

## BLOODLESS CIRCUMCISION: NEW TECHNIQUE

By

Emad Eldin Mohamed Alsageer Osman

Department of General surgery – El-Minia University Hospital

### ABSTRACT

**Background:** Circumcision is the most common surgical procedure done for males. Bleeding is a common problem. We perform it in this study using bipolar diathermy and Mogen clamp in a nearly bloodless field.

**Methods:** we performed 300 males along a period from January 2009 and July 2011, Bipolar diathermy was used in combination with Mogen clamp for circumcision and the procedure was evaluated.

**Results:** Selected patients were four months to twelve years age (mean 6.16 years). Mean time was one minute (30 sec to 90 sec) , Zero% bleeding ,Zero% infection, twenty four hours pain controlled with usual analgesics, 10% edema and paraphimosis in 0.33%.

**Conclusion :**The use of bipolar diathermy with Mogen clamp in circumcision Is a fast bloodless technique.

### KEYWORDS:

Circumcision

Technique

Bipolar diathermy

### INTRODUCTION:

Circumcision is the most commonly performed surgical procedure in males<sup>1</sup>. sixth of male population are circumcised worldwide<sup>2</sup>. The used devices serve to protect the penis when excising the prepuce. The type of clamp affects the time taken for the procedure, about 81 seconds for the Mogen clamp and 209 seconds for the Gomco clamp<sup>3</sup>. Strict sterile conditions were reported not to be necessary to prevent infection in neonatal circumcision<sup>4</sup>. The use of bipolar diathermy on the penis has already been shown by Marsh and Archer to be safe<sup>5</sup>. Complications after circumcision can include postoperative infections, damage to the glans or urethra, paraphimosis due to inadequate circumcision, excessive removal of skin and postoperative bleeding<sup>6</sup>. The most common postoperative complication is bleeding with a reported incidence of 0.1–35%<sup>7</sup>.of which 0.5%

requires a return to theatre<sup>8</sup>. The bleeding is sometimes sever and life-threatening. As circumcision is the commonest surgical procedure performed worldwide (30 000 per year in the UK alone), Thus postoperative bleeding can be a serious consideration within the healthcare system<sup>6</sup>. So, the objective of this operative technique in this study is to evaluate the use of bipolar diathermy in conjunction with Mogen clamp in decreasing the incidence of postoperative bleeding and in a short operative time.

### PATIENTS AND METHODS:

Between January 2009 and July 2011, 300 child were underwent circumcision in El Minia university Hospital. Written informed consent was given from all cases. Ages range from four months to twelve years (mean 6.16 years). Bleeding and clotting time was performed for all. Those below one year age were done

under local anaesthesia and those above one year were done under general anaesthesia. Bipolar diathermy was used for cutting and coagulation for all. Time consumed ranged from 30 sec to 90 sec (mean 60 sec). the prepuce was retracted by blunt dissection and cleaned in the usual way, reposition of the prepuce is done and two forceps applied at 3 and 9 o'clock with inclusion of the mucosa with skin then marking the level of cutting with the index and thumb fingers of the right hand to be at the level of corona dorsally and at tip of the penis ventrally then we apply Mogen clamp, then we cut with bipolar diathermy with caution to leave 1 to 2 mm skin stump above Mogen clamp and not to touch it (Figure 1).

Finally we remove the Mogen clamp after complete cut of the skin and mucosa with the attached forceps and by gentle pressure on the glans it protrudes and antiseptic ointment is applied on the incision site. Inspection of the ventral aspect of the penis is useful to visualize any bleeding point if any from the frenulum which can be controlled by manual compression for 2 minutes by a small gauze which is then removed. Patient then discharged after 10 minutes to be sure that there was no bleeding. Postoperative analgesic (paracetamol suppository for those below one year and declofenac suppository for those above one year) once immediately after completion of the procedure and sometimes another one before bedtime.

