

# *De novo* anaplastic Kaposi sarcoma in a HIV-negative man: A case report and review of the literature

Slim Charfi<sup>1</sup>, Hend Chaabane<sup>2</sup>, Ikbel Chaari<sup>2</sup>, Rim Kallel<sup>1</sup>, Hamida Turki<sup>2</sup>, Tahya Sellami Boudawara<sup>1</sup>

<sup>1</sup>Department of Pathology, CHU Habib Bourguiba, Sfax, Tunisie, <sup>2</sup>Department of Dermatology, CHU Hedi Chaker, Sfax, Tunisie

**Corresponding author:** Prof. Slim Charfi, E-mail: charfislilm@gmail.com

## ABSTRACT

Anaplastic Kaposi sarcoma is a rare variant of Kaposi's and is typically associated with an aggressive clinical course. We report a case of a 67-year-old HIV negative man, presented with multiple, pink nodules on the left ankle and a keratotic lesion of the right heel. Initial histopathological exam concluded to an undifferentiated sarcoma. A second biopsy was performed and concluded to an anaplastic Kaposi sarcoma. Immunohistochemical study was positive for HHV8. Treatment consisted on a tumor excision of all lesions. Our case and the review of the literature highlight the benefit of the non conservative surgical treatment for this aggressive form of Kaposi sarcoma.

**Key words:** Anaplastic; Kaposi; Prognosis; Pathology

## INTRODUCTION

Kaposi sarcoma has the ability to develop into lesions of varying morphologic appearance. Anaplastic variant is the only variant associated with aggressive behaviour [1]. It is important to be able to recognize this variant in order to avoid potential misdiagnosis and improper management of affected patients. We present here a case of anaplastic KS in a HIV negative patient and a review of literature about anaplastic KS.

## CASE REPORT

A 67-year-old man with a history of type 2 diabetes, high blood pressure and deep vein thrombosis of the left lower leg presented with multiple 0.5-2 cm, pink nodules, located on the left ankle. On the right heel, we noted a keratotic nodular lesion (Fig. 1). All these lesions had a 2 months history. No lesions were noted in the oral mucosa. Laboratory test showed a biological inflammatory syndrome. HIV serology was negative. Clinical impression was that of Kaposi sarcoma and a punch biopsy of lesions was performed. Pathological

report, performed outside of our department concluded to an undifferentiated sarcoma. A second excisional biopsy was performed. Histopathological exam revealed an epidermal ulceration and dermal proliferation of spindle and epithelioid cells. Tumor cells are arranged in fascicles and solid sheets (Fig. 2). Irregular vascular spaces, suggestive of a vasoformative tumor, were focally noted. There are areas of necrosis. The nuclei were very pleomorphic with variably prominent nucleoli. Numerous mitosis were present (10 mitosis per 10 HPF). The stromal component included numerous plasma cells. Immunohistochemical study showed positivity for CD34, CD31 and HHV8 (Fig. 3). The diagnosis of anaplastic KS was made. Additional clinical workup including chest radiography, abdominal ultrasound and computed tomography scan of the chest, abdomen and pelvis were normal. Upper digestive endoscopy was not performed. Treatment has consisted on a complete electrosurgical shave tumor excision. At 13 months of follow-up, the patient was readmitted to our department for a disease progression with a fungiform exophytic mass of the left ankle (Fig. 4). No distant metastatic

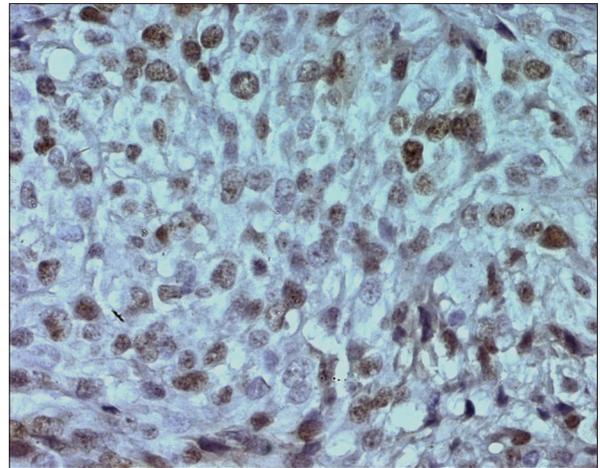
**How to cite this article:** Charfi S, Chaabane H, Chaari I, Kallel R, Turki H, Boudawara TS. *De novo* anaplastic Kaposi sarcoma in a HIV-negative man: A case report and review of the literature. Our Dermatol Online. 2017;8(3):296-299.

