

## Research Article

# Our Initial Experience of Circumcision using Monopolar Diathermy

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**Abstract**

**Objectives:** To evaluate the safety and efficacy of monopolar diathermy in performing circumcision.

**Materials and Methods:** 100 patients underwent non-neonatal circumcisions using monopolar diathermy at Rehman medical institute Peshawar, Pakistan since June 2015 to January 2016 were included in the study. Our exclusion criteria were neonatal circumcision, circumcision using bipolar diathermy and patients with bleeding diathesis.

**Results:** We identified 100 patients who met inclusion criteria. Mean Patient age was 10 months (range 6- 60 months), mean operative time was seven minutes (range 5 - 15 minutes). Eighty seven patients (87%) underwent primary circumcision for religious and cultural reasons where as on thirteen patients (13%) circumcision revisions were performed for cosmetic reasons. Two patients (2%) presented to the emergency department with minor bleeding. All patients had good cosmetic outcomes on follow up visit. No patients were found to have skin necrosis, glans necrosis and/or urethral injury.

**Conclusion:** Circumcision using monopolar diathermy, if used judiciously, is a safe, simple and efficient surgical operation.

**Keywords:** Circumcision; Monopolar diathermy

**Introduction**

Circumcision is the most common operation performed on males, with approximately 25–33% men undergoing this operation around the world [1,2]. Most circumcisions are performed for religious not medical reasons [3]. Circumcision reduces the risk of UTI in children, occurrence of penile cancer and also plays an important role in the prevention of Sexually Transmitted Diseases (STDs) including HIV infections [4].

The median frequency of circumcision complications is 1.5% (range 0–16%) [2,5]. Most of these are relatively minor (e.g. bleeding, infection etc.) but major complications include glans necrosis, glans and penile amputation, urethral fistula and preputial fusion defect can also occur [6]. Major loss of penile shaft skin has been rarely reported in the literature and when it occurs is usually due to the injudicious use of monopolar diathermy, infection and poor surgical technique [7]. The most common postoperative complication is bleeding with a reported incidence of 0.1–35% [8]. Of such cases, 0.5% require a return to theatre [9].

Electro surgery can be used safely and effectively for routine penile procedures, providing a bloodless operative field with good cosmetic results [10]. Monopolar diathermy is usually avoided in penile surgeries including circumcision due to fear of high complication rate including penile glans necrosis and excessive penile skin loss but we did not observe any such complications in our patients. Monopolar diathermy provides blood less operative field if cutting current is used for incision instead of knife and also it is time effective as it spares the time used in coagulation with bipolar diathermy. In this

study we evaluated the use of monopolar diathermy in performing circumcisions and found that Monopolar diathermy is very safe and effective if used judiciously.

**Materials and Methods**

We prospectively collected data on 100 patients who underwent circumcision using monopolar diathermy at Rehman Medical Institute (RMI), Peshawar, Pakistan. Our exclusion criteria was Neonatal circumcision, circumcision using bipolar diathermy, clamp circumcision and patient with bleeding disorders. All patients who underwent Circumcision and /or circumcision revision using monopolar diathermy were included in the study.

All Patients had their coagulation profile performed on outpatient basis. All circumcisions were performed by a fellowship trained urologist under general anesthesia.

**Technique**

Under general anesthesia prepuce is retracted and cleaned of magma. Patient is prepped with pyodine solution and draped. A holding stitch to the Glans penis is performed. Outer and inner prepuce are marked with skin marker pen at appropriate site. First inner prepuce is incised at the marked site all around the penis using monopolar diathermy cutting current. Our usual diathermy settings are 10/10 cutting/coagulation. Then outer prepuce is incised using cutting current at the marked site all around the penis. Prepuce is incised in the midline dorsally between the two incisions and removed from the penile shaft using diathermy. Hemostasis is secured using coagulation current. 4 stitches at 6,12,3 and 9 o'clock are performed.

Patient is discharged home same day when he is able to tolerate orally. No systemic antibiotics used either preoperatively or postoperatively.

Mothers were instructed to apply Vaseline to the circumcision site with each diaper change. Postoperative pain was controlled with alternate oral paracetamol and Ibuprofen in all patients.

All patients were followed at 4 weeks in the outpatient department for cosmetic outcomes as well as data collected about any emergency visit regarding circumcision complications.

## Results

We identified 100 patients who met inclusion criteria. Mean patient age was 10 months (range 6-60 months), mean operative time (from holding stitch to the last circumcision stitch) was seven minutes (range 5-15 minutes). Eighty-seven patients (87%) underwent primary circumcision for religious and cultural reasons whereas on thirteen patients (13%) circumcision revisions were performed for cosmetic reasons as parents were not happy with the primary circumcisions (all neonatal circumcisions) outcome. Two patients (2%) presented to the emergency department with minor bleed on the evening of surgery (not actively bleeding at the emergency visit but had mild to moderate size penile hematoma at the incision site). These two patients were managed with penile dressing for 24 hours. All patients had good cosmetic outcomes on follow-up visit. No patients were found to have skin necrosis, glans necrosis and/or urethral injury.

## Discussion

Circumcision is the most common operation performed on males, with approximately 25-33% men undergoing this operation around the world [1,2]. The rate of circumcision varies in different countries, being 99% in Muslim countries as opposed to 5% in the United Kingdom [11]. Most of the circumcisions are performed for religious reasons [3]. Although the British Medical Association states that circumcision should only be performed when medically indicated but still many voluntary circumcisions are performed in the UK [12].

Most of the circumcisions are performed at homes and health centers in rural areas of our country without anesthesia by inexperienced personnel. There is a high rate of complications like bleeding and even urethral injuries, glans amputation. The rate of complications lessens when the circumcisions are performed in hospitals.

Different surgeons use varied techniques for circumcision. For coagulation, most of the surgeons prefer bipolar diathermy due to safety. But I am trained in a center where the monopolar diathermy was used for circumcision with complications rate similar to bipolar diathermy and procedure is performed more efficiently. Even in this study, our results show if monopolar diathermy is used judiciously, it is very effective, simple and safe in performing circumcision.

Bleeding is the most common post-operative complication of circumcision but other serious complications like penile shaft skin

loss occurs due to the injudicious use of monopolar diathermy, infection and poor surgical technique [6]. In our study, no patients were found to have skin necrosis, glans necrosis and/or urethral injury. The only study in my knowledge which compared the bleeding complications after circumcision is by Niall J et al. which showed that for a single surgeon return to the hospital for circumcision bleeding using monopolar electrocautery is 1.6% patients as compared to 0.6% patients using bipolar diathermy ( $p=0.2133$ ) [13] but only 13% of those who returned for evaluation, had to return to the operating room to control post-operative bleeding. Other studies have identified up to 63% of patients who returned to the hospital required return to the operating theater [9]. But in this study only two patients (2%) presented to the emergency department with minor bleeding that were managed with penile dressing in the emergency room and none of the patients was taken to the Operating Room.

## Conclusion

Circumcision using monopolar diathermy, if used judiciously, is a safe, simple and efficient surgical operation.

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