Daily dressings twice daily was done from the second day for 3 to 7 days by povidon iodine showers followed by gentamycin cream, no systemic antibiotic was used and except for one case who needed redo operation for paraphimosis. if edema

occurred it was at the second day in 10% of our patients and it was treated by trypsin and chemotrypsin syrup and resolved at the tenth day. Paraphimosis occurred in one case due to under circumcision and needed redo operation after a week with complete healing after two weeks and needed systemic antibiotic. Blood loss occurred in some cases from the frenulum and it was minor (0.1 to 0.2 ml) and controlled with gauze compression for 2 minutes. No cases needed return to the operative theatre for bleeding. Infection occurred in no cases. 15 days was the time of follow up for all our patients. Healing occurred 3 to 7 days for non complicated cases and 10 days for cases who developed edema and 15 days for the case needed reoperation for paraphimosis.

#### RESULTS:

Data were described by simple descriptive statistics as range; mean and percentages. 300 boys were operated upon for the study with ages 4 months to 12 years (mean 6.16years). 200 patients with ages 4 months to 6 years (66.6%), 73 patients was 6 to 10 years (24.33%), and 27 patients from 10 to 12 years (9%) (Table 1). Local anaesthesia was done for 114 patients (38%), and general anaesthesia for 186 patients (62%) (Table 2). Time consumed ranged from 30 sec to 90 sec (mean 60 sec).

Complications occurred in 31 cases (10.33%). Edema in 30 cases (10%), paraphimosis in one case (0.33%), bleeding occurred in no cases (Zero%) and Zero% infection (Table 3). Pain in all cases controlled easily with the usual analgesics in 260 cases once postoperatively (86.67%) and in 40 cases (13.33%) needed another dose at bedtime (Table 4).

**Table 1:** Age groups

age	4month-6years	6-10 years	10-12 years
Number	200	73	27
%	66.6%	24.33%	9%

**Table 2:** Type of anaesthesia

Anaesthesia	Local	General
Number	114	186
%	38%	62%

**Table 3:** Complications

Complications	Edema	Paraphimosis	Bleeding	Infection
Number	30	1	0	0
%	10%	0.33%	0%	0%

**Table 4:** Postoperative pain

Postoperative pain	Once analgesic	Twice analgesic
Number	260	40
%	86.67%	13.33%

## DISCUSSION:

Circumcision is one of the oldest of all surgical procedures. It was certainly began as a religious rite. It was practised by the Egyptians evident as the earliest mummies were found to be circumcised. In Jewish community circumcision is a religious ritual and is usually performed on the child's eighth day of life. Religious circumcision is also practiced by Muslims; currently approximately one-sixth of the world's male populations are circumcised mostly on religious grounds. In the Western society circumcision is performed for medical reasons, the commonest is phimosis. The aim of the procedure is to excise sufficient foreskin (both penile shaft and inner preputial epithelium) to leave the glans uncovered.

An alternative to circumcision some advocate the technique of 'preputial plasty' where a longitudinal incision of the phimosis constricting band is followed by a transverse suture<sup>9</sup>. The type of clamp affects the time taken for the procedure, about 81 seconds for the Mogen clamp and 209 seconds for the Gomco clamp<sup>3</sup>. In our study, time was 30 to 90 seconds (mean one minute). Complications arise as a result of operator inexperience rather than the method employed. All techniques aim is to provide the best cosmetic result and the lowest possible morbidity rate; the key factors to be observed are attention to asepsis, adequate excision of the inner and outer preputial layers, haemostatis and cosmesis<sup>10</sup>. Some authors reported

a complication rate as low as 0.06 per cent<sup>11</sup>, while at other extreme rates of up to 55 per cent<sup>12</sup>. A realistic figure is 2-10 per cent<sup>13</sup>. In our study, complication rate was 10.33%.

