**ORIGINAL ARTICLE**

# Secondary Phimosis after Circumcision

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## ABSTRACT

**Background:** Circumcision is the removal of some or the entire foreskin (prepuce) from the penis. This is one of the oldest surgical procedures described in Egyptian papyri dating backs to 4000 BC, where the ancient mummies were found to be circumcised.
**Aim:** To define this rare complication in terms of cause, findings, presentation, and treatment strategies. Technical error yielding to secondary phimosis will also be discussed.
**Methodology:** The present study was performed in department of pediatric surgery Sheikh Zayed Medical College Rahim Yar Khan after approval from ethical review board (ERB). A total of 40 boys who were circumcised and admitted for treatment of secondary phimosis in last five years were included in the study.
**Results:** Total 40 cases of children with post-circumcision secondary phimosis were seen. Primarily the presenting complaint was cosmetic issue in 22 (55%) patients, dysuria 7 (17.5%), retention of urine 6(15%) and urinary tract infection 5(12.5%) patients. circumcision of these patients was performed by pediatric surgeon 12(30%), general surgeon 9(22.5%), barber 9(22.5%), quack 8(20%) and pediatrian 2(5%). Bone cutter method was used in 15(37.5%), plastibell method in 9(22.5%), barber method in 9(22.5%), open free hand method in 4(10%) and gomco clamp in 3(7.5%). Secondary phimosis was commonly seen in chubby boys with thick pubic fat and buried penis.
**Conclusion:** This study concludes that secondary phimosis is not a trivial complication. It occurs even in experienced hands if anatomical details especially thick pubic fat and buried penis are not checked.
**Key words:** circumcision, secondary phimosis, buried penis.

## INTRODUCTION

Circumcision is the surgical procedure in which some or the entire foreskin (prepuce) from the penis is removed[1 2]. Circumcision is a Latin word which means “to cut around” as in this procedure skin (prepuce) is cut circumferentially the word “circumcision” consists of two Latin words as circum (meaning “around”) and caedo meaning “to cut”. This procedure is described in Egyptian papyri about 4000 years ago, where the ancient mummies were found to be circumcised[3]. There are medical, cultural, social or religious reasons to perform this procedure. Usually neonates, infants, and children are commonly circumcisied.[4 5] In America, although there are many controversies regarding circumcision but still it is the commonest procedures to be performed.[6] It has been observed that every third male in the world is circumcised and this may be performed due to medical grounds.[7] Similarly in Pakistan circumcision is the most common elective procedure to be performed although there is a wide variation in age at the time of circumcision[8].

There are many methods to remove prepuce from glans penis, most important are Gomco clamp, Mogen clamp, Plastibell, Bone cutter method and Open method or free hand technique.[9] Out of many complications pain, local edema, bleeding or inadequate removal of prepucium are more common. Other more serious complications are iatrogenic chordee, iatrogenic hypospadias, glanular necrosis, and glanular amputation. Late complications include suture sinus tracts, epidermal inclusion cysts mostly related to retaining suture material, chordee, inadequate skin removal (under circumcision), penile adhesions, phimosis, meatitis, buried penis, urethrocutaneous fistulae, and meatal stenosis.[10] Some of these complications require subsequent surgical intervention such as phimosis.

Phimosis is a condition in which prepuce (foreskin) cannot be retract back on the glans penis. If this pathology occurs after circumcision then it is known as secondary phimosis.

The aim of the present study was to define this rare complication in terms of cause, findings, presentation, and treatment strategies. Technical error yielding to secondary phimosis will also be discussed. (study Performa attached )

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## MATERIALS AND METHODS

The present study was performed in department of pediatric surgery Sheikh Zayed Medical College Rahim Yar Khan after approval from ethical review committee. Informed consent was signed and understood by parents or attendants regarding this procedure. All male patients admitted to pediatric surgery department in last five years for treatment of secondary phimosis after circumcisions were included in our study. An eligibility criterion was total stricture of the circumcision line and inability of retraction of penile skin.

A total of 40 boys who were circumcised elsewhere and admitted in pediatric surgery department for treatment of secondary phimosis in last five years were included in the study. All patients were aged between 12 months to 11 years of age. All data was collected with the help of a structured questionnaire prepared by a trained research assistant. Data collected included demographic

information, person circumcising, age at circumcision, place of circumcision, physical examination findings and preoperative observations.

