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ORIGINAL RESEARCH

Circumcision – ancillary to surgery for abdominal wall, groin, scrotal and allied conditions

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Background: Circumcision is done mainly for cultural, religious or social reasons and communities that traditionally did not practice circumcision now routinely do so. However, there are complications of circumcision and conditions where it is contraindicated. The occurrence of circumcision complications from the community health units is substantial. The objective of this study is to review the practice of circumcision in addition to primary surgery at the Coast General Teaching and Referral Hospital, Mombasa, Kenya.

Methods: Surgery was done under general anaesthesia with many patients receiving caudal block as well. The primary surgery was done first, followed by circumcision. The dorsal slit circumcision was the most commonly used method and a few procedures were done using the sleeve circumcision technique. Most of the surgeries were done by the surgeon and some by senior surgical residents assisted or supervised by the surgeon.

Results: This review was done over an 8-year period (2015–2022). A total of 231 patients had circumcision in addition to the primary surgery. The mean age was 2 years, with a range of 1 month to 34 years. The surgeries comprised the following: inguinal herniotomy; umbilical hernia repair; orchidopexy for undescended testes, intermittent testicular torsion or after orchidectomy for torsion; reversal of vesicostomy; reconstruction of urethral diverticulum; unilateral subcutaneous mastectomy; and excision of a perineal dermoid. There were no significant complications of circumcision.

Conclusion: In societies where circumcision is practised, circumcision complementary to surgery for abdominal wall, groin, scrotal and allied conditions is commendable. It avoids further surgery for circumcision with its potential complications; especially when the procedure is performed in the community health units under local or inadequate, or even without, anaesthesia by persons with varied to no training. This practice also allows for proficient training of surgical residents in circumcision.

Keywords: circumcision, complications, contraindications, prevention, training

Background

Circumcision is the most commonly performed operation in males worldwide and entails excision of the prepuce.[1,2] This is done mainly for cultural or religious reasons. Social reasons have also gained prominence and groups that traditionally did not practice circumcision now do so. Other reasons for circumcision include medical indications, prophylaxis against human papillomavirus (HPV) and human immunodeficiency virus (HIV).[3] Contraindications to circumcision are hypospadias, epispadias, prematurity, severe congenital penile curvature, micropenis, megaprepuce and bleeding disorders such as haemophilia.[2,4] The inconspicuous penis; encompassing buried, concealed or webbed penis, is also a contraindication to circumcision.[5] Figure 1 shows illustrations of circumcisions done when contraindicated as seen at the publishing institution. Medical indications for circumcision include pathological phimosis with a non-retractable scarred prepuce, recurrent balanoposthitis being infection of the glans and preputial sac,[4] lichen sclerosus atrophicans (balanitis xerotica obliterans), paraphimosis, and recurrent urinary tract infections usually associated with urinary tract abnormalities such as vesicoureteric reflux. Circumcision also affords good general hygiene and reduction of transmission of HPV and HIV in adults.[2-4]

Complications of circumcision vary from trivial to tragic.[1] These include haemorrhage, wound sepsis, urethrocutaneous fistula, excision of incorrect amount of skin, meatal stenosis, trapped penis, glans necrosis or amputation,[2,4,6-8] urethral stricture,[9] penile torsion and acute urine retention. Figure 2 shows illustrations of some circumcision complications as seen at the publishing institution.

High circumcision complication rates are attributable to a lack of training of circumcisers,[6,10-12] or inexperienced providers working in non-sterile settings with inadequate equipment and supplies.[13]

In the Coast Region of Kenya, circumcision is widely practised for religious, cultural and social reasons. The regional hospital, Coast General Teaching and Referral Hospital (CGTRH), does not allow primary circumcision as this would overwhelm hospital resources. Although circumcisions for medical indications are done, it is uncommon. The burden of circumcision complications from the community health units is substantial. This study incorporated circumcision in surgery for anterior abdominal wall, groin, scrotal and allied conditions as an opportunity to avoid this procedure being done later at community health units with the potential for complications.