Haemorrhage and sepsis are the main causes of morbidity, but a variety of complications is enormous such as insufficient foreskin removal, phimosis may still subsequently develop. In Israel, where religious circumcision is widespread, 60 children referred following inadequate circumcision 42 required re circumcision; ages of these children were operated on before 4 years of age<sup>14</sup>. In our series, edema is the most common complication occurred. Removal of too much skin from the penile shaft may be caused by pulling skin over the glans during operation, and after foreskin excision the remaining skin slides back, leaving a denuded shaft. Penile denudation injuries may also occur as a result of sepsis<sup>15</sup>, from diathermy injury<sup>16</sup> or after injected substances mistaken for anaesthetic solutions<sup>16</sup>. Such injuries may be managed conservatively if the defect is less than half of the total penile skin. Complete denudation is managed by split-thickness skin grafting<sup>17</sup>. A rare cause of excision of excess preputial skin is the so-called 'concealed penis'<sup>18</sup>. Laceration to the penile skin and scrotum resulting in exposure of testes as reported by Shulman et al.<sup>19</sup>. Laceration of the penile shaft with partial amputation has also been described<sup>17</sup>. Total ablation of penis may occur as a result of diathermy injury<sup>20</sup>. Glandular injury may occur with varying severity and cases of complete surgical amputation of the glans have occurred<sup>19</sup>.

In our study, none of these injuries occurred. Bleeding is the commonest complication encountered during and after circumcision with

reported incidence ranges from 0.1 to 35 per cent<sup>19</sup>. In some cases the application of pressure alone is insufficient to control local haemorrhage and may need other methods. In the UK the commonest method to achieve haemostasis is the electro-surgical diathermy for coagulating vessels. If diathermy used in monopolar form, an electrical current flows from the plate to the active electrode (forceps) the tissue surrounding the forceps is heated, resulting in coagulation. This coagulation process may spread proximally in small vessels and the extent of vessel coagulation may be greater than expected so it is predominantly for this reason that use only bipolar diathermy during circumcision<sup>16</sup>.

In our study bleeding never occurred and no one needed to return to the operative theatre. There are probably many cases of minor diathermy burns and sloughing of the affected penile skin, more severe injuries as glans and major penile skin necrosis was reported<sup>16</sup>. Infection occurs after circumcision in up to 10 per cent of patients<sup>13</sup>. In our study no cases developed infection and 10% developed edema which is an inflammatory response to heating of diathermy. Urethrocutaneous fistula after circumcision may occur for a variety of reasons the commonest cause may be a poorly placed suture at the frenulum in an attempt to obtain haemostasis<sup>21</sup>. Meatal stenosis is a direct complication of circumcision that is seldom encountered in uncircumcised men; meatal calibre is greater in uncircumcised individuals. Meatal ulceration following circumcision is from 8 to 20 per cent<sup>22</sup>. The cause may be irritation of the external urethral meatus by ammoniacal substances which may be present in wet sodden nappies. Such irritation not occur in the

