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شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



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شبكة المعلومات الجامعية



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



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شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

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لم ترد بالأصل





بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ



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**Evaluation of Different Bacteriological
Methods for Diagnosis of Leukocytospermia
in the Semen of Infertile Patients**

Thesis

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This work is dedicated to

My Family

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LIST OF ABBREVIATIONS

WHO	World Health Organization
SPA	Sperm Penetration Assay
WBCs	White Blood Cells
CD	Cluster of Differentiation
TNF	Tumour Necrosis Factor
IFN	Interferon
IL	Interleukin
NADPH	Nicotinamide Adenine Dinucleotide Phosphate
ROS	Reactive Oxygen Species
IARC	International Agency for Research on Cancer
PMNL	Polymorphonuclear Leucocytes
ELISA	Enzyme Linked Immunosorbant Assay
NBT	Nitro Blue Tetrazolium
H.P.F.	High Power Field
S.E.M.	Scanning Electron Microscopy
T.E.M.	Transmission Electron Microscopy
CL	Chemiluminescence Test
FMLP	Formyl Methionyl Eucyl-phenylalanine



INTRODUCTION
&
AIM OF THE WORK



Leukocytospermia is a term applied to the presence of more than 1×10^6 WBCS/ml semen. It is accepted as a sign of male accessory sex glands infection (WHO 1993)^[1]. Indeed elevated numbers of leukocytes in prostatic secretion are typical of acute and chronic bacterial and non bacterial prostatitis (Drach, 1975^[2] and Meares, 1989^[3]).

Several reports have documented an association between leukocytospermia and male infertility. Some have made the general observation that the ejaculates of infertile men contain more leukocytes than fertile controls (Ulstein *et al.*, 1976)^[4] and that sperm quality is decreased in the presence of elevated concentrations of leukocytes (Caldamone and Crockett, 1981)^[5]. Leukocytes products were found to adversely affect the heterologous sperm penetration assay (SPA) in vitro (Maruyama *et al.*, 1985)^[6]. The number of leukocytes in semen was the most important factor in abnormal SPA scores. The administration of antibiotics (e.g. doxycycline) to patients with combined leukocytospermia and abnormal SPA scores resulted in a significant decrease in leukocytes number, and an increase in normal SPA scores and in pregnancy rate (Berger *et al.*, 1983)^[7]. Many semen parameters were shown to be impaired in leukocytospermic ejaculates, such as, ejaculate volume, sperm concentration, percent motility and sperm velocity (Wolff *et al.*, 1990)^[8].

There are objective methods to detect leukocytes in semen. These methods include detection of leukocyte enzymes such as peroxidase (W.H.O, 1987)^[9], and elastase (Wolff and Anderson 1988)^[10].

The activity of peroxidase can be demonstrated by means of chromogenic substances. These substances include benzidine, O-toluidine, amino carbazoles, phenols and naphthols. Peroxidase positive cells stain dark brown, spermatazoa and other cells remain unstained. Monocytes are faintly positive (Nichols, 1971)^[11].

Whenever increased numbers of WBCs are detected in semen, bacterial infection has to be considered. The role of microorganisms in leukocytospermia was supported by reports on reduction of seminal WBCs after antibiotic therapy (Toth and Lesser, 1982^[12], Giamarellou *et al.*, 1984^[13] and Micic *et al.*, 1989^[14]). The impact of infection in reproductive tract on the fertilizing ability of the male has been debated with few firm conclusions (Purvis and Christiansen, 1995)^[15]. Microorganisms in semen may be associated with infections of the male reproductive tract (Morell, 1995)^[16]. The relationship between the number of leukocytes and the presence of genital tract infections is currently a subject of debate (Munuce *et al.*, 1999)^[17].

The aim of this work is to evaluate the use of pus cells count/H.P.F., Combur 9 test and peroxidase test as diagnostic tools for leukocytospermia in the semen of infertile patients.



REVIEW OF LITERATURE