**Submission:** 18.09.2016; **Acceptance:** 24.11.2016

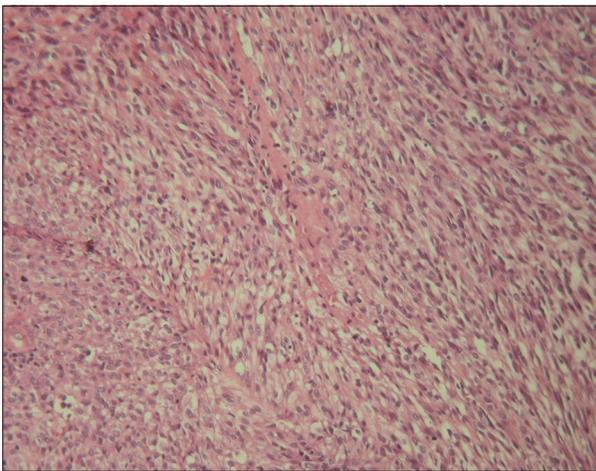
**DOI:** 10.7241/ourd.20173.85



**Figure 1:** Multiple round to oval, pink nodules on the left ankle ; keratotic nodular lesion of the right heel.



**Figure 3:** Positive immunohistochemical staining with HHV8. (HE x 400).



**Figure 2:** Solid haphazard proliferation of atypical spindle cells. (HE x 100).



**Fig. 4:** Fungiform exophytic mass of the left ankle.

recurrence was noted. A chemotherapy treatment was instated.

## DISCUSSION

Anaplastic KS was first described in 1959 by Cox and Helwig as KS with increased in the number of mitotic figures and marked cellular pleomorphism [2]. Anaplastic KS is an uncommon histologic variant, representing 0.4% to 2.7% of all the patients affected by KS [3-5]. Clinical data regarding all published cases of anaplastic KS with confirmed HHV8 association are detailed in Table 1. Anaplastic KS arises in patients with a history of KS, or *de novo*. Factors that predispose to anaplastic progression of KS are not well known [3]. Potential inducers, such as a long course of the disease, lymphedema, chemotherapy and immune

system defects in HIV patients are reported [4]. At the best of our knowledge only 14 *de novo* Anaplastic KS were published [3,5-8]. Nine of these cases were reported by Ramdial et al. [5]. Anaplastic histology has been described in the context of classic, african and AIDS-related KS [1]. Anaplastic KS appear to have a predilection for acral location [3-5,9,10]. Only three HIV negative patients with *de novo* anaplastic KS, as our case, were reported [3,8].

Clinical presentation of anaplastic KS is not specific; they present as pink to purple or reddish cutaneous nodules and/or plaques [4,7]. Some authors reported nodular areas growing rapidly to form a confluent fungiform exophytic mass that was in part ulcerated and necrotic [3,5]. Infiltration of the muscle or bone was described [4]. Salameire et al. report a case of 50-year-old woman who presented with several

