STUDY OF CHEST CONDITION IN SYSTEMIC LUPUS ERYTHEMATOSUS

A thesis submitted for
Partial Fulfillment of the
Master Degree in Chest

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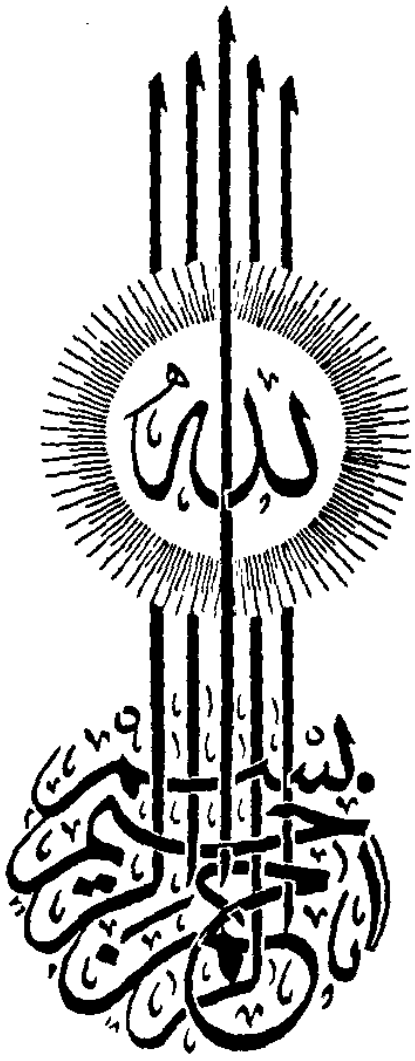

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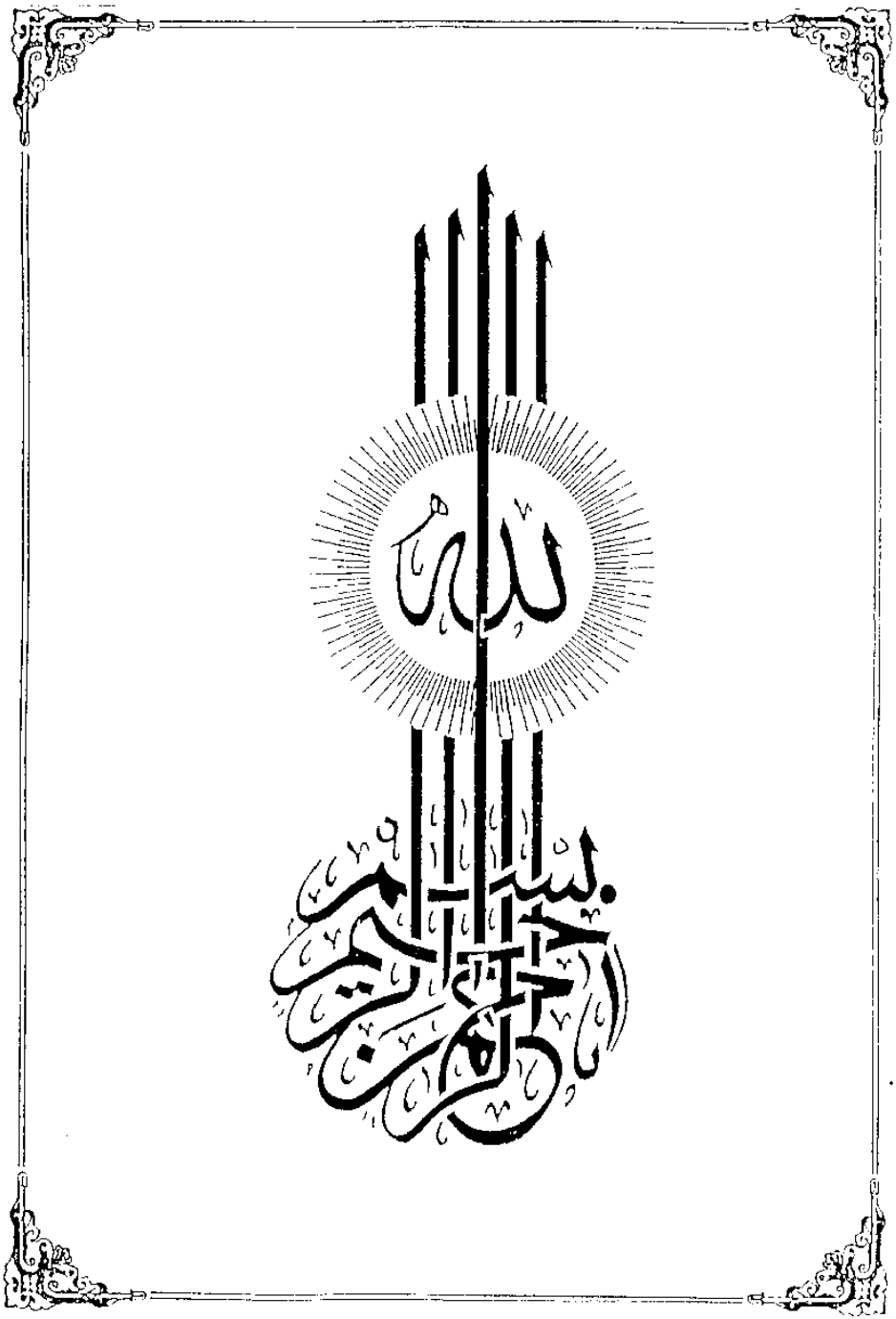

