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Neonatal Urinary Outflow Obstruction Requiring Early Circumcision

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Authors' contributions

This work was carried out in collaboration among all authors. Author AO attended to the patient assisted in performing the procedure and wrote the first draft of the manuscript. Author DAO did the procedure and with AMA, managed the patient, and did the literature searches. Authors AIO and AA decided the technique and corrected the manuscript. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Aim: To report a rare case of neonatal urinary outflow obstruction warranting early circumcision.
Presentation of Case: We are reporting a case of 36 hour old term male neonate who had early circumcision done on account of acute urinary retention secondary to urinary outflow obstruction.
Discussion: Acute urinary retention from prepuccial obstruction is rather a rare entity in neonates. Similarly, circumcision is usually performed within the first several days of life to ensure that the infant is stable.
Conclusion: In cases of reversible urinary obstruction, because the degree and duration of obstruction are the chief determinants of renal dysfunction, early recognition and treatment are the keys to preventing renal loss.

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1. INTRODUCTION

Urinary outflow obstruction describes any blockage of urine flow anywhere in the urethra or at the opening of the bladder. The commonest cause of the blockage is posterior urethral valves, which occurs only in males [1]. Other intrinsic and extrinsic pathological processes causing obstruction in neonates include urethral atresia, urethral strictures, congenital urethral diverticulum and urolithiasis [2].

The practice of male circumcision (removal of the foreskin) especially neonatal circumcision arose in many ancient cultures [3]. Circumcision was performed in ancient Egypt, also as a ritual by Jews and is described in Genesis (the first book of the Holy Bible.) [3]. Male circumcision became a common medical practice in the 19th century, with improved anaesthetic, surgical and antiseptic technique. Although circumcision is the most common surgical procedure performed, it is not complication free. Bleeding, infection and failure to remove enough foreskin, pain, bruising, meatitis, meatal stenosis, urethral fistula, partial penile amputation, necrotizing fasciitis, penile necrosis and concealed penis have been reported in the literature as complications of circumcision [4,5].

The World Health Organization, following the recommendation of the American Academy of Family Physicians, recommends that male circumcision should not be performed until at least 12 to 24 hours after birth to ensure the infant is stable [6]. This period of observation allows for recognition of abnormalities or illnesses that should either be addressed before circumcision or would be a contra-indication for the procedure [6]. Contra-indications to circumcision include infants with genitor-urinary anomalies such as hypospadias, epispadias, chordee, penile webbing and concealed penis. Neonates with hypospadias should not be circumcised because the foreskin is frequently used in reconstruction. Premature infants should meet criteria for discharge before circumcision is performed [7,8].

2. PRESENTATION OF CASE

A 36 hour old term male neonate delivered via emergency lower segment caesarian section by a primiparous woman on account of breech presentation and prolonged rupture of

membrane. He was referred to our facility on account of difficulty with breathing and poor cry at birth.

Birth weight was 3.3k; Apgar's score was not known. At presentation, he was noticed to be afebrile, anicteric, acyanosed but dyspnoeic with SPO₂ of 66%. His chest was clinically clear. His heart rate was 132 beats per minute without a cardiac murmur. He was evaluated for severe perinatal asphyxia without neonatal encephalopathy and was subsequently placed on intranasal oxygen therapy.

However, about 10 hours after birth it was noticed that the baby had not passed any urine since birth. He was in respiratory distress but no facial or pedal oedema. His abdomen was distended (mostly in the suprapubic region). Subsequent attempt at urethral catheterization revealed absence of preputial opening. A diagnosis of acute urinary retention secondary to preputial stenosis was made and he had emergency suprapubic canulation done that night with size 22FG intravenous canulae to relieve the obstruction while awaiting definitive management.

Few hours later, he had circumcision and repair of the preputial stenosis done. The prepuce was gently retracted manually and a flimsy structure covering the meatus was manually removed. The patency of the urethral was confirmed by passing a size 5 nasogastric tube per urethral. Immediate circumcision was done using Gomco clamp. There was minimal bleeding with the procedure and haemostasis was easily secured. Firm dressing was then applied and the suprapubic canulae was removed leaving the improvised urethral catheter in-situ.

Few hours later, the patient started voiding per urethral. The urethral catheter was removed. He had serum electrolytes, urea and creatinine done; all the parameters were within the range of normal. Abdomino-pelvic ultrasound done showed normal findings. Patient was clinically stable and was discharged home after three days.

3. DISCUSSION

Urinary outflow obstruction is the main cause of urinary retention in newborns (Fig. 1). Delay in treatment could cause renal obstruction and

damage. Hence, it is essential to look for signs of bladder outlet obstruction in order to relieve it early. The principles of management include early decompression of the urinary obstruction followed by definitive treatment of the underlying lesion. Here, we report on a case of neonatal bladder outlet obstruction that prompted circumcision on the third day of life.

The index case did not have externally visible prepuce opening. This was missed at presentation during the routine newborn examination. This was the etiology of the urinary outflow obstruction and the subsequent urinary retention in this patient. Reported causes of bladder outlet obstruction in female neonates include ureteroceles, hydrometrocolpos, neuroblastoma, sacrococcygea lteratoma and

rectal duplication. The commonest cause of the blockage in male neonates is posterior urethral valves. Other causes include urethral atresia, urethral strictures, congenital urethral diverticulum, congenital ureteropelvic junction or ureterovesical junction obstruction, vesicoureteral reflux and urolithiasis.

In line with the principles of management of acute urinary retention, the patient initially had bladder decompression done with suprapubic canulation before the definitive surgical treatment. The latter involved gentle retraction of the prepuce and the subsequent remove of the foreskin using Gomco method of circumcision (Figs. 2,3). This was done early enough to avert long-term complications of bladder outlet obstruction.



Fig. 1. Absence of meatal opening



Fig. 2. Gomco circumcision



Fig.3. Post- circumcision

The definitive treatment in this patient required early neonatal circumcision occurring on the third day of life. Great controversy surrounds neonatal circumcision [9-11]. Most parents based their decision whether or not to have their newborn son circumcised on three reasons; first, nonmedical preferences (i.e. religious, ethnic, cultural, cosmetics); second, as a prophylactic measure against future ailments ('routine' circumcision); third, for some immediate medical indication. Phimosis is the most common medical indication for circumcision [12]. Putative indications for neonatal circumcision include preventing UTIs and their sequelae, preventing the contraction of STDs including, HIV and preventing penile cancer as well as other reasons for adult circumcision [10].

Timing of circumcision is very crucial but controversial [13,14]. While the Canadian Paediatric Society does not recommend routine circumcision for newborns, it recommends that the ideal time to have circumcision done is between 24 and 72 hours after birth [15]. It is said that newborns tend to bleed less and fuss less during circumcision. It has been weekly reported that circumcision complications occur more frequently with increasing age of the patients. This is thought to be due to hormonally mediated increase in penile and prepuce size and vascularity [16,17]. It should not be done before 24 hours because the newborn could have an undiagnosed medical condition that may pose a contraindication to male circumcision.

4. CONCLUSION

A high index of suspicion is essential for early recognition and management of bladder outlet obstruction in neonates due to the potential short- and long-term sequelae. Thoroughly

performed routine neonatal examination is an essential tool to this effect. Prompt diagnosis and potential surgical planning are essential to allay the anxieties of parents as well as to identify other potentially clinically significant conditions.

CONSENT

All authors declared that 'written informed consent was obtained from the parents of the child for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editorial office/Chief Editor/Editorial Board members of this journal.

ETHICAL APPROVAL

All ethical considerations for publishing a case report were followed. Patient's identity was kept confidential.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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