**Statistical analysis:** The data was analyzed by using Statistical Packages for the Social Sciences (SPSS Inc.; Chicago, IL, USA) for Windows version 20.

## RESULTS

In this retrospective study children between 12 months to 11 years of age with mean value 2.6 years were included. Total 40 cases of children with post-circumcision secondary phimosis were seen. Primarily the presenting complaint was cosmetic issue in 22(55%) patients, dysuria 7 (17.5%), retention of urine 6(15%) and urinary tract infection 5(12.5%) patients. According to our study circumcision of these patients was performed by pediatric surgeon 12(30%), general surgeon 9(22.5%), barber 9(22.5%), quack 8(20%) and pediatrian 2(5%).Bone cutter method was used in 15(37.5%), plastibell method in 9(22.5%), barber method in 9(22.5%), open free hand method in 4(10%) and gomco clamp in 3(7.5%). This is similar to another study conducted by zafar et al in 2008 where out of 600 circumcisions 307(51.17%) were performed by bone cutter method and 110(18.33%) by barber method and 60(10%) by plastic bell method.[11]

As for as anatomical detail was concerned, thick pubic fat was noted in 11 (27.5%), and buried penis in 6 (15%) patients. All the patients with secondary phimosis were operated in pediatric surgery department under general anesthesia on elective list. Dorsal slit was made to open strictured circumcision line. Glans was exposed all around. Our common observation was excessive redundant inner mucosal layer of the prepuce in all patients. Inner mucosal layer was trimmed circumferentially leaving 3mm around corona. Outer fibrotic layer of prepuptial skin was excised and re-circumcision was completed with interrupted absorbable suture, PDS 5/0.

## DISCUSSION

Phimosis is inability to withdraw the narrowed penile foreskin or prepuce behind the glans penis.[12] Normally when a male child is born, glans penis is covered with skin labeled as prepuce or foreskin. It is said that this prepuce performs many functions like protection of glans, erogenous and immunology.[13] In neonatal life inner epithelial lining of prepuce and glans are adherent with each other and cannot be retracted back.[14] Inability to retract back foreskin due to adhesions in neonatal period is known as physiologic phimosis. This physiologic phimosis is common in male patients up to 3 years of age, but often extends into older age groups. [15, 16] With the passage of age due to excessive erections and keratinization of inner epithelium this physiologic phimosis ends up. However in pathological phimosis opening of prepuce keeps narrowing due to excessive scarring and retraction of prepuce is not possible. The incidence of pathological phimosis is 0.4 per 1000 boys per year or 0.6% of boys are affected by their 15th birthday. This is much lesser than physiological phimosis, which is common in younger children and decreases with age[17].

Treatment of phimosis is circumcision. The main objective of circumcision is clearly visible glans after excision of prepuce all around. However sometime glans is re-covered with redundant prepuce after circumcision and is known as secondary phimosis. Secondary or acquired phimosis is mainly described as complication of the plastibell technique.[18]In our study out of 40 patients, plastibell method was performed in 22.5% patients. Secondary phimosis after this method is mainly due to smaller size plastibell or loose ligature, which leads to slippage of the inner layer of the skin. kidger et al. stated that the outer layer cicatrizes gradually and results in phimotic scar within 3 weeks gradually [19].

An anatomical detail of penis is also a major factor for secondary phimosis. In our study 11 patients (27.5%) have thick pubic fat and buried penis was noted in 15% (6). Secondary phimosis after circumcision in such patients is due to excessive removal of skin from penile shaft along with prominent supra pubic fat pad which leads to healing within the fat pad and ultimately progressive closure and stricture of the skin over the glans penis[20].

