Kaposi's Sarcoma
Gastrointestinal Involvement Correlation with Skin Findings and Immunologic Function

R.K. SALTZ, MD, R.C. KURTZ, MD, C.J. LIGHTDALE, MD, P. MYSKOWSKI, MD, S. CUNNINGHAM-RUNDLES, PhD, C. URMACHER, MD, and B. SAFAI, MD

We have evaluated 19 homosexual/bisexual male patients with biopsy-proven Kaposi's sarcoma (KS) of the skin in order to define the extent of gastrointestinal involvement and determine its correlation with oral mucosal disease, skin findings, and immunologic function. Nearly half the patients had oral mucosal lesions. In patients with oral mucosal lesions, 75% had gastrointestinal lesions. Some gastrointestinal involvement during the period of observation was present in 10 of the 19 patients. Involvement of the upper gastrointestinal tract was more common than colonic involvement: esophagus 1, stomach 8, duodenum 3, and colon 6. Significant immunosuppression was observed in these patients, measured in vitro by natural killer (NK) assay, and lymphocyte proliferation response to mitogens.

Kaposi's sarcoma (KS) was first described by Moritz Kaposi in 1872 (1). In the United States, Kaposi's sarcoma has been a rare neoplasm with an incidence of 0.02-0.06 per 1,000,000 (2, 3). North American KS has classically been a disease of older men, with a male-to-female ratio of 10-15:1 (4). A mean age of 63 years had been reported in one large study (5). KS classically has an indolent course, with the disease remaining localized to the skin for many years and infrequently manifesting lymph node, mucous membrane, or visceral involvement. The mean survival has been 8-13 years (6).

Recently, a new outbreak of KS has been described in the United States, affecting primarily young, homosexual men. This disease has been associated with visceral involvement, immunosuppression, and a high case-fatality rate. We evaluated 19 men with the new form of KS, correlating gastrointestinal findings with skin and mucous membrane disease, as well as with immunologic parameters.

MATERIALS AND METHODS

All homosexual/bisexual patients seen at Memorial Hospital with the diagnosis of KS of the skin were studied by the Gastroenterology Service from July 1981 to June 1982. The degree of skin involvement at the time of referral was graded on a scale of 1 to 10 by a dermatologist (1 = least severe, 10 = most severe). The study patients were referred for gastrointestinal evaluation following biopsy-proven diagnosis of KS of the skin; patients with other presentations of the acquired immunodeficiency syndrome (AIDS) were not included in this study.

Laboratory studies included hepatitis B surface antigen (HBsAg) and hepatitis B surface antibody (anti-HBs)
performed by radioimmunoassay. Serum immunoglobulin measurements were obtained, as well as in vitro tests of immunologic function (7, 8). These included: (1) natural killer (NK) cell activity studied by incubation of peripheral blood lymphocytes with $^{51}$Cr-labeled K562 tumor target cells to an effector-target ratio of 100:1, 50:1, and 25:1; and, (2) in vitro lymphocyte proliferation response using phytohemagglutinin, C. albicans, and E. coli (9). Results of these studies were evaluated in comparison with 45 healthy, age-matched, heterosexual men, and endogenous anti-K562 activity less than one standard deviation below the mean was classified as abnormally low. Negative response was defined as less than 14.7% specific release, as previously determined during studies of more than 300 healthy volunteers (8).

All endoscopic procedures were in the Gastroenterology Unit at Memorial Hospital. During upper gastrointestinal endoscopy, photographs and biopsies of the Kaposi's lesions were obtained. Duodenal aspiration and biopsies were examined for the presence of Giardia lamblia. Colonoscopy with biopsies of abnormal mucosa or Kaposi's lesions were done, and follow-up endoscopy was performed in those patients who developed new gastrointestinal symptoms during the study period or if their skin lesions improved on treatment.

All procedure-related risks were explained to the patients, and signature on consent forms was required, as is our routine for all of the gastrointestinal procedures performed.

RESULTS

The ages of the 19 patients ranged from 33 to 50 years (mean 38). A wide spectrum of skin involvement (Figures 1 and 2) was noted at the time of referral. Esophagastroduodenoscopy (EGD) was performed in 17 patients and colonoscopy in 15 patients (Table 1). Two patients (Nos. 16 and 19) were included retrospectively with autopsy data. The gastrointestinal lesions (Figure 3) included purple-red macules, plaques, and nodules, some of which had a "strawberry" surface. Involvement of the upper gastrointestinal tract was more common than colonic involvement (esophagus 1, stomach 8, duodenum 3, and colon 6). Two patients had partial resolution of gastrointestinal lesions noted on follow-up EGD (Nos. 3 and 18). No pharyngeal lesions were noted on any of the EGD examinations. Seven patients had KS skin lesions and no evidence of oral

Fig 1. Oval purple Kaposi's sarcoma papules on the back.