

Epidemiology **B**ulletin

REPUBLIC OF CHINA

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The First Case of Acquired Immunodeficiency Syndrome (AIDS) Diagnosed in Taiwan

On January 28, 1986, a young male homosexual Taipei City resident was admitted to National Taiwan University Hospital (NTUH) with a 2–3 day history of severe headaches, dizziness, vomiting, and memory loss. On physical examination, the patient was thin and appeared chronically ill. Neurologic findings included mild bilateral papilledema, bilateral hyperreflexia, and a right-sided Babinski sign. A computed-tomographic brain scan showed multiple, hypodense, contrast-enhancing mass lesions in the right frontal, left frontal-parietal, and occipital areas. Complete blood count on admission showed a hemoglobin of 11.9 g/100 ml and a leukocyte count of 3,800/mm³ with an absolute lymphocyte count of 304/mm³. Lumbar puncture showed an elevated cerebrospinal fluid (CSF) protein. India ink test, acid-fast stain, and bacterial cultures on CSF were negative. CSF antibody titres for toxoplasma, cytomegalovirus, herpes simplex, varicella zoster, Epstein-Barr virus, and adenovirus were all negative. Serology for toxoplasma and viral antigens were also negative. Serum electrophoresis showed elevated levels of IgG and IgA immunoglobulins. Blood cultures were negative. Skin tests against streptokinase/streptodornase, tuberculin, and aspergillus antigens were negative; skin test against Candida was positive. The patient was positive for antibody to the human T-lymphotrophic virus type III (HTLV-III) by enzyme immunosorbent assay (EIA) (mean absorbance 0.954, negative cutoff = 0.167, absorbance ratio 5.7)*. Western Blot assay* was also positive for both gp41 and p24 protein bands. The patient's ratio of T-helper to T-suppressor lymphocytes (T_H/T_S) was 0.37 (normal: >1.0). An open brain biopsy did not yield a diagnosis of the brain lesions.

The patient's past medical history was unremarkable until June 1985 when he noticed abdominal pain accompanied by loose stools. He did not seek medical care and his

*These tests were performed at National Taiwan University Hospital by Dr. C. Y. Chuang.

symptoms continued intermittently for approximately 1 month when they resolved spontaneously without therapy. In September, he began to have intermittent fevers and headaches. He was hospitalized in November for high fever, chills, and a dry cough. On admission he stated he had lost about 5–6 kilograms of body weight in the previous two months. A chest roentgenogram showed infiltrative lesions over the right middle and left upper lobes. Acid-fast stain and bacterial cultures of sputum were negative. No specific studies for *Pneumocystis carinii* pneumonia were performed. The patient was treated with trimethoprim-sulfamethoxazole (TMP-SMX) for pneumonia of unknown etiology. His symptoms improved over 2–3 weeks, however, he developed oral candidiasis. He was discharged on December 18 and readmitted on December 20 for recurrence of high fever. He continued therapy with TMP-SMX and was discharged on December 25. At home, he continued to have mild fevers and headaches which progressively worsened and led to his admission at NTUH.

The patient had never been married and engaged exclusively in homosexual relationships for more than 12 years with approximately 100 partners including at least three foreign sexual partners: one Swede, one American, and one of unknown nationality. He usually had receptive rectal and oral intercourse and denied fisting or the use of artificial devices. His last sexual contact with a foreigner was two years ago. All other partners were Taiwan residents, and he denied foreign travel in the past 5 years. His sexual relationships were usually anonymous and short-term, lasting no more than a week. He met most of his sexual partners in a Taipei City park. He denied any sexual activity in the 6 months preceding his most recent admission.

At NTUH, the patient was treated with high-dose corticosteroids, antituberculosis therapy, and TMP-SMX. TMP-SMX was discontinued after 1 day due to a possible drug reaction. While on the above therapy, the patient developed severe oral, pharyngeal, and esophageal candidiasis. He had a rapidly progressive downhill course and expired on March 2 from complications of increased intracranial pressure. An autopsy was performed, and preliminary results showed disseminated cytomegalovirus infection and cerebral toxoplasmosis.

Reported by National Taiwan University Hospital; Tri-Service Hospital, AIDS Advisory Committee, Department of Health, the Executive Yuan

Editorial note: This patient was the first case reported to the Department of Health (DOH), which met the U.S. Centers for Disease Control (CDC) revised surveillance definition for the acquired immunodeficiency syndrome (AIDS)^{1,2}. These criteria are complicated, but can be summarized as follows: (1) the presence of a reliably diagnosed disease suggesting underlying cellular immunodeficiency in a person with no known causes of underlying immunodeficiency; (2) positive result on testing for serum antibody to HTLV-III; and (3) low number of T-helper lymphocytes or a low ratio of T-helper to T-suppressor (T_H/T_S) lymphocytes. The patient fulfilled the criteria because he had: (1) multiple underlying opportunistic infections (disseminated cytomegalovirus, esophageal candidiasis, cerebral toxoplasmosis) and no other known cause of underlying immunodeficiency; (2) a positive antibody test for HTLV-III confirmed by Western Blot assay; and (3) a low T_H/T_S ratio. Other supportive evidence included an undiagnosed pneumonia responding to therapy with TMP-SMX which may have been due to *Pneumocystis carinii*, another opportunistic infection commonly seen in AIDS patients. In addition, the patient was a homosexual, a group known to be at increased risk for AIDS.

To diagnose AIDS is especially difficult in Taiwan because: (1) an extensive work-up is required to rule out other known causes of underlying immunodeficiency (Table 1);

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Table 1. Known causes of cellular immunodeficiency that must be ruled out to diagnose AIDS*

Immunosuppressive therapy
Corticosteroid therapy within one month before onset
Other cytotoxic or immunosuppressive therapy within one year before onset
Lymphoreticular neoplasms
Hodgkin's disease
Non-Hodgkin's lymphoma (except when limited to brain)
Lymphocytic leukemia
Multiple myeloma
Histiocytosis
Angioimmunoblastic lymphadenopathy
Known primary or congenital immunodeficiency diseases
Severe malnutrition

*Source: see Reference 3.

Table 2. Diseases associated with HTLV-III infection*

Diseases included in surveillance definition of AIDS	% of CDC AIDS cases
Protozoal and helminthic infections	
<i>Pneumocystis carinii</i> --pneumonia	61.0
Cryptosporidiosis--chronic enteritis	3.3
Toxoplasmosis--encephalitis or disseminated	3.1
Strongyloidosis--pulmonary, central nervous system or disseminated	0.1
Fungal infections	
Candidiasis--esophagitis	10.2
Cryptococcosis--meningitis or disseminated	6.2
Bacterial infections	
Atypical mycobacteriosis--disseminated	3.9
Viral infections	
Cytomegalovirus--pulmonary, gastrointestinal or central nervous system	4.9
Herpes simplex virus--chronic mucocutaneous or disseminated	3.7
Papovavirus--progressive multifocal leuko-encephalopathy	0.6
Cancers	
Kaposi's sarcoma (age <60 years)	26.5
Primary lymphoma--limited to brain	0.5
Diseases occasionally associated with HTLV-III infection	
Chronic generalized lymphadenopathy	
Autoimmune thrombocytopenic purpura	
Diffuse undifferentiated non-Hodgkin's lymphoma	
Burkitt's-like lymphoma	

*Source: see Reference 3.