In our study primarily the main symptoms of presentation was cosmetic issue (60%) as glans was covered with skin especially in buried penis with thick pubic fat and iatrogenic amputation was considered on first look. Other symptoms of presentations were urinary tract infections, dysuria and retention urine. Similar findings were noted in study conducted by Tunc Ozdemir where voiding difficulty was main symptom of presentation.[21] Circumcision by inexperienced hands is another factor for secondary phimosis as alignment of inner layer of prepucium and outer layer of skin is mandatory. In our study large number of circumcisions is performed by quacks and barbers where inner layer of prepuce is not aligned properly and chance of secondary phimosis is high. Similarly, even in experienced hands, freehand circumcision may yield to secondary phimosis if the inner layer of the prepucium was not trimmed subsequently.[22] All patients with secondary phimosis were admitted in pediatric surgery department and circumcision was revised under general anesthesia on elective list where inner layer of prepuce was trimmed leaving 3mm margin around corona and interrupted stitches were applied with absorbable suture material PDS 5/0.

## CONCLUSION

This study concludes that secondary phimosis is not a trivial complication of circumcision. It occurs even in experienced hands if anatomical details especially thick pubic fat and buried penis are not checked. Circumcision clinics should be established in every tertiary care hospital where children can be circumcised according to international protocol after thorough examination.

## REFERENCES

1. Rudolph C, Rudolph A, Lister G, First L, Gershon A (18 March 2011). Rudolph's Pediatrics, 22nd Edition. McGraw-Hill Companies, Incorporated. p. 188.
2. Sawyer S (November 2011). Pediatric Physical Examination & Health Assessment. Jones & Bartlett Publishers. pp. 555–556.
3. Stephen C, Raynor MD, Ashcraft pediatric surgery fifth edition 2010.

4. Nelson CP, Dunn R, Wan J, Wei JT. The increasing incidence of newborn circumcision: data from the nationwide inpatient sample. J Urol. 2005; 173:978–81
5. Hutcheson JP. Male neonatal circumcision: indications, controversies and complications. Urol Clin North Am. 2004; 31:461–7.
6. Circumcision policy statement. American academy of pediatrics. task force on circumcision, pediatrics 1999; 103:686.
7. Karaman MI, Zulfikar B, Ozturk MI, Koca O,Akyuz M, Bezgal F. circumcision in bleeding disorders: improvement of our cost effective method with diathermic knife. Urol J.2014; 11(2): 1406-10.
8. Sari N, Buyukunal S, Zulifkar B: circumcision ceremonies at the ottoman places. J pediatric Surg 31:920-924, 1996.
9. Krill AJ, Palmer LS, Palmer JS. Complications of cicumcision. Scientific World Journal. 2011; 11:2458–68.
10. Krill AJ, Palmer LS, Palmer JS. Complications of circumcision. Scientific World Journal. 2011; 11:2458–68
11. Zafar MI, Jahangir M, Tariq M, Irum S. Knowledge, attitude and practice regarding circumcision in southern Punjab Sheikh Zayed Hospital Rahim Yar Khan experience. JFJMC 2008 Oct 2(4): 149-151.
12. Steadman B, Ellsworth P. To circ or not to circ: indications, risks, and alternatives to circumcision in the pediatric population with phimosis. Urologic Nursing. 2006; 26(3):181–194.
13. Immunological functions of the human prepuce. Sex Transm Infect. 1998; 74 (5):364–7.
14. Oster J. Further fate of the foreskin. Arch Dis Child. 1968; 43(228):200–4.
15. Krolupper M. Care of foreskin constriction in children. Cesk Pediatr. 1992;47(11):664–5.
16. Kayaba H, Tamura H, Kitajima S, Fujiwara Y, Kato T, Kato T. Analysis of shape and retractability of the prepuce in 603 Japanese boys. J Urol. 1996; 156(5):1813–5.
17. Shankar KR, Rickwood AMK. The incidence of phimosis in boys. British Journal of Urology International. 1999; 84(1):101–102.
18. Kidger EA, Haider N, Qazi A. Acquired phimosis after plastibell circumcision: A preventable consequence. Ann R Coll Surg Engl. 2012; 94:186–8.
19. Kidger EA, Haider N, Qazi A. Acquired phimosis after plastibell circumcision: A preventable consequence. Ann R Coll Surg Engl. 2012; 94:186–8.
20. Krill AJ, Palmer LS, Palmer JS. Complications of circumcision. Scientific World Journal. 2011; 11:2458–68.
21. Ozdemir T, Sayan A, Candan B, Orhan G and Koyluoglu G. Secondary phimosis after circumcision. Turk J Urol. 2019;45(2): 135-138.
22. Ozdemir T, Sayan A, Candan B, Orhan G and Koyluoglu G. Secondary phimosis after circumcision. Turk J Urol. 2019;45(2): 135-138.


