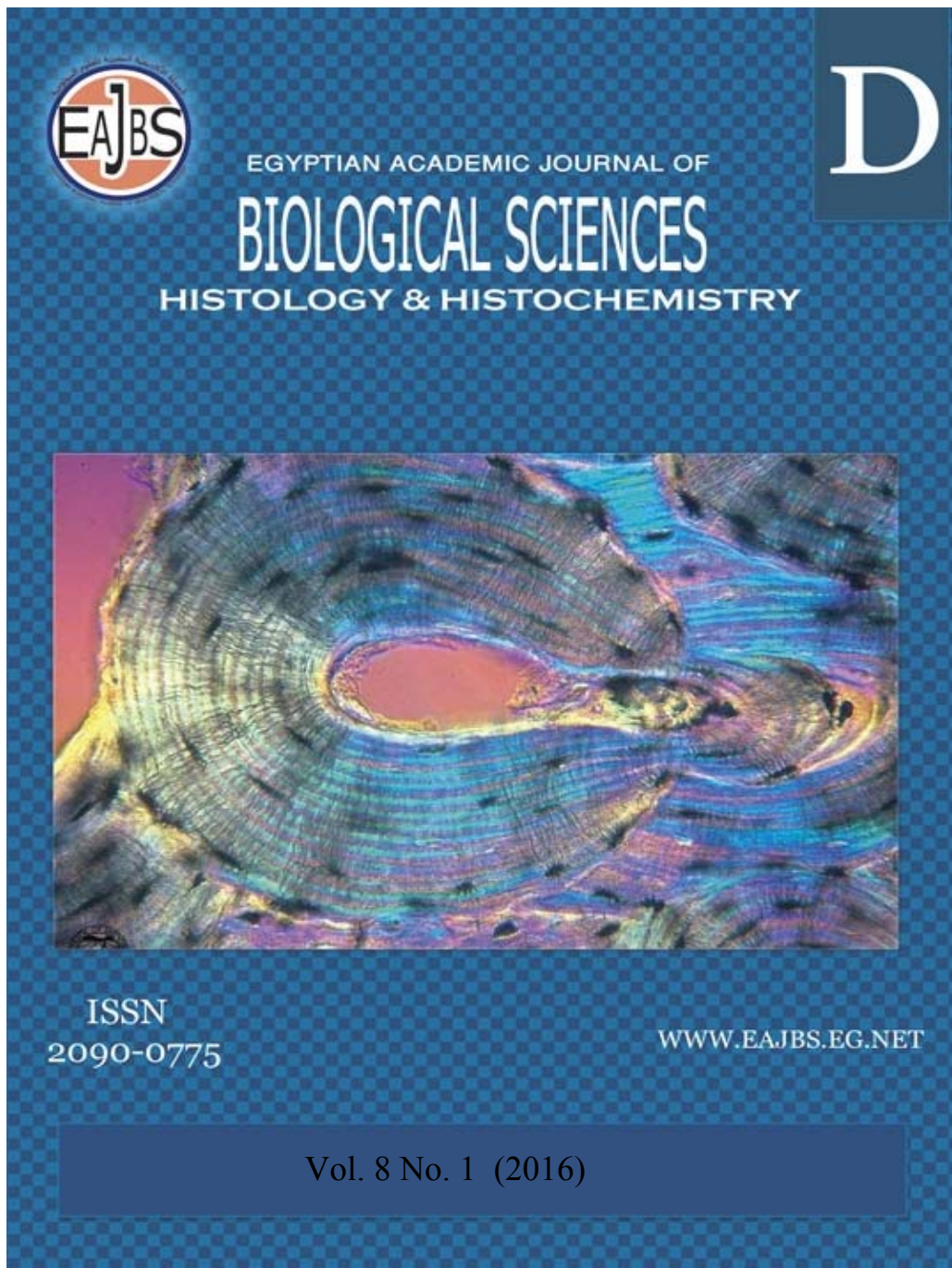


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**Detection of Cytological Changes in Urine Samples Among Sudanese Patients With Pulmonary Tuberculosis.**

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**ARTICLE INFO**

**Article History**

Received: 25/2/2016

Accepted: 20/3/2016

**Keywords:**

Pulmonary Tuberculosis  
cytological changes  
Port –Sudan

**ABSTRACT**

**Background:** Tuberculosis (TB) Is a common and often deadly infectious disease caused by mycobacterium. it's usually attacks the lung as (pulmonary tuberculosis). Therefore, the aim of this study was to detect cytological change of urine in patients with TB attended Port–Sudan teaching hospital During 2013-2014.

**Methodology:** A total of 70 urine samples (35 patients were ZN stain positive (case) and 35patients were Zn negative).

