis.

The edge of the bladder, all around is then cleaned of any remnant skin. The two ureteric orifices are subsequently catheterized with size 4 or size 6 infant feeding tubes. The ureteric tubes are anchored in the bladder with fine vicryl sutures and brought out at the bladder neck (fig. 2 & 3). The bladder is then closed continuously with 3/0 vicryl suture over a size 8 or 10 Foley catheter, which is brought out above the umbilical stump. In the initial five cases we did between 1995 and 1998, the public symphysis only is usually approximated with number 1 nylon suture over the bladder neck. However, in our more recent cases, a darning suture of no. 1 nylon suture is applied extending from the pubic symphysis on to the fascia, approximating the edges as much as possible without much tension. We do not perform iliac osteotomy routinely.

We then develop a skin flap as much as possible laterally, taking care to preserve the blood supply.

The skin and the subcutaneous fat are usually closed with number 1 nylon mattress suture, over the muscle and

fascial layer. The ureteric tubes are anchored to the skin and the wound is dressed.

The ureteric tubes are usually left for a week to ten days. Where there is accidental dislodgement before this time, but beyond 48 hours post operatively, the tubes are not re-passed.

Associated inguinal hernias and or undescended testes are usually repaired after the first birthday, unless otherwise symptomatic.

The treatment of the persisting epispadias in male children is usually left until the child is 4 years of age or more, but in female patients, the epispadic clitoris is usually approximated together with fine sutures.

Results

During the period under review, thirteen children with ectopia vesica were treated. All except two were direct referrals to our unit soon after birth. The two patients from other surgical units have had previous attempts at repair that failed. One had a single attempt that failed and the second child had two previous attempts at closure. both of which failed. This latter child also had an iliac osteotomy done.

We were able to close the bladder in all cases. The youngest baby was 2 days old and the oldest was 13 months old. There were eight (8) males and five (5) females, see table 1.

The post operative complications observed are, ureteric catheter displacement in eight (8) patients, supra-pubic catheter falling out in four (4) patients, skin wound dehiscence in three (3), bladder muscle dehiscence in three (3), urinary tract infection in six (6) and wound infection in 50% of the patients.

Two children died from sepsis and multiple organ failure.

Table 1 Details of the 13 patients

	Initials	Age	Sex	Number of attempts at bladder repair	Outcome of bladder closure	Bladder complications
1.	N. E.	7days	M	2	Successful on 2nd attempt	Bladder dehiscence
2.	I. M.	2days	F	1	Successful	
3.	O. B.	5days	M	1	Successful	
4.	A. W.	21days	M	2 (a failed attempt before referral)	Successful on 2nd attempt	
5.	O. C.	6days	M	1	Successful	
6.	A.B.	7days	F	2	Successful on 2nd attempt	Bladder dehiscence
7.	A. A.	9days	M	1	Successful	
8.	A. R.	3days	F	1	Successful	
9.	D. J.	5days	M	2	Successful on 2nd attempt	Bladder dehiscence
10.	D. G.	13months	F	3 (2 failed attempts before referral)	Successful on 3rd attempt	
11.	O. T.	10days	M	1	Successful	
12.	B. J.	8days	F	1	Successful	
13.	E. C.	14days	M	1	Successful	

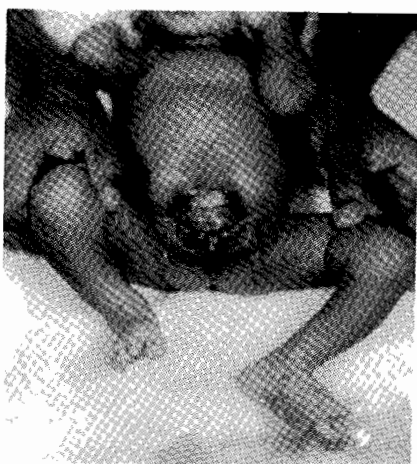


Fig. 1 Pre-operative picture of ectopia vesica showing lower abdominal wall defect and prolapsing posterior bladder wall.



Fig. 4 Post operative photograph showing healed wound (A)



Fig. 2 Post operative photograph showing ureteric stents (female)

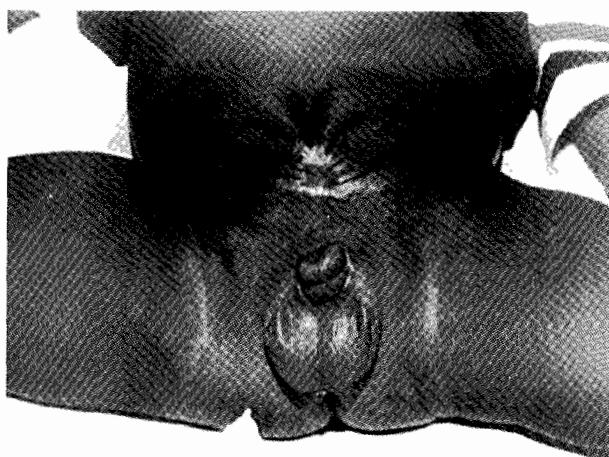


Fig. 5 Post operative photograph showing healed wound (B)

