Journal of Research in Medical and Dental Science
2020, Volume 8, Issue 2, Page No: 11-16

Available Online at: www.jrmds.in
eISSN No. 2347-2367: pISSN No. 2347-2545

Female Genital Mutilation (FGM): Social Factors and Urinary Tract Infection

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ABSTRACT

Background: Female Genital Mutilation (FGM) including circumcision is often practiced by lay practitioners with a few or no adequate medical information. Frequently, the procedure takes place under unclean and unhealthy conditions and without anesthesia or disinfected and sterilized tools.

Objectives: The aim of this study is to assess the rate of urinary tract infections among circumcised and non-circumcised girls 5-10 years age, to identify bacteria causing UTIs and to determine the social factors and complications of FGM.

Methods: This is a community-based cross-sectional analysis conducted at Khartoum State, Alsahafa town, included girls aging 5-10 years in kindergartens and primary schools. Data were collected, after obtaining informed consent from parents and guardians, by direct interview using pre-tested questionnaire. Urine samples were collected from 450 candidates (225 samples from each circumcised and non-circumcised group) for laboratory investigations. Data were analyzed by (SPSS) version 21.

Results: The study showed that the decision of girls' circumcision was made by mother 87 (38.67%), grandmother 50 (22.2%). Most parents of circumcised group 180 (80.0%) were aware about the complications of Female Genital Mutilation (FGM). The purpose of circumcision was due to traditional reason in 123 (54.67%), for religious reasons in 80 (35.56%), for marriage purposes in 15 (6.67%), and for virginity saving 7 (3.11%). Circumcision was performed by midwives in 205 (91.1%), doctors in 13 (5.7%) and nurses in 7 (3.11%). Complications after circumcision were: 33 (14.67%) of circumcised girls had severe pain, 15 (6.67%) had hemorrhage, 12 (5.33%) had sepsis and 9 (4.0%) had urine retention. Hospitalization after complications (blood transfusion, sepsis and urine retention) was reported to be 4 (1.78%). Significant growth of samples collected was from the circumcised 82 (18.2%). The most frequent organisms to be identified were Escherichia coli, followed by Staphylococcus aureus.

Conclusion: Circumcision was performed across all social groups and the major reasons were traditional reason followed by religious reason. The study indicated that FGM was associated with urinary tract infections. The most dominate isolates were E. coli and S. aureus.

Key words: Circumcision, Female Genital Mutilation (FGM), Urinary tract infections

HOW TO CITE THIS ARTICLE: Suzan Yousif Eltyeb Osman, Mohamed Ahmed A, Gadir Elimam Ounsa, Hussam Zain, Rayan G Albarakati, Ashraf A Deyab, Sawsan Mustaffa Abdalla, Elsadig Yousif Mohamed, Female Genital Mutilation (FGM): Social Factors and Urinary Tract Infection, J Res Med Dent Sci, 2020, 8(2): 11-16.

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Received: 20/01/2020

Accepted: 27/02/2020

INTRODUCTION

The most frequent type of infection encountered female urogenital tract is bacterial infections, worldwide [1]. The morbidity of urinary tract infection (UTI) is significantly increased among children and infants due to irreversible kidney disease/injury that may cause hypertension and end-stage kidney failure. The most frequent age group of patients with UTI ranging between 16-35 years, notably 10% of female presented with the disease annually and 60% at any time in their lives [2,3]. Almost 50% of the cases

presented with high recurrence rate by having second infection within one year of a laboratory-confirmed diagnosis. A review of the published research, on prevalence of UTI shows a high prevalence rate of the disease among females as it occurs 4 times more often than in males [3]. Conversely, in one case of the UTI complication e.g. pyelonephritis, scientific reports calculated 20-30 times less frequently than males [2] Its widely considered as the most common infectious agents source leading to nosocomial infections, estimated as 40% out of other potential causes[4]. Furthermore, some studies found that higher-frequency rate of asymptomatic bacteriuria in female of childbearing ranging from 2% to 7% and rising up to 50% in elderly female [5]. However, the percentage asymptomatic bacteriuria among adult and elderly males ranging between 7-10 % [6].

Female genital mutilation (FGM) is a widespread phenomenon adopted by some communities as a part of their religious conviction, custom and misconceptions. Recent reports published by the World Health Organization (WHO), concluded that 100-140 million females of different age group have underwent certain kinds of female genital mutilation. Approximately 3 million females less than the age of 15, are presently undergoing the genital mutilation procedure each year. Significant geographical distribution data demonstrated the bulk of FMG practices occur mainly in about 28 African states, but surprisingly still some emigrant communities in North America, Australia, and New Zealand and even in Europe they continue the same practice of FMG [7]. FGM defined as "all practices or procedures that involve total or partial excision of the external female genitalia, or any surgical procedure to the female genitalia without medical cause" [8].

FGM is considered as infringement of the rights of the female. It reflects gender inequality and a form of discrimination against female. It is mostly performed on minors and violation of the children's rights. The procedure also violates the right to be free of pain and enjoy life when the circumcision has led to death [9].

