



# Immune System Disorders

## Clinical Medicine Flashcards

- Clinical Clues to Diagnosis
- Pathophysiology

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- Acquired Immunodeficiency Disease
- Anaphylaxis
- Hashimoto's Thyroiditis
- Kaposi's Sarcoma
- Scleroderma
- Sjögren's Syndrome
- Systemic Lupus Erythematosus

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## Acquired Immunodeficiency Disease

- Lymphadenopathy
- Night sweats
- Presence of rare opportunistic illness
- T-helper (CD4) cells  $<500$  cells/mm<sup>3</sup>,
- T-killer (cytotoxic) (CD8) cells  $<375$  cells/mm<sup>3</sup>
- Change in the CD4/CD8 ratio (normal 0.9–1.9),
- Measurable viral load

## Pathophysiology

- Macrophages process foreign antigens and present antigenic material to the T-helper cells (CD4).
- The CD4 transfer this information to the T and B lymphocytes. In HIV, a retroviral particle (RNA strand) wrapped in a glycoprotein coat (gp120 receptor) with p24 viral protein invades the CD4 cell. The CD4 cell and macrophage are the immune cells affected and destroyed.
- Once the CD4 cell count drops below 200 cells/mm<sup>3</sup>, the client is diagnosed with AIDS. Other diagnostic criteria include the presence of an opportunistic infection.

## 2

# Anaphylaxis

- Sudden onset of
  - Wheezing,
  - Edema of airway,
  - Hypotension,
  - Tachycardia,
  - Feeling of impending doom and anxiety.

## Pathophysiology

- Severe type I hypersensitivity reaction in which IgG antibodies attached to mast cells, previously sensitized to an antigen, are reactivated. The most common antigenic material is derived from foods or insect stings.
- Chemical mediators are released, the most common of which are histamine, proteases, chemotactic factors, leukotrienes, prostaglandin D, cytokines, and interleukins 1, 3, 4, 5, and 6). These mediators cause vasodilation and fluid shift from the intravascular to the interstitium.

## 3

# Hashimoto's Thyroiditis

- Goiter
- Periods of insomnia
- Anxiety
- Muscle and joint aches
- Weight changes
- Hair loss
- Fertility problems that are mixed symptoms of hyper- and hypothyroidism.
- Tsh may be normal or elevated.
- T3 and t4 are low.

## Pathophysiology

- Usually a disease of older women with a history of autoimmune disease.
- Autoantibodies are produced to fight TSH. TSH is not destroyed and instead binds with its receptors in the thyroid gland, causing symptoms of hyperthyroidism.
- As the thyroid gland becomes infiltrated with lymphoid tissue and plasma cells it enlarges and hypothyroidism occurs.
- Episodic hyperthyroidism can occur, so symptoms may swing back and forth from hyperthyroidism to hypothyroidism.



## 4

# Kaposi's Sarcoma

- Red-to-purple macules, papules, and nodules seen in persons with AIDS.
- First seen usually on the mucous membranes.

## Pathophysiology

- A rare lymphatic malignancy of the endothelial, rather than connective, tissue characterized by red-to-purple macules, papules, or nodules.
- Lesions are first seen on the skin or mucous membranes but may involve the internal organs.
- A rare cancer commonly related to AIDS.
- In patients with AIDS, KS is believed to be sexually acquired by infection with the human herpes virus 8.

## 5

# Scleroderma

- Taut face without wrinkles
- Calcium deposits.
- + ELISA for ANA & other antibodies.
- Raynaud's phenomenon

## Pathophysiology

- An autoimmune disease.
- Women are affected more often than men; disorder often has periods of exacerbation and remission.
- The skin, connective tissue, and internal organs are affected. Insoluble collagen is overproduced and deposited in the skin and other organs, causing inflammation. Inelastic rather than supple edema results. A common finding is “stone face,” which is the result of this hardening of the skin.
- There is a strong association (95%) with Raynaud's phenomenon.

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# Sjögren's Syndrome

- Blurred vision
- Thick secretions
- Decreased sense of taste
- Dysphagia
- Xerostomia
- Dry nasal membranes
- Antiribonucleoprotein serum antibodies & + rheumatoid factor in the absence of rheumatoid arthritis

## Pathophysiology

- Autoimmune illness in which the lacrimal and salivary glands are attacked by autoantibodies and T lymphocytes.
- Can occur alone or with other autoimmune diseases.
- Occurrence is mainly seen in older women.
- Sjögren's syndrome is associated with a 40%–60% increase in the chance of developing non-Hodgkin's lymphoma.



- Butterfly rash
- Arthritis
- Malaise
- Raynaud's phenomenon
- Peripheral neuropathy
- Change in vision & renal status
- Round lesions on head cause hair loss

## Pathophysiology

- Immune system antibodies attack “self.” Females are affected more than males. A hereditary predisposition exists.
- Discoid lupus causes skin plaques that tend to occur on the face, ears, and hair. Wherever they appear, the area is inflamed and becomes scarred. Alopecia results in affected areas in the hair.
- Systemic lupus erythematosus (SLE) causes changes in the dermatologic, cardiovascular, musculoskeletal, hematologic, gastrointestinal, renal, and ophthalmologic systems—all related to inflammation from overreaction of the immune system.