PRIMEVIEW

KAPOSI SARCOMA

nature REVIEWS DISEASE PRIMERS

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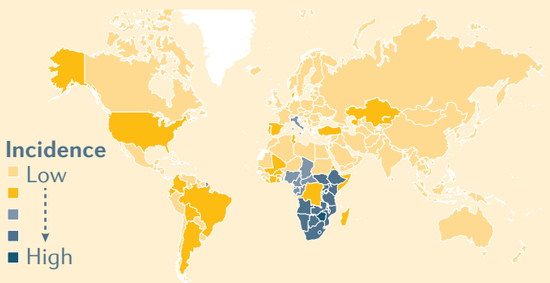
Kaposi sarcoma (KS) is a rare cancer characterized by multiple, pigmented, raised or flat, painless skin lesions that do not blanch. Lesions can also occur in the mouth and/or internal organs. Infection with the KS herpesvirus (KSHV), combined with impaired host immunity, causes KS.

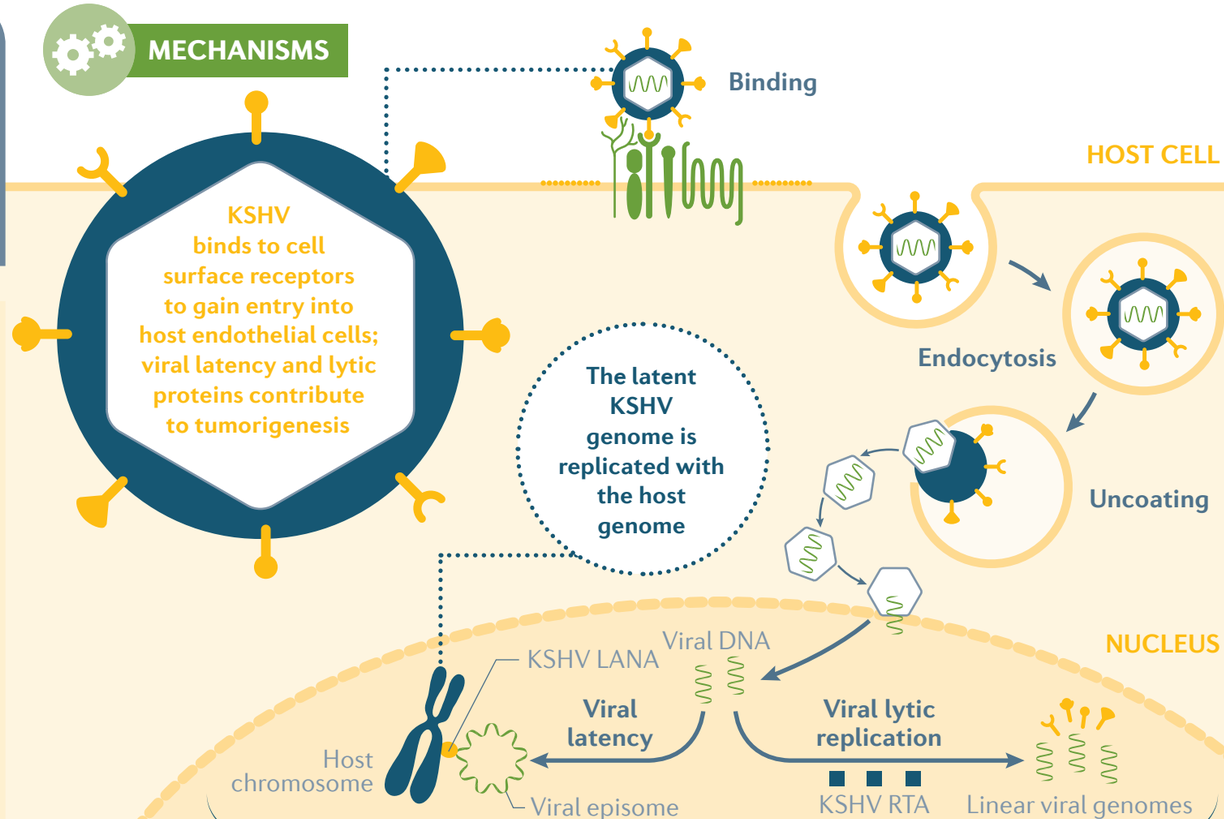
EPIDEMIOLOGY

The four main epidemiological forms of KS are defined by the different groups of people that KS affects. Classic KS occurs in middle-aged and elderly people without HIV infection, AIDS-related KS develops in people with HIV infection (KS is a defining feature of AIDS), iatrogenic KS occurs in people after solid organ transplantation and endemic KS mostly affects people without HIV infection in sub-Saharan Africa. Young or middle-aged men who have sex with men (MSM) and are without HIV infection may comprise a fifth form of KS. How immune function is impaired in KS forms other than AIDS-related and iatrogenic KS is not well characterized. KS was rare prior to the AIDS epidemic in the early 1980s. The introduction of combination antiretroviral therapy (cART) for HIV infection in 1996 decreased the incidence of KS worldwide, largely owing to a reduction in AIDS-related KS. Currently, the standardized incidence rate of KS per 100,000 males across geographical areas, as represented on the map, indicates that most cases of KS occur in sub-Saharan Africa.



The seroprevalence of KSHV is <10% in Northern Europe, Asia and the US, but >40% in most of sub-Saharan Africa where, in some areas, it can be >90%

MECHANISMS



KSHV modulates host immune pathways to establish life-long infection in the host

KSHV proteins modulate host cell signalling pathways to promote cell survival and the inhibition of apoptosis, allowing survival of the virus and leading to cancer

QUALITY OF LIFE

Physical and psychosocial problems associated with KS negatively influence quality of life (QOL). As KS treatments are not curative, symptom palliation is a major objective of KS therapy and QOL is used as an integrated measure of therapeutic effectiveness.

OUTLOOK

Although a KSHV vaccine would enable the prevention of KS, developing such a vaccine is challenging owing to the ability of KSHV to evade the host immune system. However, furthering our understanding of the pathobiology of KS should enable a personalized, targeted approach to therapy in the future.

DIAGNOSIS

Skin lesions are common to all types of KS; oral and visceral lesions mostly occur in AIDS-related KS. Skin lesions are usually first observed by patients and a diagnosis of KS can be confirmed using hematoxylin and eosin staining to assess biopsies for features such as vascular proliferation in the dermis, an inflammatory infiltrate and spindle cell proliferation. Immunohistochemistry of key features of KS lesions, for example, KSHV antigens, may also aid diagnosis. Pathologically, KS lesions are heterogeneous and can range from few to sheets of spindle cells, with subtle to obvious vascular proliferation and variable numbers of inflammatory cells.

MANAGEMENT

In patients with AIDS-related or iatrogenic KS, initial treatment aims to bolster the immune system by treating underlying HIV infection with cART or by altering the immunosuppression regimen, respectively. When these treatments are inefficient, and in patients with other forms of KS, chemotherapy is necessary but not curative. The clinical management of KS is largely based on data obtained from the treatment of AIDS-related KS; liposomal anthracyclines and paclitaxel are favoured for treating patients with this form of KS in high-income and low-income countries, respectively. Notably, combining cART with a liposomal anthracycline to treat advanced AIDS-related KS yielded a response in >80% of patients.

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Written by Katharine H. Wrighton; designed by Laura Marshall