The real Kaposi's sarcoma . . .

Boshoff *et al.* perpetuate an old myth when they write that Kaposi's sarcoma is an indolent tumor of elderly men of mediterranean origin[1] because what Moriz Kaposi described was an aggressive generalized disorder, which killed within two to three years[2].

In 1872 Kaposi published a report of a new disease that now carries his name[2]. He described five male cases over the age of 40 years from all corners of the Hapsburg empire. He also included the case of a Swiss boy 8 or 10 years of age.

Kaposi repeatedly stated that the disease was incurable and lethal, that patients died within two to three years of their symptoms appearing. "Die Krankheit führt zum Tode, und zwar innerhalb einer kurzen Frist von 2–3 Jahren. . . . Die Krankheit muss nach der vorliegend Erfahrungen von vorherein nicht nur als unheilbar, sonderen auch letal gelten." (The disease leads to death, and it does so within a short period of two to three years. . . . The disease must, from our present experience, be considered from the onset not only as incurable but also deadly.) In fact, three of the cases died within 12 months to 16 months of presentation[2].

Kaposi proposed that the disease was generalized from the outset rather than a local skin tumor with later metastases. ". . . muss für dieses Uebel eine bereits von Anfang her vorhandene allgemeine Erkrankerung (Dyskrasie) angenommen werden." (. . . [One] must postulate, for this scourge, that there is a generalized disease (dyscrasia) preexisting from the beginning.)

He was able to carry out an autopsy on one of his patients. There were characteristic lesions everywhere, not only on the patient's limbs, face and trunk. Kaposi also observed them in the pharynx, larynx, trachea, stomach and small intestine. They were particularly numerous in the colon and liver.

Moriz Kaposi was a distinguished dermatologist, recognized as a fine observer of disease and held in the highest regard of his national and international contemporaries. He is credited with the first description of xeroderma pigmentosum[3].

Kaposi was born in present-day Hungary and received part of his education in today's Czech republic. He established himself in Vienna. When Kaposi married one of Hebra's daughters, his father-in-law transferred his five wealthiest sufferers of psoriasis to Kaposi as a financial foundation for the couple!

Although the thoroughly documented clinical features are similar to those of AIDS, the question as to whether Kaposi made the first description of AIDS belongs in the pages of the history of medicine[4]. Over the years the definition of what Kaposi described has changed. His sarcoma became regarded as a low-grade malignancy of the elderly[5]. By forty years ago, only 500 cases had been described in Europe and North America, but at that time it was found to be a common tumor in tropical Africa, where it was considered aggressive with a ratio in men to women of 10 or even 15 to one[5].

Nevertheless, it is not clear why the criteria for diagnosing the disease that bears Kaposi's name changed from what he originally described. In his paper, Kaposi did not comment on travel to or commercial connections with Africa, or the private lives of his patients. One starting point for exploring aspects of behavior now known to be connected with disease transmission would be to make a search through any surviving personal papers of Kaposi's. Burkitt[6] has related how, when he was describing the African lymphoma of children associated with his name, he was able to refer to notes and drawings of a missionary surgeon made 50 years previously, which caused him to conclude that this lymphoma was not a recent disease. Understanding more about the patients first diagnosed by Kaposi and the extent of the disease a century ago, may help us tackle AIDS today.

LARS H. BREIMER
Department of Chemical Pathology and Human Metabolism
Royal Free Hospital School of Medicine
London NW3 2QG, UK

1. Boshoff, C. *et al.* Kaposi's sarcoma-associated herpesvirus infects endothelial and spindle cells. *Nature Med.* **1**, 1274–1278 (1995).
2. Kaposi, M. Idiopatisches multiples Pigmentsarkom der Haut. *Arch. Dermatol. Syphillis* **4**, 265–273 (1872).
3. Kaposi, M. Xeroderma pigmentosa. *Wien. Med. Jahrbüch.* 619–632 (1882).
4. Breimer, L.H. Did Moriz Kaposi describe AIDS in 1872. *Clio Med.* **19**, 156–158 (1984).
5. Oettle, A.G. Geographical and racial differences in the frequency of Kaposi's sarcoma as evidence of environmental or genetic causes. *Acta Unio Int. Contra Cancrum* **18**, 330–363 (1962).
6. Burkitt, D.P. The discovery of Burkitt's lymphoma. *Cancer* **51**, 1777–1786 (1983).

. . . and surreal antisense?

To the editor — It was with great interest that we read the Commentary[1] "Does antisense exist?" by C.A. Stein, who described potential problems with this technique. Stein believes that the *in vitro* and *in vivo* antiproliferative effects of several different antisense oligonucleotides on smooth muscle cells may be due to the binding/inhibition of basic fibroblast growth factor (bFGF) by the presence of a four G repeat sequence in these agents. His hypothesis is open to three types of criticism. First, several published investigations have employed antisense oligonucleotides without such a repeat sequence but were able to document a significant *in vitro* and *in vivo* antiproliferative effect on rat smooth muscle cells[2–6] (and these studies used the many different controls suggested by Stein). Second, inhibition of bFGF via interaction with the 4G repeat sequence is unlikely to produce the *in vivo* antiproliferative effect on smooth muscle cells since infusion of an anti-bFGF antibody cannot suppress neointimal formation over a two-week period in the arterial injury model[7]. Third, the *in vitro* effects of c-myb antisense oligonucleotides on smooth muscle cells such as growth inhibition and G_0 as well as G_1/S-phase reduction of intracytoplasmic calcium ion have been duplicated by employing stable expression of dominant negative c-myb constructs[8] as well as by targeting of the engrailed repressor to c-myb binding sites (M.S., R.D.R. unpublished observations). For these reasons, we believe that the antiproliferative effects of antisense oligonucleotides on smooth muscle cells are mainly due to sequence-specific interactions with target mRNAs. However, we cannot exclude the possibility that other actions of antisense oligonucleotides may contribute to the growth inhibition of smooth muscle cells.

MICHAEL SIMONS
ROBERT D. ROSENBERG
Department of Biology
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139, USA