**Table 1** : Clinical data regarding all published cases of anaplastic Kaposi sarcoma with confirmed HHV8 association

case	Authors	Age/sex	Time to progression	HIV	Lesion site	Metastasis	Treatment	Outcome
1	Satta et al. [3]	85/M	0 ( <i>de novo</i> )	-	Leg	-	Chemotherapy	Died*
2		74/M	0 ( <i>de novo</i> )	-	Leg	-	chemotherapy	Died*
3		82/M	5	-	Arm	Spleen, bones, liver	Chemotherapy	Died of KS
4		75/M	8	-	Leg	Liver	Chemotherapy	Died of KS
5		78/M	12	-	leg	-	Chemotherapy	Alive with KS
6	Tourlaki et al [4]	47/M	21	-	Leg	-	Chemotherapy, RT and amputation	Diead of KS
7		76/F	1	-	Leg	Regional lymph nodes	Chemotherapy and amputation	Died of KS
8		82/M	17	-	Leg	-	Ifosfamide, epirubicin, paclitaxel	Died of KS
9		68/M	17	-	Leg	Regional lymph nodes	Paclitaxel, vinblastine, amputation, vincristine, lymphadenectomy	CR
10		61/M	7	-	Leg	-	Vinorelbine, RT, tumor excision	CR
11		66/M	1	-	Leg	Regional lymph nodes	Vinorelbine, amputation	CR
12		67/M	22	-	Legs	Regional lymph nodes	Amputation, paclitaxel,	CR
13		84/F	1	-	Leg	-	Paclitaxel	CR, Died of pneumonia
14	Ramdial et al. [5]	42/M	0 ( <i>de novo</i> )	+	Leg	NA	NA	Died of AIDS cachexia
15		31/F	0 ( <i>de novo</i> )	+	Ankle	NA	NA	Died of pulmonary tuberculosis
16		22/M	0 ( <i>de novo</i> )	+	Leg	NA	NA	Alive with KS
17		26/F	0 ( <i>de novo</i> )	+	Wrist	NA	NA	Lost to follow-up
18		47/M	0 ( <i>de novo</i> )	+	Ankle	NA	NA	Died of AIDS cachexia
19		32/M	0 ( <i>de novo</i> )	+	Thigh	NA	NA	Lost to follow-up
20		37/M	0 ( <i>de novo</i> )	+	Leg	NA	NA	Lost to follow-up
21		30/F	0 ( <i>de novo</i> )	+	Leg	NA	NA	Died of pulmonary tuberculosis
22		26/M	0 ( <i>de novo</i> )	+	Thigh	NA	NA	Lost to follow-up
23	Yu et al. [7]	53/M	0 ( <i>de novo</i> )	+	Face, chest, abdomen and Back arm	Cervical, axillary and inguinal lymph nodes, lungs	Chemotherapy (liposomal doxorubicin)	Died of KS
24	Salameire et al. [8]	50/F	0 ( <i>de novo</i> )	-	arm	-	Elastic contension and liposomal doxorubicin	CR
25	raddock et al.[9]	43/M	13	+	legs	-	Liposomal doxorubicin paclitaxel	Alive with KS
26	Gambasi et al [10]	82/M	0.5	-	feet	stomach	Vinblastine	Died of KS
27	Cerimele et al [12]	55/M	28	-	arm	-	Etoposide mitoxantrone arm amputation	CR
28	Our case	67/M	0 ( <i>de novo</i> )	-	Ankle	-	Tumor excision	Alive with KS

F : female ; M : male ; RT : radiotherapy ; CR : complete remission ; NA : data not available \* : cause of death not known

nodules on lymphedematous arm, 2 yeras after a left mastectomy and a homolateral lymphadenectomy, mimicking a stewart-treves syndrome [8].

Anaplastic KS dispalys a significantly greater degree of nuclear and cellular pleomorphism than conventional

nodular KS [1,11]. In addition, there is an increased mitotic activity (mitotic figures range from 10 to 20 per 10 hpf) and atypical mitosis may be encountered (radu, grayson). Necrosis is occasionally noted [9]. The stromal component, like that of classical KS and as reported in our case is plasma cell-rich and contains

extravasated erythrocytes [7]. The vasoformative nature of anaplastic KS is not readily apparent. As in our report, Ramdial et al. reported three cases of anaplastic KS with initial erroneous diagnosis (malignant peripheral nerve sheath tumor in two cases and metastatic melanoma in one case). In fact, many other malignant spindle cell neoplasms might be entertained in the histologic differential diagnosis of anaplastic KS. It includes certain sarcomas (leiomyosarcoma, spindle cell rhabdomyosarcoma, malignant peripheral nerve sheath tumor, fibrosarcoma), amelanotic spindle cell melanoma, especially when present on acral sites and spindle cell carcinoma [5]. Angiosarcoma must also be considered, particularly if erythrocytes are identified between the markedly atypical spindled cells [9]. A panel of immunohistochemical stains is often required to confirm the diagnosis of anaplastic KS. This panel must include HHV8. Immunostaining for S100 protein can lead to diagnostic pitfalls; in fact Ramdial et al demonstrates the presence of S100 positive cells corresponding to langerhans cells in anaplastic KS [5].