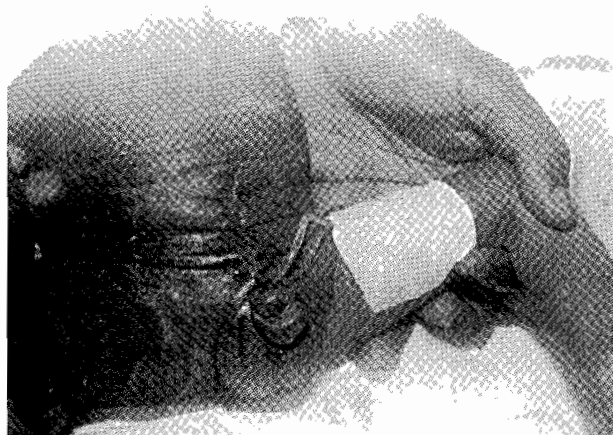


Fig. 3 Post operative photograph showing ureteric stents (male)

Discussion

Reconstructive surgery for ectopia vesica was usually associated with a high failure rate¹ and treatment of these children in the past in our environment was often limited to urinary diversion. We have had to treat two of such patients, who were treated in our unit as children in the late seventies and early eighties. Both were females, and having reached

puberty and menstruating, demanded reconstruction of their external genitalia. One of them had ureterosigmoidostomy and the other had a colon conduit performed (Unpublished report).

Until about fifty years ago, ureterosigmoidostomy was the most popular diversion techniques for treatment of ectopia vesica, and several techniques were used.^{2,3,4} However, late complications such as stenosis of the ureterosigmoid anastomosis, upper tract infection such as pyelonephritis, and biochemical derangement such as hyperchloraemic acidosis discouraged universal acceptance.^{5,6}

The goals of surgical treatment of ectopia vesica are to obtain a continent child with a normal upper urinary tract and an abdominogenital reconstruction that make possible a normal sexual and social life.⁷

We have previously advocated that urological reconstruction in children can be safely and successfully accomplished in our environment, if performed adequately.⁸ Although this study did not set out to compare a mode of repair to the other, we found that our patients who had darned sutures of the anterior abdominal wall, a total of nine (9) children, did better than those who only had symphyseal apposition with nylon sutures, who were five (5) in number. Three of our patients who did not have darned sutures ap-

plied had complete wound dehiscence. One of these patients subsequently had a repair utilizing the darning closure technique with success. Subsequent patients had the darning technique without breakdown.

Our impression is that in those patients who did not have the darning technique, the closed bladder (bladder knuckle) tend to push directly against the skin wound in the immediate post operative period when the child cries and raises the intra-abdominal pressure. We think this may weaken the wound and encourage dehiscence. However, with the darning suture in place and serving as an interface between the bladder and the skin wound, the pressure from the bladder knuckle is partly absorbed by the sutures, thereby probably protecting the skin wound closure.

Deliberate attempt to reconstruct the bladder had rarely been made in the past in our institution, with most children with extrophy having urinary diversion, either in form of ileal conduits or ureterosigmoidostomy. The author has had to reassess some of these cases recently having come for review of the urinary diversion or for genital reconstruction.

The associated anomalies noted in our patients include rectal prolapse in five children, undescended testes in four children, bifid clitoris in five children, short, epispadic penis with dorsal chordee in eight children and patent processus vaginalis in six children. The rectal prolapse is often the result of the compromise of the perineal floor brought about by the extrophy-epispadias complex, as the anus often lies anterior to its original site in both male and female children with the abnormalities.

Pubic symphyseal diastasis is a hallmark of bladder extrophy and we had demonstrated this in a Nigerian child previously.⁹

Undescended testis is not uncommon in children with ectopia vesica as previously documented by others.⁷ The testes are often retractile, and can be easily manipulated into the scrotum, which is usually wide and flattish. True cryptorchidism is however uncommon in these children. We perform bladder closure in all our patients at the first stage without attempting to achieve continence.

Bladder closure at this time ensures that the bladder mucosa is protected from infection and metaplastic change, and detrusor muscle fibrosis is also avoided. Although the children are incontinent, experience has shown that in about 2 to 3 years, functional bladder capacity gradually increases to 50 - 60ml.⁶ We do not perform iliac or innominate osteotomy, which is claimed by others to facilitate pubic approximation and abdominal wall closure.^{10, 11} It is however the experience of others too that in younger children, particularly the neonates such as the majority of our patients, abdominal wall closure can be easily and successfully accomplished without innominate bone osteotomy.¹²

We close the abdominal wall defect by developing a skin flap over the fascia, trying not to compromise the blood supply. This is then closed in the midline with nylon sutures. The resulting abdominal wall is usually satisfactory (fig. 3 & 4), and wound dehiscence has been uncommon since the

addition of the darning sutures on the fascial layer.

The advantage of this mode of closure is that it promotes the reconstruction of the mons pubis by bringing the hair bearing skin closer to the midline, and also avoids multiple scars that often result from complex skin flap rotation.

Conclusion

The immediate outcome of bladder closure in children with ectopia vesica is good in relation to a successful bladder closure. The children should however be treated in dedicated units with requisite experience in the management of this difficult congenital abnormality.

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