

# Need for Increased Awareness of International Circumcision Variations and Associated Complications

<sup>1</sup>Ryan Margolin, MS-4; <sup>2</sup>Christine Lomiguen, MD, MSMEd

<sup>1</sup>Touro College of Osteopathic Medicine – New York, NY; <sup>2</sup>Lake Erie College of Osteopathic Medicine – Erie, PA

## Introduction

Male circumcision is a prevalent procedure, occurring in roughly 38% of the population<sub>1,2</sub>. It consists of removal of the foreskin from the glans of the penis. The method of circumcision and age of the patient at time of circumcision varies, depending on the deciding determinant: cultural or religious tradition, personal hygiene, preventive health, or medical need<sub>3,4</sub>. While circumcision is a relatively simple operation for a trained medical professional with low rates of adverse events, the safety of the operation varies when performed by non-medically trained (traditional) practitioners<sub>3</sub>. These complications can be seen either acutely or later on<sub>5,6</sub>. Literature was reviewed to answer the questions: What are the complications of circumcision? How often do these complications occur? This review aims to inform physicians of patients from international areas where circumcisions by traditional practitioners are endemic of considerations in initial questioning and during review of the genitourinary system. The review revealed wide variety in 1) training of practitioners performing circumcisions, 2) methods of circumcision, and 3) sterility during the procedure contributing to differing rates of complications. Findings from previous reviews of male circumcisions suggest circumcisions should not be viewed equally, and greater emphasis should be placed on genitourinary history, especially circumcision, with patients from areas where traditional circumcisions are prevalent.

## Methods

A search was conducted of the National Library of Medicine’s MEDLINE/PubMed and Google Scholar databases, with the objective of identifying all articles published in the English language between January 2000 and May 2020 with “circumcision complications” or “circumcision culture” in conjunction with “traditional practitioner”. The reference lists of all articles identified by this search strategy were reviewed and relevant articles were additionally selected. All pertinent literature was retrieved and analyzed to identify any potential additional manuscripts. All data were accessed between March and July 2020.