Methods

This is a review of patients who had a circumcision done in addition to primary surgery at the CGTRH, Mombasa, Kenya over an 8-year period (2015–2022). As circumcision is widely practised, the parent or guardian would use primary surgery as an opportunity to request circumcision as well. It was observed that many boys who came for surgery for anterior abdominal wall, groin and scrotal conditions, had already been circumcised. Some patients presented with inguinal hernia with hypospadias intact prepuce, while others

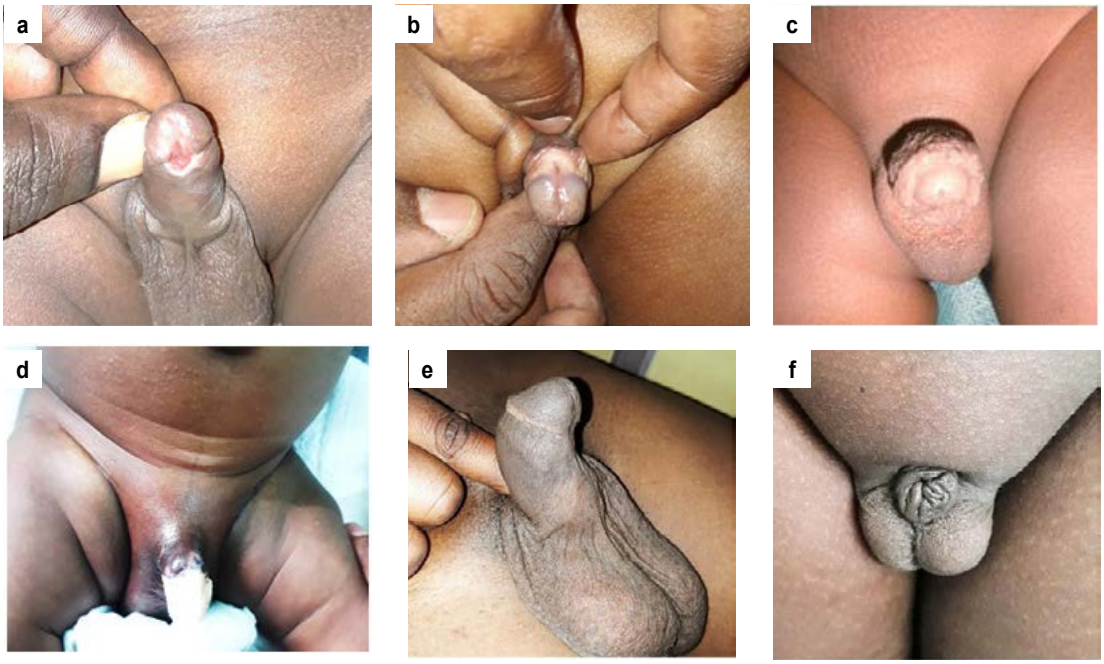

Figure 1: Circumcisions done where contraindicated: a) hypospadias, b) epispadias, c) micropenis, d) haemophilia, e) severe congenital ventral penile curvature, f) inconspicuous penis; attempted circumcision, acute urine retention

presented with severe congenital penile curvature; these had not been noticed by the parents. Herniotomy was done and surgery for the other conditions deferred. Although circumcision in haemophilia is generally contraindicated; it may be done by specially trained personnel. Circumcision in a 15-year-old boy with haemophilia A was done by a trained team with perioperative and postoperative administration of the deficient factors. Patients who had circumcision done for medical indications were excluded from this study.

Informed consent for the surgeries was obtained from the parent or guardian.

All the surgeries were done under general anaesthesia with many patients having either caudal block as well or wound infiltration and penile block with diluted bupivacaine at the end of the surgeries. Dorsal slit circumcision was the most commonly used method with a few circumcisions done with the sleeve (double-incision) circumcision technique. The dorsal slit method involves crushing and division of the two layers of the prepuce dorsally to about 5 mm from the coronal sulcus. The prepuce is then excised circumferentially under direct vision. The excision is curved distally around the frenulum ventrally to keep clear of the urethra. Alternatively, the ventral prepuce is also crushed, divided and the two halves of the redundant prepuce excised. In sleeve circumcision, the prepuce is retracted and marked circumferentially about 5 mm from the coronal sulcus. The prepuce is then reduced and marked on the outer side at level of the coronal sulcus. Incisions are made into the inner and outer markings and the redundant prepuce excised. Most of the surgeries were done by the surgeon, while some were performed by senior surgical residents assisted or supervised by the surgeon.

Results

A total of 231 patients had circumcision in addition to primary surgery. A sample of the surgeries done is depicted in Figure 3. A summary of the surgeries is given in Table I. There were no significant complications of circumcision.

