

East African Medical Journal Vol. 81 No. 3 March 2004

KAPOSIS SARCOMA IN A NAIROBI HOSPITAL

J.F. Onyango, BDS, MSc, FDSRCS, Senior Lecturer, Department of Oral and Maxillofacial Surgery, Faculty of Dental Sciences, University of Nairobi
P.O. Box 19676, Nairobi, Kenya and A. Njiru, BDS, M. Dent. Sci., Consultant Oral Pathologist, Department of Pathology, Kenyatta National Hospital,
P.O. Box 20723, Nairobi, Kenya

Request for reprints to: Dr. J.F. Onyango, Department of Oral and Maxillofacial Surgery, Faculty of Dental Sciences, University of Nairobi, P.O. Box 19676, Nairobi, Kenya

KAPOSIS SARCOMA IN A NAIROBI HOSPITAL

J.F. ONYANGO and A. NJIRU

ABSTRACT

Background: Kaposi's sarcoma (KS) is associated epidemiologically with HIV infection and a number of countries have reported a dramatic increase in the incidence of KS with the advent of AIDS. Although AIDS is prevalent in Kenya, no studies on the impact of AIDS on the pattern of KS has been carried out.

Objective: To determine any changes in the pattern of KS that might have occurred since the advent of AIDS in the country.

Design: Retrospective descriptive study.

Setting: Kenyatta National Hospital (KNH).

Method: Pathology records of cases of KS diagnosed at KNH from 1968 to 1997 were analysed with respect to relative frequency, age, sex and site distribution; and trend. The period was divided into the pre and post AIDS era from 1983, which is the time the first AIDS patient was reported in the country.

Result: A total of 1108 cases of KS consisting of 911 males and 197 females were recorded. The relative frequency of KS ranged between 2% to 5% of the total malignancies. There was a gradual decline in the male to female ratio from about 10:1 in the sixties to about 2:1 in 1997. There was no dramatic difference in the age distribution in the pre- and post AIDS era, although a large number of cases were recorded as adults without age specification in the post AIDS era. Site distribution was characteristic of the disease with most of the cases having the lesions occurring in the lower limbs and involving the skin.

Conclusion: Although these findings do not demonstrate a dramatic alteration in the pattern of KS in the post AIDS era there were indications that such changes may have been obscured by under-reporting. The fall in the male:female ratio is a strong indication of a rise in KS among female patients. A further study is necessary to elucidate the true impact of AIDS on the pattern of KS in the country.

INTRODUCTION

Kaposi's sarcoma (KS) is the most common AIDS-associated malignancy(1,2) and a number of countries have reported a dramatic increase in the incidence of KS as a consequence of the increased incidence of AIDS. While AIDS has led to a dramatic increase in the rate of KS, the pattern of the disease shows variation with location and time(3,4). For example the pattern of AIDS-associated KS (AIDS-KS) in the west differs significantly from that in sub-Saharan Africa in terms of the relative risk, sex and age distribution as well as trend (5-14). Even within the same country the incidence of AIDS-KS is not uniform(3).

In spite of the high prevalence of AIDS in Kenya the pattern of KS in the country has not been studied so far. While it might be assumed to conform to that

seen in other sub-Saharan countries, it is still necessary to get accurate information on the disease within the country if meaningful strategies for treatment and prevention are to be made. This study therefore aimed at assessing the impact of the AIDS pandemic on the incidence of KS in Kenya by comparing the rates and pattern of KS before and after the advent of AIDS.

MATERIALS AND METHODS

The materials for this study were derived from pathology records in the Histopathology Department at KNH. All records of histologically confirmed cases of KS from 1968 to 1997 were analysed for age, sex, and site distribution. The relative frequency of the tumours was calculated relative to all malignancies diagnosed in the same period.

RESULTS

Relative frequency, gender and age distribution: The relative frequency is shown in Table 1. The yearly relative frequency of KS ranged between 2% and 5% of all malignancies recorded. This Table also shows a general decline in all malignancies recorded over the study period. The proportion of KS has however, remained relatively unchanged. The age of patients presenting with KS ranged from the 1st to the 8th decades (Figure 1). By far KS was predominantly a disease of the male in all age categories. A large number of adult cases, however, did not have their ages specified. Site distribution for KS is shown in Table 2. Most of the cases of KS involved the lower limbs followed by the upper limbs. The head and neck region was less commonly involved.