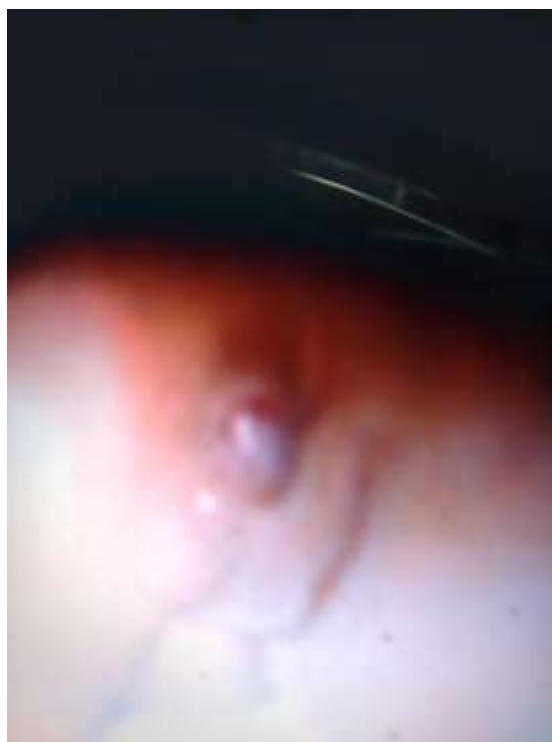
presence of a normal prepuce, which protects the glans from these irritant substances<sup>23</sup>. In our study, meatal stenosis was not occurred may be due to the short follow up period which needs further study. All patients with carcinoma of the penis reviewed by Wolbarst, none had been circumcised<sup>24</sup>. It was concluded that squamous carcinoma of the penis only occurs in uncircumcised men and that the circumcision is protective against its development<sup>25</sup>. There is strong evidence that circumcision reduces the risk of HIV infection in heterosexual men in populations that are at high risk<sup>26</sup>. Some authors found no association between circumcision and Human papilloma virus<sup>27</sup>. Some found that circumcision reduced the incidence of HSV-2 (herpes simplex virus, type 2) infections by 28%. The researchers found mixed results for protection against *Trichomonas vaginalis* and *Chlamydia trachomatis*<sup>28</sup>.

Marsh SK & Archer TJ make a dorsal slit down to 8mm from the corona and another anterior slit using

bipolar diathermy and the slit is elongated on the skin aspect for a further 4mm to prevent a skin remnants to form then skin and mucosa is sutured by use 6/0 undyed polyglactin for stitches<sup>5</sup>. Clarence Lei routinely use the dorsal slit technique with a pair of scissors and cut the inner and outer foreskin with a knife. The edges are then stitched with plain Catgut 4/0. He use an ocular loop (usually 4 x) and low setting bipolar diathermy for all circumcisions<sup>29</sup>.in our study, we performed a new technique in circumcision which is combination of Mogen clamp with bipolar diathermy with caution not to touch the clamp by leaving a skin stump above it and without stitches.

The combination of bipolar diathermy with Mogen clamp has the advantage of both. Little or no bleeding and less time consuming.

In conclusion, bipolar diathermy with Mogen clamp in circumeCISION is a safe, less time consuming and bloodless procedure.



**Figure 1:** Combined bipolar diathermy with Mogen Clamp

#### REFERENCES:

1. Robert T Peters and Ross Fisher. Paediatric Circumcision Using Bipolar Diathermy. *Ann R Coll Surg Engl.* 2009 July; 91(5): 436.
2. Williams N & Kapila L. Complications of circumcision. *Br J Surg* 1993; 80: 1231-6.
3. Kurtis PS, DeSilva HN, Bernstein BA, Malakh L, Schrechter NL. A comparison of the Mogen and Gomco clamps in combination with dorsal penile nerve block in minimizing the pain of neonatal circumcision. *Pediatrics* 1999; 103: E23.
4. Naimer SA, Trattner A. Are sterile conditions essential for all forms of cutaneous surgery? The case of ritual neonatal circumcision. *J Cutan Med Surg* 2000; 4: 177-180.
5. Marsh SK & Archer TJ. Bipolar diathermy haemostasis during circumcision. *Br J Surg* 1995; 82: 553.
6. Williams N & Kapila L. Complications of circumcision. *Br J Surg* 1993; 80: 1231-6.
7. Kaplan GW. Complications of circumcision. *Urol Clin North Am.* 1983; 10:543-9.
8. Cathcart P, Nuttall M, Meulen JVD, Emberton M, Kenny SE. Trends in paediatric circumcision and its complications in England between 1997 and 2003. *Br J Surg.* 2006;93:885-90.
9. Cuckow P, Mouriquand P. Saving the normal foreskin. *BMJ* 1993 306:459-460.
10. Kaplan GW. Complications of circumcision. *Urol Clin North Am* 1983; 10:543-9.
11. Speert H. Circumcision of the newborn; an appraisal of the present status. *Obstet Gynecol* 1953; 2:164-72.
12. Patel H. The problem of routine infant circumcision. *Can Med Assoc J* 1966; 95:576.