## Results

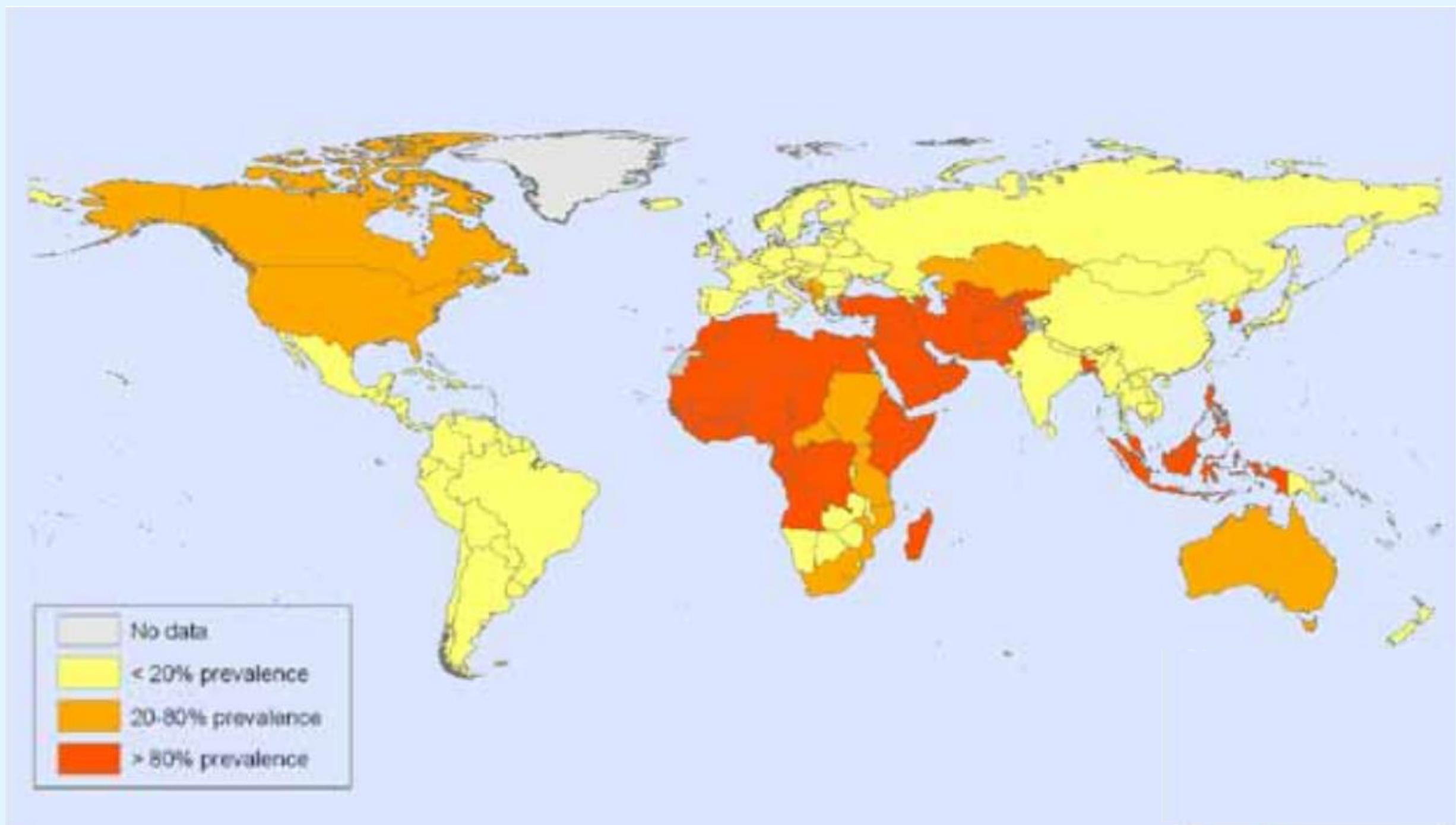


Figure 1. Global map of Male circumcision prevalence at country level as of December 2006. Image retrieved from [https://apps.who.int/iris/bitstream/handle/10665/44247/9789241598910\\_eng.pdf](https://apps.who.int/iris/bitstream/handle/10665/44247/9789241598910_eng.pdf). Modified for easier viewing

Countries by region	Age at circumcision (years)
<b>East Africa</b>	
Kenya	8–16; <sup>18</sup> 12–19; <sup>22</sup> 14 (mean age) <sup>29</sup>
Tanzania	~15–25 <sup>9</sup>
Uganda	18 (mean age) <sup>31</sup>
<b>Southern Africa</b>	
Botswana	13 (median age) <sup>34</sup>
Namibia	<2, 84% until age 13 <sup>35</sup>
Mozambique	10–16; <sup>31</sup> 15–24 <sup>36</sup>
South Africa	
Eastern Cape – Xhosa	15–25 <sup>3,36</sup>
Gauteng – Xhosa; Sotho; Tswana	22.8; 16.9; 18.2 (mean age) <sup>35</sup>
Gauteng (Xhosa, Sotho, Tswana)	17 (median age) <sup>32</sup>
Zambia	63%, 14–35 <sup>9</sup>
<b>West Africa</b>	
Burkina Faso	54%, <9; 23%, 10–14 <sup>16</sup>
Ghana	Mainly in neonates <sup>9</sup>
Senegal – Manding / Wolof	6–13 <sup>27</sup>
<b>Southeastern Asia</b>	
Indonesia – Javanese; Sundanese	11–12; 5–6 <sup>28</sup>
Philippines	42%, <10; 52%, 10–14 <sup>37</sup>

Figure 2. Age of circumcision by country. Image retrieved from [https://apps.who.int/iris/bitstream/handle/10665/44247/9789241598910\\_eng.pdf](https://apps.who.int/iris/bitstream/handle/10665/44247/9789241598910_eng.pdf).