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TO MY

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ACKNOWLEDGEMENT

It is a great pleasure to acknowledge my indebtedness to all those who made this thesis possible.

I should first like to thank my Professor Dr. M. Fathy Tamara, Professor of General Medicine, Ain Shams University, whose interest and enthusiasm encouraged me to begin in this field of research. I am deeply grateful to him for his continuous guidance, valuable suggestions and for his professional teaching. He has also taught me how to conduct scientific research work and how to express oneself in simple and correct vocabulary.

I am also greatly indebted to Dr. Tarek Safwat Professor of Chest Department, Ain Shams University for his continuous advice and unfailing help throughout the whole work.

I feel deeply obliged to Dr. Samiha Ashmawy Lecturer of Chest Department, Ain Shams University. Without her enthusiastic help, I would not have been able to deal with the practical part of this thesis.

I would also like to express my deepest appreciation to Prof. Dr. Taha Siah President of Nuclear Materials Corporation for his help and encouragement.

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I would like to thank Dr. Sophi Abadir in pulmonary function. I am also grateful to the staff, the members and resident doctors in the X-Ray department and Chest Department, Ain Shams University who also helped me in the practical part of this thesis.

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INTRODUCTION AND AIM OF WORK

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INTRODUCTION AND AIM OF WORK

Systemic lupus erythematosus (S.L.E.) is an autoimmune disease known to affect the lungs specially pleurisy (polyserositis). The American Rheumatism Association (A.R.A) include poly serositis among the revised criteria for classification of systemic lupus erythematosus, (S.L.E.) 1982. The main pathological finding of the disease is fibrinoid necrosis of connective tissue under the endothelium of the serous sacs. e.g., Pleura, pericardium beneath the synovial lining cells of the joints, and under the endocardium. The disease also attacks the wall of small arterioles (Halloran, 1987). Prognosis in S.L.E. depends on many factors (e.g., age, antibody and immunogenetic subsets, antibodies to certain extractable nuclear antigens (ENAs) as Ro, La, and nRNP, infections and major organs involvement. Any how most patients still die of infections or renal failure and cardiac failure.

The aim of this thesis is to study the lung condition in systemic lupus erythematosus, and evaluation of pulmonary function abnormalities in S.L.E. patients.