**Study Performa**

| No | Age in yrs | Age at circumcision | Presenting complaint | Method of circumcision | Service provider | Anatomical detail |
|---|---|---|---|---|---|---|
| 1 | 1 | 1 | Cosmetic | Plastibell | Pediatric surgeon | |
| 2 | 4 | 3 | Recurrent UTI | Bone cutter | General surgeon | Suprapubic fat |
| 3 | 5 | 4 | Cosmetic | Barber | Barber | |
| 4 | 7 | 6 | Retention | Open method | pediatrian | Buried penis |
| 5 | 2 | 2 | Cosmetic | Bone cutter | General surgeon | |
| 6 | 1 | 1 | Cosmetic | Plastibell | Quack | Buried penis |
| 7 | 1 | 1 | Dysuria | Barber | Barber | |
| 8 | 11 | 10 | Cosmetic | Open method | Pediatric surgeon | Suprapubic fat |
| 9 | 1 | 1 | Cosmetic | Gomco | Pediatric surgeon | |
| 10 | 2 | 1 | Retention | Plastibell | Pediatric surgeon | Suprapubic fat |
| 11 | 1 | 1 | Cosmetic | Barber | Barber | |
| 12 | 3 | 2 | Cosmetic | Bone cutter | General surgeon | Buried penis |
| 13 | 4 | 3 | Retention | Gomco | Pediatric surgeon | Suprapubic fat |
| 14 | 6 | 5 | Cosmetic | Bone cutter | Quack | |
| 15 | 1 | 1 | Recurrent UTI | Plastibell | General surgeon | Suprapubic fat |
| 16 | 2 | 1 | Dysuria | Bone cutter | General surgeon | |
| 17 | 4 | 3 | Recurrent UTI | Barber | Barber | Suprapubic fat |
| 18 | 1 | 1 | Cosmetic | Plastibell | Quack | |
| 19 | 2 | 1 | Dysuria | Bone cutter | General surgeon | |
| 20 | 6 | 5 | Cosmetic | Open method | pediatrian | Suprapubic fat |
| 21 | 1 | 1 | Cosmetic | Bone cutter | Quack | |
| 22 | 1 | 1 | Retention urine | Plastibell | Pediatric surgeon | Buried penis |
| 23 | 2 | 2 | Cosmetic | Barber | Barber | |
| 24 | 1 | 1 | Cosmetic | Bone cuuter | Quack | |
| 25 | 1 | 1 | Dysuria | Plastibell | General surgeon | Suprapubic fat |
| 26 | 2 | 1 | Cosmetic | Bone cutter | Quack | Buried penis |
| 27 | 3 | 2 | Recurrent UTI | Bone cutter | Pediatric surgeon | |
| 28 | 1 | 1 | Cosmetic | Bone cutter | Pediatric surgeon | |
| 29 | 2 | 2 | Cosmetic | barber | barber | |
| 30 | 8 | 7 | Retention | Open method | General surgeon | Thick Suprapubic fat |
| 31 | 3 | 2 | Cosmetic | plastibell | General surgeon | |
| 32 | 2 | 2 | Dysuria | barber | barber | Buried penis |
| 33 | 2 | 2 | Cosmetic | gomco | Pediatric surgeon | |
| 34 | 1 | 1 | Recurrent UTI | Bone cutter | Pediatric surgeon | Thick Suprapubic fat |
| 35 | 1 | 1 | Cosmetic | Bone cutter | quack | |
| 36 | 1 | 1 | Dysuria | plastibell | Pediatric surgeon | |
| 37 | 3 | 2 | Cosmetic | barber | barber | |
| 38 | 2 | 1 | Dysuria | Bone cutter | quack | Buried penis |
| 39 | 1 | 1 | Retention | Bone cutter | Pediatric surgeon | Thick Suprapubic fat |
| 40 | 1 | 1 | Cosmetic | barber | barber | |