Figure 1

Age and sex distribution

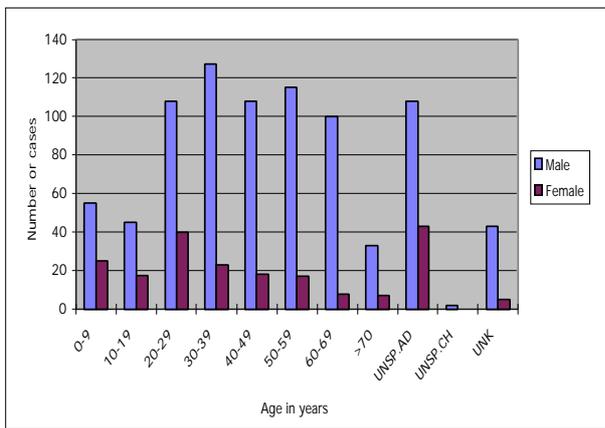


Figure 2

Age distribution of KS before and after the AIDS era

Table 1

Relative frequency of KS

| Year | Total Malignancies | KS | % |
|--------------|--------------------|-------------|-------------|
| 1968 | 1434 | 37 | 2.58 |
| 1969 | 1469 | 43 | 2.93 |
| 1970 | 1505 | 37 | 2.46 |
| 1971 | 1559 | 47 | 3.01 |
| 1972 | 1514 | 37 | 2.44 |
| 1973 | 1700 | 45 | 2.65 |
| 1974 | 1691 | 45 | 2.66 |
| 1975 | 1761 | 35 | 1.99 |
| 1976 | 1745 | 47 | 2.69 |
| 1977 | 1730 | 34 | 1.97 |
| 1978 | 1659 | 39 | 2.35 |
| 1979 | 1925 | 42 | 2.18 |
| 1980 | 1645 | 31 | 1.88 |
| 1981 | 1550 | 26 | 1.68 |
| 1982 | 1790 | 45 | 2.51 |
| 1983 | 1704 | 37 | 2.17 |
| 1984 | 1757 | 42 | 2.39 |
| 1985 | 1246 | 30 | 2.40 |
| 1986 | 939 | 22 | 2.34 |
| 1987 | 808 | 28 | 3.47 |
| 1988 | 734 | 25 | 3.41 |
| 1989 | 656 | 35 | 5.34 |
| 1990 | 867 | 44 | 5.07 |
| 1991 | 907 | 48 | 5.29 |
| 1992 | 734 | 35 | 4.77 |
| 1993 | 980 | 49 | 5 |
| 1994 | 598 | 29 | 4.85 |
| 1995 | 790 | 28 | 3.54 |
| 1996 | 829 | 37 | 4.46 |
| 1997 | 670 | 26 | 3.88 |
| Total | 38896 | 1105 | 2.84 |

Table 2

Distribution of KS lesions according to site

| Site | No. | % |
|------------------------|-------------|------------|
| Lower limb | 543 | 45 |
| Upper limb | 117 | 10 |
| Torso | 28 | 2 |
| Groin | 7 | 1 |
| Genito-inguinal | 22 | 2 |
| Head and Neck | 85 | 7 |
| Intra oral | 49 | 4 |
| Visceral | 9 | 1 |
| Unspecified skin | 243 | 20 |
| Unspecified lymph node | 76 | 6 |
| Unknown | 17 | 1 |
| Total | 1196 | 100 |

Table 3*Distribution of KS lesions according to gender*

| Year | Total | Male | Female | Unknown | M: F Ratio |
|-------|-------|------|--------|---------|------------|
| 1968 | 37 | 35 | 2 | – | 18:1 |
| 1969 | 44 | 41 | 3 | – | 14:1 |
| 1970 | 37 | 34 | 3 | – | 11:1 |
| 1971 | 47 | 36 | 11 | – | 3:1 |
| 1972 | 37 | 31 | 6 | – | 5:1 |
| 1973 | 45 | 36 | 9 | – | 4:1 |
| 1974 | 45 | 41 | 5 | – | 8:1 |
| 1975 | 36 | 32 | 4 | – | 8:1 |
| 1976 | 47 | 44 | 3 | – | 15:1 |
| 1977 | 34 | 29 | 5 | – | 6:1 |
| 1978 | 39 | 33 | 6 | – | 6:1 |
| 1979 | 44 | 37 | 7 | – | 5:1 |
| 1980 | 31 | 29 | 2 | – | 15:1 |
| 1981 | 26 | 20 | 6 | – | 3:1 |
| 1982 | 45 | 36 | 9 | – | 4:1 |
| 1983 | 37 | 33 | 4 | – | 8:1 |
| 1984 | 42 | 33 | 9 | – | 4:1 |
| 1985 | 30 | 26 | 4 | – | 7:1 |
| 1986 | 22 | 17 | 5 | – | 3:1 |
| 1987 | 28 | 22 | 6 | – | 4:1 |
| 1988 | 25 | 16 | 8 | 1 | 2:1 |
| 1989 | 35 | 29 | 6 | – | 5:1 |
| 1990 | 44 | 37 | 7 | – | 5:1 |
| 1991 | 48 | 39 | 9 | – | 4:1 |
| 1992 | 35 | 27 | 8 | – | 3:1 |
| 1993 | 49 | 37 | 12 | – | 3:1 |
| 1994 | 29 | 19 | 10 | – | 2:1 |
| 1995 | 28 | 17 | 11 | – | 2:1 |
| 1996 | 36 | 28 | 8 | – | 4:1 |
| 1997 | 26 | 17 | 9 | – | 2:1 |
| Total | 1108 | 911 | 197 | 1 | 5:1 |