Anaplastic KS is clinically associated with high local aggressiveness, deep invasion and increased metastatic behavior [1,3,7]. Considering our case and those described in the literature, we observe that among 28 patients with anaplastic KS, 9 died of anaplastic KS, 7 died of other causes (including four HIV positive patients) and 2 were alive with anaplastic KS [3-5,7-10,12]. Satta et al. supported an intrinsic genetic instability of the malignant cell resulting in clonal progression of the neoplastic phenotype [3]. Craddock et al. reports that anaplastic portion of the KS respond well to paclitaxel and no liposomal doxorubicin, while the background typical KS lesions have had the opposite behaviour with these two therapies [9]. In the report of Salameire et al, a total regression of the lesion was obtained by elastic contention and intradermic liposomal doxorubicin [8]. Tournalaki et al recommend an aggressive approach, more specifically a non-conservative surgical treatment associated with systemic chemotherapy. Amputation due to deep tissue invasion may be required [4]. Our patient treated with only tumor excision, a frankly disease progression was noted at 13 months of diagnosis.

Anaplastic variant of KS is a poorly recognized associated to an aggressive clinical course and poor prognosis. Histopathological differential diagnoses include numerous undifferentiated high grade malignancies. Non conservative surgical treatment seems appropriate for these patients.

## Consent

The examination of the patient was conducted according to the Declaration of Helsinki principles.

## REFERENCES

1. Grayson W, Pantanowitz L. Histological variants of cutaneous Kaposi sarcoma. *Diagn Pathol.* 2008;3:31.
2. Cox FH, Helwig EB. Kaposi's sarcoma. *Cancer.* 1959;12:289-98.
3. Satta R, Cossu S, Massarelli G, Cottone F. Anaplastic transformation of classic Kaposi's sarcoma: clinicopathological study of five cases. *Br J Dermatol.* 2001;145:847-9.
4. Tournalaki A, Recalcati S, Boneschi V, Gaiani F, Colombo A, Mancuso R, et al. Anaplastic Kaposi's sarcoma: a study of eight patients. *Eur J Dermatol.* 2013;23:382-6.
5. Ramdial PK, Sing Y, Naicker S, Calonje E, Sewram V, Singh B. Langerhans cells in anaplastic Kaposi sarcoma with a paucivascular phenotype: a potential diagnostic pitfall. *Pathol Int.* 2011;61:221-7.
6. Smith KJ, Skelton HG 3rd, James WD, Barrett TL, Anderson DW, Angritt P. Angiosarcoma arising in Kaposi's sarcoma (pleomorphic Kaposi's sarcoma) in a patient with human immunodeficiency virus disease. *Armed Forces Retroviral Research Group. J Am Acad Dermatol.* 1991;24:790-2.
7. Yu Y, Demierre MF, Mahalingam M. Anaplastic Kaposi's sarcoma: an uncommon histologic phenotype with an aggressive clinical course. *J Cutan Pathol.* 2010;37:1088-91.
8. Salameire D, Templier I, Charles J, Pinel N, Morand P, Leccia MT, et al. An "anaplastic" Kaposi's sarcoma mimicking a Stewart-Treves syndrome. A case report and a review of literature. *Am J Dermatopathol.* 2008;30:265-8.
9. Craddock KJ, Labonte S, Ghazarian D. Anaplastic Kaposi sarcoma resembling epithelioid angiosarcoma in an HIV-positive man. *Eur J Dermatol.* 2008;18:358-9.
10. Gambassi G, Semeraro R, Suma V, Sebastio A, Incalzi RA. Behavior of Classical Kaposi's Sarcoma and Coexistence With Angiosarcoma. *J Gerontol A Biol Sci Med.* 2005;4:520-3.
11. Radu O, Pantanowitz L. Kaposi sarcoma. *Arch Pathol Lab Med.* 2013;137:289-94.
12. Cerimele D, Carlesimo F, Fadda G, Rotoli M, Cavalieri S. Anaplastic progression of classic Kaposi's sarcoma. *Dermatology.* 1997;194:287-9.

Copyright by Slim Charfi, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Source of Support:** Nil, **Conflict of Interest:** None declared.