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REVIEW OF LITERATURE

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REVIEW OF LITERATURE

Study of chest condition in systemic lupus erythematosus

Revised criteria for classification of systemic lupus erythematosus (S.L.E.) according to the American Rheumatism Association (A.R.A):

1. Malar rash : Fixed erythema, flat or raised, over the malar eminences, tending to spare the nasolabial fold.
2. Discoid rash : Erythematosus raised patches with adherent keratotic scaling and follicular plugging. Atrophic scarring may occur in older lesions.
3. Photo sensitivity : Skin rash as a result of unusual reaction to sunlight by patient's history or physician's observation.
4. Oral ulcers or nasopharyngeal ulcers usually painless, observed by the physician.
5. Arthritis : Nonerosive arthritis involving two or more peripheral joints. Characterized by tenderness, swelling or effusion.
6. Serositis : a) Pleuritis - convincing history of pleuritic pain or rub, heard by physician or evidence of pleural effusion, or b) pericarditis documented by ECG or rub or evidence of pericardial effusion.
7. Renal disorders : a) Persistent proteinuria greater than 0.5 gram per day, b) cellular casts may be red cell, hemoglobin, granular, tubular or mixed.

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Pleuro pulmonary manifestations

Pleural involvement

Pleuritic pain was present in 11 % of patients at the time of diagnosis and in in 46 % of the patients at some time during the course of the disease, (Pines et al., 1985). The pleuritic pain was much more common than radiographic evidence of pleural effusion and was present at the time of diagnosis in 20 % of patients and during the course of disease in only 32 % of patients. A pleuritic rub was heard in 22 % of patients in the series reported by Ropes. Pleural effusion are mild to moderate, although massive pleural effusions may occur occasionally (Ropes, 1976). In the same series fluid was present in 33 patients and ranged in volume from less than 5 ml to 1500 ml.

Only three of the effusions were hemorrhagic, and one fluid was grossly purulent. Most often the effusions are clearly exudates, having more than 3.0 g of protein per 100 ml. The glucose cocentration is more than 55 mg per 100 ml in contrast to that present in the pleural effusions of patients with Rheumatoid arthritis, in whom levels of less than 20 mg per 100 ml are usually present (Ropes, 1976). Typical LE cells have been identified in the pleural fluids of patients with S.L.E. Pleural effusion is found more frequently in old age and in drug

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induced lupus erythematosus (mainly due to procanamide) (Harmon and Portanova, 1982). The fluids usualy bilateral. However, there are cases of unilateral effusions (Harmon and Portanova, 1982).

Lupus pleuritis is characterised by the following laboratory findings (Good et al., 1983) :

1. Most often, the fluid is an exudate, by protein or LDH criteria.
2. The fluid is usually clear, but may be hemorrhagic.
3. Although glucose level is frequently normal in contrast with rheumatoid arthritis low sugar levels have been recorded.
4. The leukocytic count and the differential count are variable, polymorphonuclears tend to appear in the acute stage while lymphocytes predominate later.
5. L.E. cell, immune complex and reduced level of complement components may be found. The presence of ANA is almost diagnostic (Good et al., 1983). It appears that antigen antibody complexes are important in the development of both S.L.E. and rheumatoid arthritis. The finding of low complement (presumbly activated by immune complexes) levels in serum and synovial fluids of some patients with S.L.E. or rheumatoid supports this hypothesis.

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on the patients with acute infiltrates reveal hypoxemia. Residual pulmonary function abnormalities in patients surviving the acute episode have been noted even when the patients are asymptomatic. The chronic form of lupus pneumonitis behaves like other diffuse interstitial lung disease (Eisenberg et al., 1979) characterized by dyspnea on exertion, non productive cough and basilar rales. The diagnosis is based on radiographic demonstration of persistent interstitial infiltrates and a restrictive pattern of pulmonary function. Fibrosis of the alveolar walls. Focal necrosis, moderate plasma cell infiltration and histiocytic desquamation are the main histological features (Eisenberg, 1982). Immunofluorescent studies may demonstrate immune complex deposits in the alveolar walls (Inoue et al., 1979). The active disease responds well to treatment with corticosteroids and other immunosuppressive drugs (Matthay et al., 1975). The chronic disease needs no treatment when mild and asymptomatic. Unfortunately, when advanced, chronic lupus pneumonitis has a bad prognosis (Holgate et al., 1976).

Diffuse interstitial pneumonitis

Diffuse interstitial lung diseases may occur in S.L.E. patients. The disease is chronic, and the main symptom is dyspnea on exertion (Kelley, 1985). Physical findings are poor diaphragmatic movement and diminished

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