Research into the phenomena of genital mutilation in Sudan has long history since 1960s [10]. Female circumcision is not related to religious conviction. It is performed by Muslims, Jews, and Christians and also by some believers of original African religions [11]. Many Sudanese consider that Islam concepts in favor of female circumcision. Conversely, Islamic scholars assured that there is no strong evidence for circumcision in the Koran [12].

In Circumcision usually there is partial closure of vagina and urethra, as a result the perineum become continuous wet, which lead to retrograde urinary tract infection, affecting bladder, kidneys and ureters [13]. Urinary tract infections (UTIs) are a very common reason for morbidity in adults and children. In children UTIs are associated with vesicoureteral reflux and constipation. The risk factors that that predispose to children UTIs and further complications are strongly link to vesicoureteral reflux and chronic constipation. The disease can become serious if undetected and may lead to permanent kidney damage. Studies from different parts of the world showed association between FGM and UTI. WHO reported that around 130 million female worldwide undergone circumcision and about two million women undergone some form of genital mutilation every year [14]. Considering the above-mentioned fact, the current research was done to determine the rate of urinary tract infections among circumcised and non-circumcised girls aging between 5- 10 years and to determine the types of isolates in their urine and to determine the social factors and complications of FGM.

METHODOLOGY

The current study was descriptive, cross sectional conducted at Alsahafa, Al-Emtidad and Jabra in Khartoum State, Sudan. The study population was girls between 5-10 years of age attending the primary health care centers in the area. The sample, which was taken by stratified random sampling, was calculated as 450 (225 samples from each group circumcised and non-circumcised). Data was collected by a pre-tested questionnaire and examination of urine. Mid-stream, urine samples were taken from 450 girls into a sterile container and send for culture, identification and isolation of microorganisms. The urine samples were dispatched to the laboratory within three hours from the collection. The processing achieved by using semi-quantitative routine culture method to isolate and identify bacterial causes (UTI), including inoculation of samples onto agar surfaces using plastic petri-dishes with plastic

Table 1: Comparison of Urine Growth between circumcised and non-circumcised females.

Growth	Circumcised		Total	P
	Yes No. (%)	No No. (%)		
Present	84 (37.3)	60 (26.7)	144 (32.0)	
Absent	141 (62.7)	165 (73.3)	306 (68.0)	<0.001
Total	225 (100.0)	225 (100.0)	450 (100.0)	

Table 2: Comparison of isolated growth between circumcised and non-circumcised girls.

Isolates	Circumcised		Total	P
	Yes No. (%)	No No. (%)	No. (%)	
E. coli	36 (51.4)	34 (48.6)	70 (48.6)	
S. aureus	30 (71.4)	12 (28.6)	42 (29.2)	
E. faecalis	7 (77.8)	2 (22.2)	9 (6.3)	
E. coli + S. aureus	6 (75.0)	2 (25.0)	8 (5.6)	<0.001
E. coli+ E. faecalis	2 (28.5)	5 (71.5)	7 (4.9)	
Others *(Klebsiella, Proteus)*	3 (37.5%)	5 (62.5%)	8 (5.6)	
Total	84 (58.3)	60 (41.7)	144 (100.0)	

loops, followed by incubation for overnight (at 37°C) and examination. Data analysis was performed by SPSS version 21. The ethics approval and informed consent were obtained, and data was kept confidential and used only for the purpose of the study.

RESULTS

Table 1 shows the comparison of Urine Growth between circumcised and non-circumcised females. Growth was present in 84 (37.3%) of the circumcised compared to 60 (26.7%) of non-circumcised females' urine. Table 2 shows comparison of isolated growth between circumcised and non-circumcised females. S. aureus in circumcised and non- circumcised females' urine constituted 71.4% and 28.6% respectively. E. coli in circumcised and non-circumcised females' urine constituted 51.4% and 48.6% respectively. Combined *E. coli+S. aureus* in circumcised and non- circumcised females' urine constituted 75% and 25% respectively. Combined *E. coli+E. faecalis* in circumcised and non- circumcised females' urine constituted 37.5% and 62.5% respectively. Other isolates (*Klebsiella, Proteus*) constituted 37.5% in circumcised females' urine and 62.5% in non- circumcised females' urine.

DISCUSSION

The study showed that female circumcision performed across all social groups and the major reasons were tradition (54%), followed by religious (35%). Similar findings were reported by Banjul who concluded that the practice of FGM is due to strong socio-cultural causes as the evidence by the fact that 72.9% of Gambian ladies want their daughters to have circumcision [15]. Other study found communities that performed FGM report a variety of social and religious reasons for continuing practicing it. Old customs linked to economic and social benefits are related to 24% of women who were circumcised admitting that social and traditional believes are the most frequent reason for FGM which represent about half that of our study result [16]. Other reasons were to preserve virginity until marriage in 16% which is about double that of our result and to have better marriage prospects [17]. As seen in a study done in Sierra Leone, [18] circumcision aim for traditional reason is greater than our study (85% versus 54% respectively). Many studies have been done by nongovernmental organizations and local scientific groups to identify the reasons why FGM is persistent and continue the reasons were: Traditional reasons and virginity in Senegal, tradition and religious in Sierra Leone and in Egypt the reasons were normal practice, religious and men wish [19-21].