**Results:** (82%) of patent reported No cytological changes, (11%) of patients were found inflammatory cells and (2.8%) of patients were detect karyolysis nucleus in urine smear.

**Conclusion:** insignificant changes in urine sample associated with TB Patients that requires further consideration.

**INTRODUCTION**

Tuberculosis is a very ancient disease and evidence of its existence was seen in Egyptian mummies and statuaries in the form of pott's disease of spine (K.Rao, *et al.* 1981) Tuberculosis waxed and waned in Europe during 18th and 19<sup>th</sup> centuries. During industrial revolution it claimed millions of lives in Europe and so was called as 'The White Plague' (Baron and Finagold, 1994). Robert Koch wrote that tuberculosis killed one third of Europeans of middle age. According to WHO tuberculosis still kills three million people every year in underdeveloped countries (Baron and Finagold, 1994).

Tuberculosis still ravage in India even 100 years after the discovery of tubercle bacillus, with an annual incidence of 100/100,000 and a prevalence four times the incidence. AIDS is one of the important causes for change in etiological profile as well as increasing cases of extra pulmonary tuberculosis (S. Battacharya, *et al.* 1998).

Urine typically contains epithelial cells shed from the urinary tract. Urine cytology evaluates this urinary sediment for the presence of cancerous cells from the lining of the urinary tract, and it is a convenient noninvasive technique for follow-up analysis of patients treated for urinary tract cancers.

For this process, urine must be collected in a reliable fashion, and if urine samples are inadequate, the urinary tract can be accessed via instrumentation. 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 (Gray W and Mckee, 2003).

Therefore, the aim of this study was to detect cytological change of urine in patients with TB attended Port-Sudan teaching hospital During 2013-2014.

### MATERIALS AND METHODS

In this study 70 patients with Tuberculosis were retrospectively investigated for the presence of urine cytological changes by Pap stain. This study include 70 patients, 35 urine smear from people suffering of pulmonary tuberculosis another 35 urine smear from people free pulmonary tuberculosis.

Urine sample were collected and prepared in sterile containers and centrifuge at 3000 rpm for 10 minutes. smears were prepared from deposit of urine and put in frosted slide containing an adhesive media.

#### Staining method:

Papanicolaou ( PAP) technique

urine smear fixed in 95% ethyl alcohol for 30 minutes, hydrated in 70% ethyl alcohol for two minutes rinsed in water 2 minutes, stained in Harris haematoxyl in for five minutes rinsed in water followed by differentiation in 1% acid alcohol for two seconds, Then blued in tap water for 10 minutes. Dehydration in 70% alcohol for two minutes and two changes of 95% for two minutes.

Then stained with OG6 for two minutes. Followed by rinses in two changes of 95% alcohol for two minutes each and stained with EA50 for three minutes, also rinsed in 95% alcohol for one minutes, smear were allowed for air drying then rinsed in xylene and mounted in (D.P.X).

### RESULTS

Seventy patient were Evaluated cytological thirty five of whom were free from tuberculosis control group using ZN while the other suffered from TB infection. There were was 79% male and 21% female, there were different age group participated with being 27-35 years. The cytological results indicated that urine smear was (82%) reported with normal smear. (11%) polymerphs with epithelial cells (2.8%) karyolysis epithelial & no epithelium as shown in (Fig1).

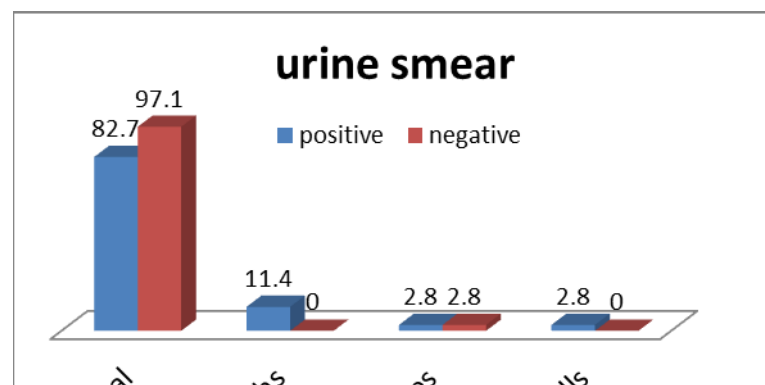


Fig. 1: Frequency of urine smear result for study group.

The associate between cytological changes and age showed (31%) normal in age groups (37-36) years (5.7%) polymorphs with epithelial (Fig. 2) p. value (0.44). The association between

gender and cytological changes the most of the cytological changes found within males (66%) normal, (2,8%) karyolysis morph with epithelial cell and no cells ( Fig. 3) (P. value 0.00).

