



# KS (Kaposi's Sarcoma)

## WHAT IS KS?

Kaposi's sarcoma (KS) is a cancer-like disease. It usually shows up in the skin, or in the linings of the mouth, nose, or eye. KS can also spread to the lungs, liver, stomach and intestines, and lymph nodes. KS involves the development of many new, tiny blood vessels. This process is called angiogenesis. KS is partly caused by a herpes virus called Human Herpes Virus 8 (HHV-8).

KS affects about 20% of people with AIDS who aren't taking anti-HIV drugs. In the US, the rate of KS dropped by more than 70% after the introduction of strong antiviral medications.

KS is mostly a disease of men: there are at least 8 men with KS for each woman. It is one of the most visible signs of AIDS, because it usually shows up as spots on the skin (lesions) that look red or purple on white skin, and bluish, brownish or black on dark skin. Lesions often occur on the face, arms and legs.

KS on the skin is not life threatening. However, KS lesions on the feet and legs can make it difficult to walk. If KS spreads to other parts of the body, it can cause serious problems. In the mouth lining, it can cause trouble eating and swallowing. In the stomach or gut, it can cause internal bleeding and blockages. If KS blocks lymph nodes, it can cause severe swelling of the arms, legs, face, or scrotum. The most serious form of KS is in the lungs, where it can cause a serious cough, shortness of breath, or an accumulation of fluid that can be fatal.

KS can often be diagnosed by looking at the skin lesions. They are usually flat, painless, and do not itch or drain. They can look like a bruise, but a bruise will lose its purple color if you push on it; a KS lesion won't. KS lesions can grow into raised bumps or patches and grow together. Your doctor might take a small sample (a biopsy) from skin spots to examine under a microscope and confirm a diagnosis of KS.

## HOW IS KS TREATED?

Highly active antiretroviral therapy (HAART) is the best treatment for active KS. In many people, HAART can stop the growth or even clear up skin lesions. In addition to HAART, there are different treatments for KS in the skin or in other parts of the body.

**In the skin**, KS may not have to be treated if there are only a few lesions. Skin lesions can be:

- Frozen with liquid nitrogen,
- Treated with radiation,
- Cut out surgically,
- Injected with anti-cancer drugs or interferon alpha.
- Treated with Panretin gel (retinoic acid)

These treatments only deal with the skin lesions, not with KS overall. Skin lesions may come back after treatment.

**If KS has spread** into internal organs, systemic (whole-body) drug treatment is used. If HAART treatment is not enough, the drugs doxorubicin (Doxil®), daunorubicin (DaunoXome®) or paclitaxel (Taxol®) may be added.

Doxil and DaunoXome are anti-cancer drugs in "liposomal" form. "Liposomal" means that tiny amounts of drug are encased in small fat bubbles (liposomes). The drugs last longer in this form and seem to move to the areas where they're needed. Some side effects are reduced with liposomal forms of drugs.

## CAN KS BE PREVENTED?

It is not clear how HHV-8 spreads. It might be spread through sexual activity and deep kissing. As with other opportunistic infections, a healthy immune system can control HHV-8 infection. The best way to prevent KS is by using strong anti-HIV medications to keep your immune system strong.

## WHAT ELSE IS BEING STUDIED FOR KS?

**Anti-cytokine approaches:** There is a lot of research on cytokines, proteins that the immune system uses to stimulate cells to grow. Researchers think that substances that can inhibit these (and similar) growth factors can also slow down the growth of KS.

**Drugs to fight HHV-8:** Acyclovir was tried, but does not work. However, other antiviral drugs, including ganciclovir and foscarnet are being studied.

**Anti-angiogenesis drugs:** Scientists are studying several drugs that slow down the development of new blood vessels (angiogenesis.)

## THE BOTTOM LINE

KS is a disease that affects up to 20% of people with AIDS who are not taking anti-HIV drugs. It is partly caused by a herpes virus called HHV-8.

The best treatment for KS is strong anti-HIV therapy (HAART.) KS in the skin can be treated in several ways and is not a serious problem. KS in internal organs can be life threatening. Internal KS is usually treated with anti-cancer drugs.

If you notice new dark spots on your skin, have your doctor look at them to see if you might have KS.

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