Comparison between the pre and post AIDS era:

It can be seen from Table 1 that the relative frequency of KS before and after 1983 does not vary significantly although there is a gradual decline in the number of malignancies recorded. From Table 3 it is seen that the male to female ratio falls dramatically to stand at about 2:1 by 1977. The distribution before and after the AIDS pandemic shows no dramatic differences in the age distribution between the two periods (Figure 2).

DISCUSSION

With the advent of the AIDS pandemic there has been a dramatic increase in the incidence of KS in a number of countries(3). However, the pattern of occurrence and trend of the disease has differed from one country to another. In the west, the AIDS associated KS has been seen most commonly among homosexual or bisexual men. It is rarely seen among patients who have acquired HIV infection through heterosexual contact, intravenous drug use or vertical transmission. This pattern contrasts sharply with that seen in Africa. Here, both males and females; and paediatric patients

are equally affected. Indeed with the advent of AIDS the incidence of KS among females and children has more than doubled in some African series(5,12,16).

The presentation of the AIDS associated KS in the Kenyan population has not been studied so far although it may be assumed to conform to that seen in other African countries with which it shares geographic location and similar AIDS statistics. In Kenya the HIV/AIDS disease was first reported in 1983 among prostitutes(15) and has since spread to involve all strata of the society. By 1997 the overall national AIDS prevalence was estimated at 15% and was considered as one of the highest in the world(17). It would, therefore, be expected that the incidence of KS would be correspondingly high.

This study, however, does not support such expectations. Over the thirty-year study period the relative frequency of KS has not changed significantly, ranging between 2% to 5% of the total malignancies recorded. For a region where endemic KS has been reported to constitute between 3% to 9% of total malignancies(18,19) these figures do not reflect any impact of AIDS on the incidence of KS in this hospital population. This finding differs markedly from those reported from Uganda(6,12), Zimbabwe(14,20), Zambia(11,13), Rwanda(9,10) and South Africa(5,21) where there has been a dramatic increase in the incidence of KS with the advent of AIDS. Similarly there is no evidence of a dramatic rise in the incidence of KS among children in the post AIDS era in comparison with the pre AIDS era. The only significant change in this study is the gradual drop in the male to female ratio, which had previously stood at approximately 10:1 in the sixties but had dropped to 2:1 by 1997.

A number of hypotheses could be advanced to explain this rather unexpected presentation of KS in our study. However, our favoured view is that this study, which is hospital based, rather than a population-based survey, might have failed to give a true picture of KS in the country due to under-reporting. One can see the gradual decline of reported malignancies from a figure of 1434 in 1968 to less than one half; thirty years later in 1997. Clearly this cannot be taken as an indication of a decline of cancers in Kenya. If anything this figure should go up in keeping with population growth and improvement in health services. Furthermore the gradual fall in the male to female ratio is a fairly reliable indication of the rise of incidence of KS among female patients.

Under-reporting may occur for a number of reasons. First there may be a decline of biopsies being taken in the hospital. This is particularly true for KS, which is easily diagnosed on clinical grounds. Also when faced with the possibility of self injury and contraction of the AIDS disease a number of clinicians may be reluctant to carry out biopsies in AIDS patients. Secondly there may be a referral bias where patients

who are severely sick may not be referred for treatment from peripheral health facilities to a tertiary facility like KNH. Thirdly, due to the cost sharing programme introduced in government facilities recently many patients may fail to access healthcare due to financial problems. Fourthly, with the recent development of several alternative private health care facilities a number of cases may seek attention at these facilities and therefore be lost to a study such as this. Lastly, multiple pathology and rapid mortality associated with HIV infection may hide some cases of the AIDS-associated KS. Therefore, although this study does not show a dramatic rise in the incidence of KS in this selected population there is a strong indication of a dramatic rise of KS among female patients, which may have been obscured by under-reporting. However, while we strongly suspect that under-reporting is the reason for the unusual pattern of KS in view of the high rate of HIV infection in the country other reasons may well exist and warrant further study. A population-based study would be necessary to define the pattern of the disease in the population.