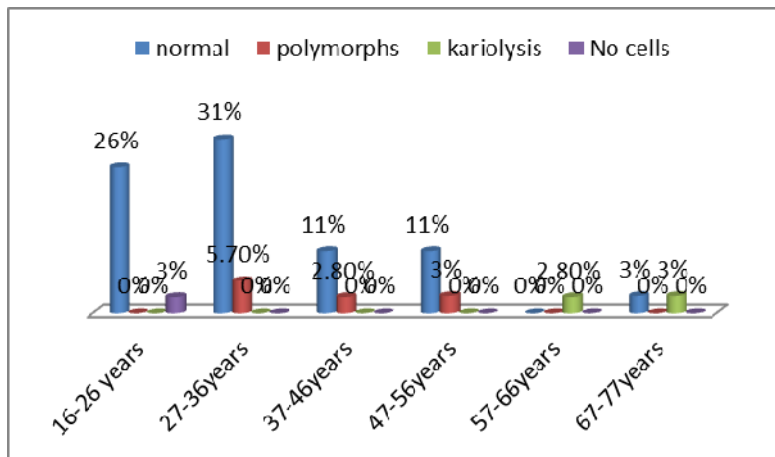


Fig. 2: Association between age and cytological appearance .

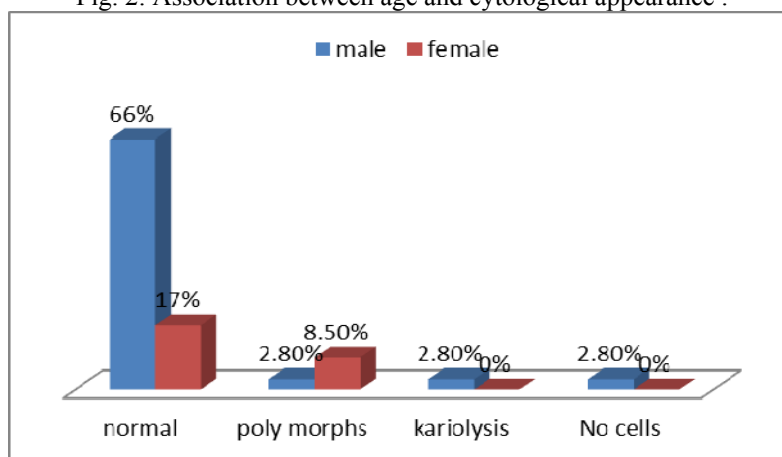


Fig. 3: Association between sex and cytological appearance .

**DISCUSSION**

About 243/100000 new cases of TB in sudan 243, with mortality 71/100000, 200-300/100000 was infected in 2006. In Port Sudan city it proposed that every 100.000 people there are 34 people infected with TB WHO stated that the ratio of infection in the world is 3:1 (nasir, 2007). TB is common in area that loss the health care and the rural area. TB is usually association with HIV patient, diabetes mellitus patient, malnutrition, Malaria, alcoholism and chronic renal failure's is world greatest infectious that

kills women at reproductive age. Report found that smoking more than 20 cigarette a day also increase the risk of TB (Jawetz, 2004). However, The urine smear for the demonstration of cytological changes in urinary tract is one of few studies addressing the cytological changes among tuberculosis patient at Red sea state. all study groups were free of cancerous changes our finding is disagreement (Marin, 2003). These organisms lake to cause DNA damage or matution alone , when associated with risk factor may cause bladder cancer. We

Recommended large sample size to evaluated the relation between tuberculosis and bladder cancer should be taken in future studies. Specialized technique in TB infection detection may be used to confirm diagnosis e.g. Immunocytochemistry and polymerase chain reaction (PCR).

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### ARABIC SUMMERY

الكشف عن التغيرات النسيجية من عينات البول في المرضى السودانيين المصابين بالسل الرئوي

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**الخلفية العلمية:** السل مرض معد شائع وغالبا ما يسبب الموت الناجم عن بكتيريا. فإنه عادة ما يهاجم الرئة كما في (السل رئوي). لذلك، كان الهدف من هذه الدراسة للكشف عن تغيير الخلوي من البول في المرضى الذين يعانون من مرض السل الرئوي في مستشفى بورتسودان التعليمي وخلال الفترة 2013-2014.

**المنهجية:** من مجموعه 70 عينات البول كان هناك 35 مريضا ZN ايجابي و 35 مريضا كانت ZN سلبية. **النتائج:** (82%) من المرضى لم يتم العثور على التغيرات النسيجية، (11%) من المرضى خلايا الالتهابية و (2.8%) من المرضى بهم انحلال النواة.

**الخاتمة:** لا توجد تغييرات في عينة البول المرتبطة بمرضى السل الرئوي، وذلك يتطلب مزيدا من الدراسات.