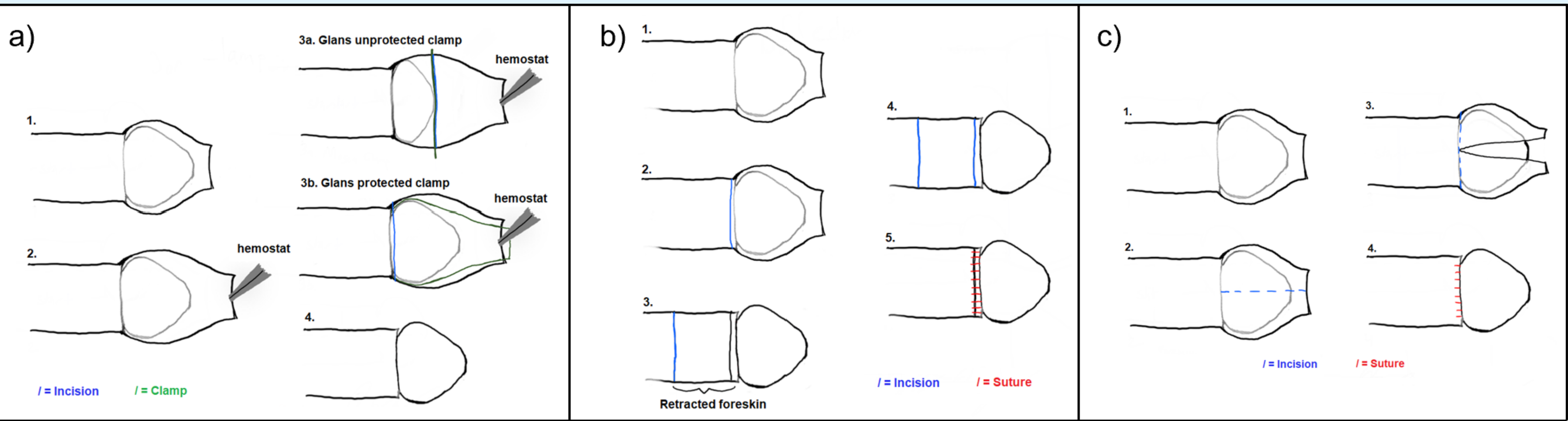


Figure 3: Methods of Circumcision  
a) The clamp method. The foreskin is retracted, edges marked, and incisions made to remove the foreskin intact. b. The clamp method. The foreskin is separated from the glans, and then a hemostat is used to extend the foreskin. Different clamps can be used, either glans unprotecting (e.g. Mogen clamp; 3a) or glans protecting clamp (e.g. Plastibell clamp; 3b) to divide the foreskin that will be excised. b) The sleeve method. The proximal edge of the foreskin is incised circumferentially, then retracted and the distal edge is similarly incised proximal to the corona. The free ends of skin on the penis are sutured. c) The dorsal slit method. The foreskin is separated from the glans, an incision is made longitudinally along the foreskin, before making a circumferential incision to remove the foreskin. Original illustrations by Ryan Margolin.

Circumcision Complications	
Acute	Long-Term
Bleeding Infection Pain Delayed wound healing Amputation of glans Glans necrosis Death	Incomplete removal of foreskin Iatrogenic phimosis Skin bridge formation Meatal stenosis Psychological trauma Fistula formation Iatrogenic hypospadias

Table 1. Summary of possible complications of circumcisions, acute and long-term

Risk Factors for Complications During Circumcisions	
Patient Based	Practitioner Based
Patient Based Advanced age of patient Contraindication for circumcision (e.g. hypospadias)	Sterility of location and instruments Training and medical knowledge of practitioner Mass circumcision

Table 2. Factors contributing to increased risk of complications during circumcision

## Conclusions

Male circumcision is a procedure that is performed worldwide. The procedure carries risks that must be considered, especially when performed by traditional practitioners and the chance of them occurring should be mitigated. The prevalence shows no signs of decreasing due to its use in cultural and religious rituals and medical necessity. Considering the diverse methods, conditions, and age at which patients undergo circumcision, it is important to consider that not all circumcisions are the same. Modified versions of clamp technique are often used with rudimentary tools, or even freehand. As these rituals are often done by traditional practitioners, consideration of the long-term complications should be considered, especially given the geographical isolation and/or cultural implications of places where circumcisions are endemic. As such, when discussing a patient’s history, it is important to not only determine if they have had a circumcision, but to also evoke a more detailed history such as age, method, and location of the procedure especially in patients from areas where circumcision is common. This information can help guide clinicians during the initial visit and/or for focused genitourinary complaints toward patients who may be at higher risk of complications. In order to ask the right questions, a culturally competent and sensitive approach must be taken, as this may not be something every patient brings up naturally or is comfortable discussing.

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