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Urine Cytomorphological Changes Associated With Diabetes Millets Type II

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ABSTRACT: Patient with diabetes millets are at high risk for urinary tract infection. The diabetic condition contributes for initial and progression of urinary tract complications, many studies have shown that a variety of diabetes mellitus related to abnormalities in the urinary tract including sever urinary tract infections. This study was designed to assess the changes in the urinary tract in patient with diabetes millets. 40 mid stream urine samples were collected from patients with diabetes mellitus type II and 40 midstream urine samples were collected from healthy participants as a control group. First the slides were treated with egg white as adhesive media then the samples were centrifuged at 2000RPM for 10 min at room temperature. Supernata was discharged and the deposit put on 20mm around the slide, before the smear were dried it has been fixed immediately by 98% ethanol alcohol. The fixed dried smear are hydrated in 95% alcohol for 2 min, through 70% alcohol for 2 min, rinse in water for 1 min, stained in harries hematoxylin for 5 min, rinsed in water for 2 min, differentiated in 0.5% aqueous hydrochloric acid for 10 seconds, rinsed in water for 2 min, blued in Scott's tap water substitute for 2 min, rinsed in water for 2 min, dehydrated in 70% alcohol for 2 min, dehydrated in 95% alcohol for 2 min, dehydrated in 95% alcohol for 2 min, stained in OG6 for 2 min, rinsed in 2 changed 95% alcohol for 2 min in each, stained in EA50 for 3 min, dehydrated in 95% alcohol for 1 min, through absolute alcohol, cleared in xylene and mounted in DPX. This study has shown that individuals with diabetes millets are at higher risk for urinary tract infection. Increased susceptibility in patients with diabetes millets is positively associated with increased duration and severity of diabetes. The number of female in case group (23) and male is (17). The age in case were (30-82) and in control were between (21-31), 6 of the males were infected and 9 of the females were infected. The infection was severe progressively with the duration of disease onset. Also the infections were more frequent in older subjects and we found that the female subjects is more frequently infected than the male subjects.

Keywords: Diabetesmillets**,** Cytology**,** Urine

INTRODUCTION

Urine typically contains epithelial cells shed from the urinary tract. Numerous non-invasive conventional techniques can be used to evaluate cancerous cells , Cytology (exfoliative) is the most used methods for this purpose. Urine cytology evaluates the urinary sediment for the presence of cancerous cells from the lining of the urinary tract. For the purpose to be achieved urine samples must be collected in sterile clean containers and adequate volume of sample must be collected. In urine cytology, collected urine is examined microscopically. One limitation, however, is the inability to definitively identify low-grade cancer cells and urine cytology is used mostly to identify high-grade tumors. Processing technique**:** Specimen collection, Specimen preparation, Fixation, Staining, Analysis, Diagnosis.

Elevation of plasma glucose levels called hyperglycemia which is controlled by insulin hormone which have been produced from β cells in Langerhans islands in pancreas. Diabetes millets is a group of metabolic disorders characterized by hyperglycemia resulting from secretion of insulin hormone disorder (International Diabetes Federation, 2006). In 1979, the national Diabetes Data groups develop a classification and diagnosis scheme include dividing diabetes into two broad categories: type one, insulin dependent diabetes millets (IDDM); and type two, non-insulin- dependent diabetes millets (NIDDM).

Type 1 DM: This form was previously referred to as "insulin-dependent diabetes mellitus" (IDDM) or "juvenile diabetes". The cause is unknown.

Type 2 DM: Begins with insulin resistance a condition in which cells fail to respond to insulin properly. As the disease progresses a lack of insulin may also develop. This form was previously referred to as "non insulin-dependent diabetes mellitus" (NIDDM) or "adult-onset diabetes". The primary cause is excessive body weight and not enough exercise.

Gestational diabetes: Is the third main form and occurs when pregnant women without a previous history of diabetes develop high blood-sugar levels (WHO, 2013).

MATERIALS AND METHODS

Smear preparation:

First the slides were treated with egg white as adhesive media then the samples were centrifuged at 2000RPM for 10 min at room temperature. Supernata was discharged and the deposit put on 20mm around the slide, before the smear were dried it has been fixed immediately by 98% ethanol alcohol.

Papanicolaou stain(Bancroft and Gamble, 2002):

40 mid stream urine samples were collected from patients with diabetes mellitus type II and 40 midstream urine samples were collected from healthy participants as a control group. First the slides were treated with egg white as adhesive media then the samples were centrifuged at 2000RPM for 10 min at room temperature. Supernata was discharged and the deposit put on 20mm around the slide, before the smear were dried it has been fixed immediately by 98% ethanol alcohol. The fixed dried smear are hydrated in 95% alcohol for 2 min, through 70% alcohol for 2 min, rinse in water for 1 min, stained in harries hematoxylin for 5 min, rinsed in water for 2 min, differentiated in 0.5% aqueous hydrochloric acid for 10 seconds, rinsed in water for 2 min, blued in Scott's tap water substitute for 2 min, rinsed in water for 2 min, dehydrated in 70% alcohol for 2 min, dehydrated in 95% alcohol for 2 min, dehydrated in 95% alcohol for 2 min, stained in OG6 for 2 min, rinsed in 2 changed 95% alcohol for 2 min in each, stained in EA50 for 3 min, dehydrated in 95% alcohol for 1 min, through absolute alcohol, cleared in xylene and mounted in DPX.