The most common cited causes are traditions and religion, advantages female in terms of beauty and virginity. People, who are supporting the practice, strengthen their defense by claiming that FGM enhances fertility [22]. Islam and Christianity are the major religions all over the world; none of them support the practice of FGM. The Quran makes no reference to FGM but only some scholars referred to sayings of the Prophet Muhammad (saws) (Hadith) quote his

dialogue with circumcision where he quoted to have said "reduce but do not destroy". It is also claimed that the Prophet said, "…if you cut, do not overdo it, because it brings more radiance to the face and it is more pleasant for the husband." There are some controversies surrounding this Hadith. Religious leaders, except some missionaries, have not until recently recognized it as a harmful practice and/or discouraged its practice. FGM is one of the traditions and culture which is frequently used as an argument for its continuation [23]. The results showed that the prevalence of UTI was much more in circumcised girls than non-circumcised, result is significant from statistical point of view ($p<0.05$). Similar result was reported by Almorth, et al. who concluded that urinary tract infections are consequence of circumcision [10]. Cohen reported an increased in UTIs rates in the period following circumcision [24]. However, the American Academy of Pediatrics, National Kidney and Urologic Diseases Clearinghouse (NKUDIC) and Royal Australian College of Physicians (RACP) not recommended circumcision. However, McCredie, et al. [23] found that the rate of asymptomatic bacteriuria in young girls was 1%, and increases slightly onwards with the increase of age and presence of abnormalities in the urogenital system and underlying diseases, while the rate for young girls was less than 2%, despite one study reported a higher prevalence for a group of low socioeconomically girls [25].

The most frequent isolates were *E. coli* and *Staphylococcus aureus*. Many authors have found similar results such as Goldman, et al. calculated that *E. coli* as the most dominant organism followed by *Staphylococcus aureus* [26]. However, the *E. coli* and *Staphylococcus aureus* were the most frequent organisms observed after the procedure. Notably, that the *E. coli* is regularly found as a normal flora in gastrointestinal canal and this facilitates the frequent infection in girls due to shortness of urethra. *Staphylococcus aureus* found as a normal flora in the skin and its presence in the urinary tract may be due to direct contamination. Most cases of circumcision were performed by midwives (91%) at home setting in which the possibility of complications is increased as the procedure is carried out in substandard aseptic techniques. This contrasts with a similar study reported that lack of medical information regarding the consequences of the procedure among health care providers such as midwife or nurse has made them target to be addressed so as to stop the practice [27]. Study show that performance by doctors was (5%) and by nurses was (3%). Ethics is at the focus of FGM in Sudan and everywhere because it is medical practice performed by medical practitioners [28].

The complications of FGM include sever pain, bleeding which may lead to shock (neurogenic and hemorrhagic), sepsis, septicemia, urine retention, urinary infection, psychological consequences, and increasing risk of HIV when the same surgical instruments are used without sterilization between girls who undergo FGM at the same time. Similar results reported by Banjul's in a study done throughout Gambia which included 871 females. The most immediate complications were infection associated with hemorrhage and anemia and 12.6% of girls sought consultation for immediate complications [15]. FGM is usually performed by traditional people, without sterilized instruments, without any form of anesthesia and using cutting devices such as scissors, knives, cut glass, and applying different unusual material for suturing such as agave [29].

In a Desert Dawn survey of 200 Emiratis of both male and female on the study, 34 per cent of female admit that they were circumcised because of tradition and custom. 40 per cent of circumcised female who participate in the study who were supporting female circumcision and said they would do it for their daughters [30].

In this study most of parents were aware about FMG complications (80%), the decision was made by mothers (38%) and grandmothers (22%), suggesting that the traditional purpose take place. These results agreed with the previous study, (42%) which showed that mainly grandmother who still wanted FGM [31]. Hospitalization occurred due to hemorrhage, sepsis and urine retention. Blood transfusion was performed because the procedure was done with lack of knowledge about human anatomy which leads to hemorrhage. For sepsis, as the procedure was done under aseptic technique and urine retention due to pain. Study performed in age between 5-10 year and most of circumcision in Sudan practiced in this age group, unlike other areas in which it was performed earlier as in Ethiopia, Gambia, and Nigeria.

CONCLUSION

The study concluded that the major reasons behind circumcision, which was performed across all social groups, were traditional reasons followed by religious reasons. FGM was associated with urinary tract infections and the most dominant isolates were *S. aureus and E. coli*. The presence of protein and the significant pyuria in the present study might be due to infection, and the presence of RBCs may be due to presence of other abnormalities. The presence of Candida isolated from the non-circumcised girl in this age may be due to some defect of the immune system of the girl or other predisposing factors which help the organism to flourish.

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