Table I: Circumcision in addition to primary surgery (2015–2022)
Number: 231; Mean age: 2 years; Range: 1 month to 34 years

Surgery	Number
Inguinal herniotomy (unilateral 104, bilateral 11)	115
Umbilical hernia repair	37
Combined inguinal herniotomy and umbilical hernia repair	5
Herniotomy for infantile hydrocoele (unilateral 9, bilateral 4)	13
Undescended testes; orchidopexy (unilateral 35, bilateral 13)	48
Inguinal herniotomy and contralateral orchidopexy	3
Others:	10
Orchidopexy for intermittent testicular torsion	2
Contralateral orchidopexy after orchidectomy for infarction due to torsion	1
Umbilical hernia repair with unilateral orchidopexy	1
Excision of umbilical granuloma	1
Unilateral subcutaneous mastectomy	1
Excision of perineal dermoid	1
Reversal of vesicostomy with unilateral orchidopexy	1
Reversal of vesicostomy	1
Reconstruction for urethral diverticulum	1
Total	231

Discussion

Complications of circumcision in Africa are not only a concern of the medical fraternity,[6-8,10-12] but the general public as well.[14,15] Complications related to circumcision are substantial, as seen at our institution. In our study we incorporated circumcision in common surgery as requested by the parent or guardian. The basis for their decision was that the child would be circumcised for

Figure 2: Complications of circumcision: a) sepsis; Fournier's gangrene, b) amputated glans, c) urethral injury; fistula, d) coronal constriction band, urethral fistula, penile torsion, e) trapped penis; excessive penile skin excision, f) excessive preputial and penile skin excision, g) corpora cavernosal and urethral injuries; dorsal and ventral fistulae (white arrows), h) severe penile scarring

cultural, religious or social reasons anyway and therefore used the opportunity accorded by the primary surgery to request circumcision as well. The primary surgeries and circumcisions were performed by a surgeon or senior surgical resident under supervision. The surgeries were done in the operating theatre under general anaesthesia and either caudal block administration or infiltration of diluted bupivacaine at the end of the surgery. This is advocated by Latifoglu et al.,[1] who recommended that circumcision be done by an experienced surgeon, and Ceylan et al.,[16] who advocates for circumcision by educated and experienced personnel. There were no significant complications of circumcision in our study. Circumcision complications could be reduced by training doctors, clinical officers or nurses doing this procedure.[10-12] Okeke et al.[10] even advocates for circumcision training workshops. Trained personnel can also identify penile conditions where circumcision is contraindicated and arrange for specialised surgery. The principal author trained nurses who are doing circumcision at a peripheral county hospital. In our study we incorporated circumcision in other surgeries as an opportunity to eliminate further surgery of circumcision with its potential complications when performed in community health units. This factor of avoiding further surgery was more prominent in children undergoing multiple procedures. An example is posterior urethral valves; a procedure where a patient undergoes urethral catheterisation, cystourethrography, vesicostomy, endoscopic ablation of the valves and reversal of vesicostomy. At reversal of vesicostomy, circumcision will save the patient a further procedure.

Figure 3: Circumcision in addition to primary surgery: a) right inguinal hernia; herniotomy, b) umbilical hernia; repair, c) right inguinal and umbilical hernia; herniotomy and repair, d) bilateral undescended testes; bilateral orchidopexy, e) urethral diverticulum; reconstruction

The impact of our practice at the community level cannot be determined. However, the effect on the individual patients and their families is appreciable. This practice also accorded training of surgical residents in circumcision, ensuring eventual proficiency.

Conclusion

In societies where circumcision is practised, complementary circumcision to surgery for abdominal wall, groin, scrotal and allied conditions is appropriate. It avoids further surgery of circumcision with its potential complications; especially when the procedure is performed in the community health units under local or inadequate, or even without, anaesthesia by persons with varied skills or no training. This practice also allows for proficient training of surgical residents in circumcision.

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Conflict of interest

The authors declare no conflict of interest.

Ethical approval

The manuscript is based on regular clinical practice at our institution and does not involve experimentation in any way. The practice has been in place even before the documented commencement date of the study.

Many parents request complementary circumcision having heard of it from other parents at the clinic or in the community.

As per standard operating procedure, informed consent is obtained for all surgeries.

The practice of complementary circumcision is ongoing and more patients will be added to the study. Other complications of circumcision found and not described in the submitted article, will be added.

The authority to publish the manuscript was given by the Chief Executive Officer of the hospital, who is a consultant surgeon.

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