All smears showed fair staining quality and all quality control measures were considered throughout study procedures. The obtained results and variables were arranged in standard master sheet, then entered social sciences computer program (SPSS).

RESULTS AND DISCUSSION

This study has shown that individuals with diabetes millets are at higher risk for urinary tract infection. Increased susceptibility in patients with diabetes millets is positively associated with increased duration and severity of diabetes. Urine sample collected from adult male and female have diabetes millets type II in Kosti. Total of 80indiviual divided into 40 as test group and 40 as control. The samples were analyzed for urine Cytomorphological change use

urine smear and stained by pap stain and result were processed by using spss computer system. The number of female in case group (23) and male is (17). The age in case were (30-82) and in control were between (21-31), 6 of the males were infected and 9 of the females were infected.

The present study was conducted to evaluate the Cytomorphological changes in patient with diabetes mellitus (40 test group and 40 control).

The present results revealed that the most of the participant of diabetic show no infection (62.5%), and (37.5%) of the participant show inflammatory cell, and age group (41-50) were the highest group 32.5%

The result of the present study shows significant infection of diabetic patients compared to control, another study agree with our study done in Tohoku (FDA, 2016), other study done in New York (Maria Rotella C et al., 2013) also shows infections in the urinary tract this agrees with our study.

Our current finding showed that positive correlation between the duration of diabetes and the frequency of infection (p=0.01), also there is a strong correlation between the gender and the rate of infection that in females more than in males(p=0.08)

Age of the infected diabetic patient is significant that in elders more frequent(p=0.01).

Table 1: Distribution of study population according to their age

age Groups	**No**	**Percentage**
(30-40)	6	15%
(41-50)	13	32.5%
(51-60)	4	10%
(61-70)	8	20%
More than 70	9	22.5%

Table 2: Distribution of study population according to their gender

Gender	**Males**	**Females**
No	17	23
Percentage	42.5%	57.5%

Table 3: Distribution of study group according to duration

Duration	**No**	**Percentage**
1-5	16	40%
6-10	14	35%
11-15	3	7.5%
15-20	2	5%
More than 20	5	12.5%

Table 4: Microscopic examination of study

Duration	No	Result			Total
		Normal	Inflammatory	Atypical	
(1-5)	16	14	2	0	16
(6-10)	14	7	7	0	14
(11-15)	3	1	2	0	3
(16-20)	2	2	0	0	2
More than 20	5	1	4	0	5
Total	40				40

Table 5: Correlation between microscopic examination of study case and control

	No	Normal	Inflammatory	Atypical
Case	40	25	15	0
Control	40	40	0	0

Correlation is significant (p value 0.01)

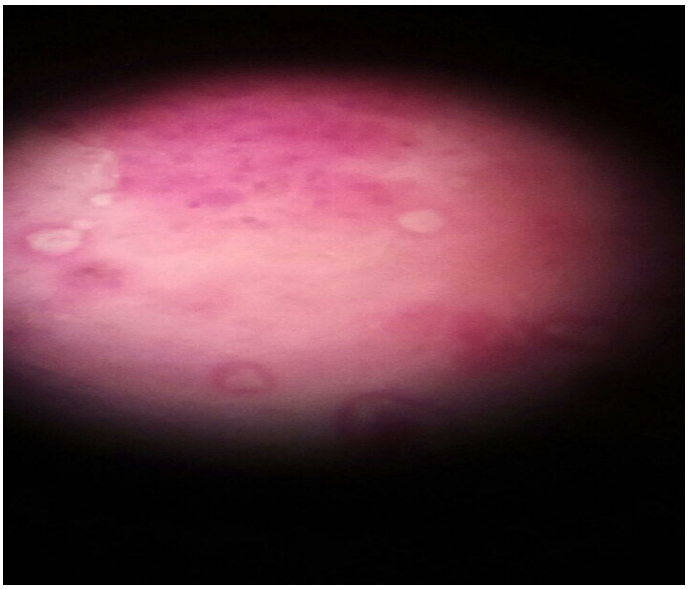

Figure 1: shows features of inflammation

CONCLUSION

The infection was severe progressively with the duration of disease onset. Also the infections were more frequent in older subjects and we found that the female subjects is more frequently infected than the male subjects.

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