ACKNOWLEDGEMENTS

To the Director of the Kenyatta National Hospital for permission to publish this work. This work was approved by the ethical and research committee of the Kenyatta National Hospital.

REFERENCES

- Centers for Disease Control revised classification system for HIV infection and expanded surveillance of definition for AIDS among adolescents and adults. *Morb Mortal Wkly Rep.* 1992; 1993. **41**: (RR-17).
- Beral, V., Bull, D., Darby, S., *et al.* Risk of Kaposi's sarcoma and sexual practices associated with faecal contact in homosexual or bisexual men with AIDS. *Lancet.* 1992; **339**:632-635.
- Beral, V., Peterman, T. A., Berkelman, R.L., and Jaffe, H.W. Kaposi's sarcoma among persons with AIDS: a sexually transmitted infection? *Lancet.* 1990, **335**:123-128.
- Ledergerber, B., Telenti, A., and Effer, M. Risk of HIV related Kaposi sarcoma and non-Hodgkins Lymphoma with potent anti-retroviral therapy: Prospective cohort study. *Brit. Med. J.* 1999; **319**:23-24.
- Sitas, F., Pacella-Norman, R., Carrara, H, *et al.* The spectrum of HIV-1 related cancers in South Africa. *Int. J. Cancer.* 2000; **88**:489-492.
- Ziegler, J.L. and Katongole-Mbidde, E. Kaposi's sarcoma in childhood: an analysis of 100 cases from Uganda and relationship to HIV infection. *Int. J. Cancer.* 1997; **65**: 200-203.
- Wabinga, H.R., Parkins, D.M., Wabwire-Mangen, F., and Mugerwa J.W. Cancer in Kampala, Uganda in 1989-91: Changes in incidence in the era of AIDS. *Int. J. cancer.* 1993; **54**:23-36.
- Chokunonga, E., Levy L. M., Bassett M.T, *et al.* AIDS and cancer in Africa evolving epidemic in Zimbabwe. *AIDS* 1999; **13**:2583-2588.
- Newton, R., Grulich, A. and Beral, V. Cancer and HIV in Rwanda. *Lancet* 1995; **345**:1378-1379.
- Newton, R, Ngilimana, P.J. and Grulich, A. Cancer in Rwanda. *Int. J. Cancer.* 1996; **66**:75-81.
- Athale, U.H., Patil, P.S., Chintu, C. and Elem, B. Influence of HIV epidemic on the incidence of Kaposi's sarcoma in Zambian children. *J. Acquir. Immune Defic. Syndr. Hum. Retroviral.* 1995; **8**:96-100.
- Newton, R., Ziegler, J., Beral, V., *et al.* A case-control study of Human Immuno deficiency virus infection and cancer in adults and children residing in Kampala, Uganda. *Int. J cancer.* 2001; **92**:622-627.
- Patil, P., Elem, B., and Zumla, A. Pattern of adult malignancies in Zambia (1980-1989) in the light of the human Immuno deficiency virus type I epidemic. *J. Trop. Med. Hyg.* 1995; **98**:281-284.
- Bassett, M.T., Chokunonga, F., Mauchaza, B., *et al.* Cancer in the African population of Harare Zimbabwe, 1990-1992. *Int. J. Cancer.* 1995; **63**:24-28.
- Kresis, J.K., Kocch, D., Plummer F.A., *et al.* AIDS virus infection in Nairobi prostitutes. Spread of the epidemic to East Africa. *N. Engl. J. Med.* 1986; **314**:414-418.
- Chokunonga, E., Levy, L. M., Bassett, M.T., *et al.* Cancer incidence in the African population of Harare, Zimbabwe: Second results from the cancer registry 1993-1995. *Int. J Cancer.* 2000; **85**:54-59.
- National AIDS and STDs Control Programme, Estimating National HIV. Prevalence in Kenya from Sentinel Surveillance Data. The National AIDS and STDs Control Programme, Nairobi, Kenya June, report. 1999.
- Taylor, J.F. Templeton, A.C., Vogel, C.L., Ziegler, J.L., and Kyalwazi, S. Kaposi's sarcoma in Uganda: a clinico-pathologic study. *Int. J. Cancer.* 1971; **78**:122-135.
- Coon-Mozzaffari, P., Newton, R., Beral, V., and Burkitt, D.P. The geographic distribution of Kaposi's sarcoma and lymphomas in Africa before the AIDS epidemic. *Brit. J. Cancer.* 1998; **78**:1521-1528.
- Sitas, F., Bezwoda, W.R., Levin, V., *et al.* Association between human immuno deficiency virus type I infection and cancer in the black population of Johannesburg Soweto, South Africa. *Brit. J. Cancer.* 1997; **75**:1704-1706.