# THE EFFECT OF SPLENCETOMY ON THE POLYMORPH - COMPLEMENT INTERACTION

**THESIS**

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**Master Degree in Hematology**


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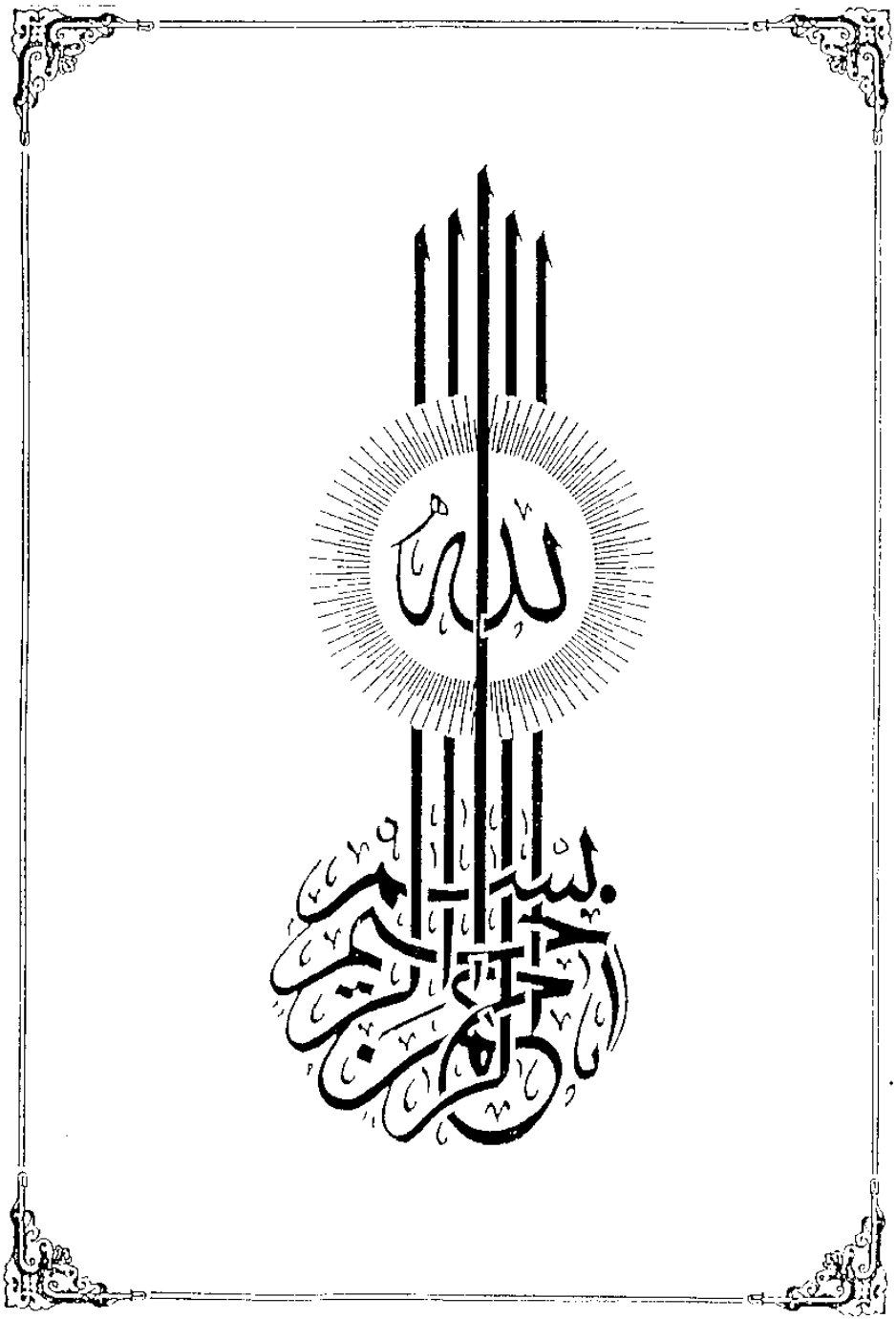
Best wishes for patients and hope for recovery.



**Dedication...**

**To My Father**

**Mother**

**Husband**

**Son**

**Sister**

**& Brother.**

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### Diagrams

## List Of Abbreviations

| | |
|---|---|
| ++ | Mild |
| ++ | Moderate |
| +++ | Severe |
| ↑ | Enlargement or increased |
| ↓ | Shrunken or decreased |
| B | Basophils |
| C1 INH | C1 esterase inhibitor |
| C3 | Complement fraction 3 |
| C4 | Complement fraction 4 |
| CD | Cluster of differentiation |
| CGD | Chronic granulomatous disease |
| CR | Complement receptors |
| DNA | Desoxy-ribo nucleic acid |
| DM | Diabetes mellitus |
| E | Eosinophils |
| FDCs | Follicular dendritic cells |
| FMLP | Formyl-methionyl-leucyl-phenylalanine |
| GM-CSF | Granulocyte-monocyte colony stimulating factor |
| Hb | Hemoglobin |
| H2O2 | Hydrogen peroxide |
| Hi"b" | Hemophilus influenza type "b" |
| ICAM-1 | Intercellular adhesion molecule |
| Ig | Immunoglobulin |
| ITP | Idiopathic thrombocytopenic purpura |
| K | Killer cells |
| Ki | Kidney |
| L | Lymphocytes |
| LAM-1 | Endothelial leukocyte adhesion molecule |
| Lt | Left |
| MHC | Major histocompatibility complex |
| Mo | Monocytes |

| | |
|---|---|
| NBT | Nitro-blue tetrazolium |
| NK | Natural Killer cells |
| NS | Non-significant |
| PMNLs | Polymorphonuclear leucocytes |
| PSS | Post-splenectomy Sepsis |
| RBCs | Red Blood Cells |
| RNA | Ribo nucleic acid |
| Rt | Right |
| SGOT | |
| SGPT | |
| SLE | Systemic Lupus Erythematosus |
| Sp. | Spleen |
| St. | Stomach |
| TI-2 | Thymus independent type 2 antigen |
| TNF | Tumor Necrosis Factor |
| Y | Years |
| WBCs | White Blood Cells |

# INTRODUCTION AND AIM OF WORK

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## Introduction:

The spleen is highly efficient immunoregulating organ. It captures antigens, processes them and concentrates them in the white pulp where T and B cell interaction can lead to the formation of antibodies, particularly IgM in both primary and secondary responses. The splenic macrophages generate many components of the classic complement pathway and nearly half of the splenic cells have phagocytic ability and can clear immune complexes (Travassoli, 1990).

Overwhelming post-splenectomy sepsis occurs in both children and adults, and follows both elective and traumatic splenectomies (Morris, 1994).

Polymorphonuclear leucocytes (PMNLs) express receptors for the complement-derived chemotactic factors, C3b and C3b1 which are sparse on resting PMNLs but ignificantly increased in number following stimulation (Smolen and Boxer, 1990). Bound C3 and C4 Fragments act as opsonins enhancing phagocytosis (Walport and Lachmann, 1993).

The spleen-complement-polymorph interaction is an integral and important component of the defence mechanism against infection especially bacterial ones and loss of any of

the three elements may be reflected seriously on the other (Smolen and Boxer, 1990).

**Aim Of Work:**

The present work aims to study the effect of splenectomy on the PMNLs function in correlation to changes in complement levels [C3 & C4].

# REVIEW OF LITERATURE

The Spleen

Splenectomy

The Neutrophil (PMNLs) function

The Complement System