

# HOSPITAL PHYSICIAN®

## INFECTIOUS DISEASES BOARD REVIEW MANUAL

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The *Hospital Physician Infectious Diseases Board Review Manual* is a study guide for fellows and practicing physicians preparing for board examinations in infectious disease. Each manual reviews a topic essential to current practice in the subspecialty of infectious diseases.

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## Long-Term Treatment Complications in HIV Infection

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# Long-Term Treatment Complications in HIV Disease

Elisa I. Choi, MD, and Howard Libman, MD

## INTRODUCTION

The advent of highly active antiretroviral therapy (ART) in 1996 revolutionized the care of HIV-infected patients. Morbidity and mortality from opportunistic infections and malignancies have been greatly reduced, and HIV disease is now managed as a chronic medical condition. However, despite these benefits, longitudinal data from cohorts of HIV-infected persons have shown that long-term ART use is associated with several complications, including lipodystrophy syndrome, lactic acidosis/acidemia, peripheral neuropathy, and bone disorders. These complications have had a significant negative impact on quality of life for many patients and may predispose to further comorbidities, such as atherosclerotic disease and premature bone fractures. In this article, we provide case examples of each of the major categories of ART-related complications and discuss their diagnosis and management.

## CASE STUDY I

### INITIAL PRESENTATION

An asymptomatic 38-year-old man diagnosed with HIV infection 6 years ago presents for a routine visit.

### HISTORY

At the time of diagnosis, the patient's baseline CD4 cell count was 140/mm<sup>3</sup> and his viral load was 82,600 copies/mL. Other laboratory results included a fasting glucose of 84 mg/dL and a total cholesterol of 220 mg/dL, with a low-density lipoprotein (LDL) component of 140 mg/dL and a triglyceride level of 424 mg/dL. He was started on stavudine (d4T), lamivudine (3TC), and nelfinavir. His CD4 cell count increased to 460/mm<sup>3</sup> and his viral load has been less than 50 copies/mL. However, over the past year, he has become concerned about "sunken cheeks."

The patient has hypertension, but there is no history of diabetes mellitus, liver disease, or thyroid disease.

He does not exercise regularly. There is a history of coronary artery disease in both parents and an older brother. He has smoked a half-pack of cigarettes per day for 15 years. He consumes alcohol approximately twice per week in moderate amounts.

### PHYSICAL EXAMINATION

Physical examination reveals a blood pressure of 132/94 mm Hg, facial wasting (**Figure**), thinned extremities, and prominent superficial veins. Laboratory studies are noteworthy for a triglyceride level of 880 mg/dL.

- **What are the clinical manifestations of lipodystrophy syndrome?**

Lipodystrophy syndrome (LDS) refers to a constellation of morphologic and metabolic derangements that include (1) body fat redistribution, (2) dyslipidemia, and (3) glucose intolerance and diabetes mellitus. These abnormalities can occur separately or in combination.

### Body Fat Redistribution

Body fat redistribution is characterized by lipohypertrophy (fat accumulation) and/or lipoatrophy (fat wasting). Physical findings of lipohypertrophy may include a prominent dorsocervical fat pad ("buffalo hump"), breast enlargement, abdominal visceral fat deposition, and lipomatosis (localized areas of fat accumulation). In lipoatrophy, the main physical findings include "sunken cheeks" and thinning of the buttocks and extremities associated with prominent veins (pseudovenomegaly) related to the loss of subcutaneous fat. Lipohypertrophy and lipoatrophy can occur separately or together, and they may involve 1 or multiple body regions.

### Dyslipidemia

LDS-associated lipid abnormalities include increased serum total cholesterol, triglyceride, and LDL levels and decreased high-density lipoprotein (HDL) levels, although increases in HDL have been reported with non-nucleoside reverse transcriptase inhibitors (NNRTIs).<sup>1-3</sup> These various lipid abnormalities, like the manifestations of body fat redistribution, may occur separately or