13. Griffiths DM, Atwell JD, Freeman NV. A prospective study of the indications and morbidity of circumcision in children. *Eur Urol* 1985; 11:184-7.
14. Bruer GS, Watfisch S. Circumcision complications and indications for recircumcision. Clinical experience and review of the literature. *Isr J Med Sci* 1987; 23: 252-6.
15. Sotolongo JR, Hoffman S, Gribetz ME. Penile denudation injuries after circumcision. *J. Urol* 1985; 133:1220.
16. Azmy A, Boddy SA, Ransley PG. Successful reconstruction following circumcision with diathermy. *Br J Urol* 1985; 57:587-8.
17. Byars LT, Trier WC. Some complications of circumcision and their surgical repair. *Arch Surg* 1958; 76: 477-82.
18. Kon M. A rare complication of circumcision; the concealed penis. *J Urol* 1983; 130:573-4.
19. Shulman J, Ben-Hur N, Neuman Z. Surgical complications of circumcision. *Am J Dis Child* 1964; 107:149-54.
20. Gearhart JP, Rock JA. Total ablation of the penis after circumcision with electrocautery: a method of management and long term follow-up. *J Urol* 1989; 142:799-801.
21. Lackey JT. Urethral fistula following circumcision. *JAMA* 1968; 206:2318.
22. Mackenzie AR. Meatal ulcer following circumcision. *Obstet Gynecol* 1966; 28:221-3.
23. Gairdner D. The fate of the foreskin. A study of circumcision. *BMJ* 1949; ii:1433-7.
24. Wolbarst AJ. Circumcision and penile cancer. *Lancet* 1932.; i:150-3.
25. Rogus BJ. Squamous cell carcinoma in a young circumcised man. *J Urol* 1987; 138:861-2.
26. Tobian, A. A. R.; Gray, R. H. The Medical Benefits of Male circumcision: the Journal of the American Medical Association, October 2011, 306 (13): 1479–80. doi:10.1001/jama.2011.1431.
27. Albero G, Castellsagué X, Giuliano AR, Bosch FX. "Male Circumcision and Genital Human Papillomavirus: A Systematic Review and Meta-Analysis". *Sex Transm Dis*, February 2012, 39 (2): 104–113.
28. Wetmore CM, Manhart LE, Wasserheit JN. "Randomized controlled trials of interventions to prevent sexually transmitted infections: learning from the past to plan for the future". *Epidemiol Rev*, April 2010, 32 (1): 121–36.
29. Clarence Lei Chang Moh. circumcision in 2011. *Kuching Urology*. 2011, June 13.

## الختان بدون دم-طريقة جديدة

عماد الدين محمد الصغير

**الهدف:** يعتبر الختان من أكثر العمليات شيوعا بين الذكور. وحدث نزيف أثناء هذه الجراحة أمر شائع.

يهدف هذا البحث إلي التخلص من هذه المشكلة باستخدام جهاز الكي ثنائي الأقطاب و ماسك موجن.

**الطريقة:** لقد أجري البحث علي 300 حالة من يناير 2009 وحتى يوليو 2011. وتم تقييم استخدام جهاز الكي ثنائي الأقطاب و ماسك موجن في الختان.

**النتائج:** تم اختيار الحالات من سن أربعة أشهر إلي اثني عشر عاما. تراوح وقت العملية من نصف دقيقة إلي دقيقة ونصف. لم تحدث أي حالات نزيف أو التهاب. تم السيطرة علي الألم بعد الجراحة بالمسكنات المعتادة في أول 24 ساعة. حدث ارتشاح في 10% من الحالات و ضيق في 0,33 % .

**الخلاصة:** استخدام جهاز الكي ثنائي الأقطاب و ماسك موجن في الختان طريقة سريعة و بدون دم.