CASE REPORT

NODULAR LESIONS IN AN ELDERLY PATIENT REVEALED BY DERMOSCOPY.

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ABSTRACT

Background: Kaposi sarcoma (KS) is a vascular neoplasm associated with infection by Human Herpesvirus-8 (HHV-8). Although classical KS typically affects elderly men of Mediterranean or Eastern European origin, its clinical presentation may mimic a variety of benign and malignant vascular tumors, posing diagnostic challenges. Dermoscopy has emerged as a valuable noninvasive tool, particularly for identifying the characteristic rainbow pattern.

Case Presentation: A 72-year-old Caucasian man presented with two slowly enlarging nodules located on the upper and lower extremities. The lesions had progressively increased in size over several months and were asymptomatic. The patient had a history of diabetes mellitus and no history of recent travel or animal exposure. Laboratory investigations were unremarkable, and HIV serology was negative. Imaging studies, including whole-body computed tomography and ultrasonography, excluded lymphadenopathy and internal malignancies. Dermoscopic examination revealed a polychromatic rainbow pattern. Histopathological evaluation demonstrated spindle-cell proliferation with slit-like vascular spaces containing erythrocytes. Immunohistochemical staining showed positivity for CD34, D2-40, and HHV-8, confirming the diagnosis of Kaposi sarcoma. Given the localized disease, radiotherapy was selected as the treatment of choice.

Conclusions: Through this case, we discuss the importance of integrating dermoscopy, histopathology, and immunohistochemistry in diagnosing Kaposi sarcoma. Recognition of the rainbow pattern may facilitate early diagnostic suspicion and prompt confirmation with biopsy.

Keywords: Kaposi sarcoma, dermoscopy, rainbow pattern, HHV-8, immunohistochemistry, radiotherapy.

LEZIONET NODULARE NË NJË PACIENT TË MOSHUAR TË ZBULUAR ME DERMATOSKOPI

ABSTRAKT

Hyrje: Sarkoma e Kaposit (SK) është një neoplazi vaskulare e lidhur me infeksionin nga Human Herpesvirus-8 (HHV-8). Megjithëse forma klasike e SK prek zakonisht meshkuj të moshuar me origjinë mesdhetare ose të Evropës Lindore, paraqitja klinike e saj mund të ngjasojë me tumore të ndryshme vaskulare beninje dhe malinje, duke paraqitur sfida diagnostike. Dermoskopia është shfaqur si një mjet i vlefshëm jo invaziv, veçanërisht përmes identifikimit të modelit karakteristik të ylbertë (rainbow pattern).

Paraqitja e rastit: Një burrë kaukazian 72-vjeçar u paraqit me dy noduse me rritje të ngadaltë, të lokalizuara në ekstremitetet e sipërme dhe të poshtme. Lezionet ishin rritur progresivisht në përmasa gjatë disa muajve dhe ishin asimptomatike. Pacienti kishte histori të diabetit mellitus dhe nuk raportonte udhëtime të fundit apo ekspozim ndaj kafshëve. Ekzaminimet laboratorike rezultuan pa gjetje të veçanta dhe serologjia për HIV ishte negative. Ekzaminimet imazherike, përfshirë tomografinë e kompjuterizuar të të gjithë trupit dhe ultrasonografinë, përjashtuan praninë e limfadenopative dhe maligniteteve të brendshme. Ekzaminimi dermoskopik zbuloi një model polikromatik të tipit rainbow pattern. Vlerësimi histopatologjik tregoi proliferim të qelizave fusiforme me hapësira vaskulare në formë çarjesh që përmbanin eritrocite. Ngjyrosja imunohistokimike rezultoi pozitive për CD34, D2-40 dhe HHV-8, duke konfirmuar diagnozën e sarkomës Kaposi. Duke qenë se sëmundja ishte e lokalizuar, radioterapia u zgjodh si trajtimi i preferuar.

Përfundime: Nëpërmjet këtij rasti, diskutojmë rëndësinë e integrimit të dermoskopisë, histopatologjisë dhe imunohistokimisë në diagnostikimin e sarkomës Kaposi. Njohja e modelit rainbow pattern mund të lehtësojë ngritjen e hershme të dyshimit diagnostik dhe të mundësojë konfirmimin e shpejtë përmes biopsisë.

Fjalë kyçe: Sarkoma Kaposi, dermoskopia, modeli ylber (rainbow pattern), HHV-8, imunohistokimia, radioterapia.

INTRODUCTION

Kaposi sarcoma (KS) is a multifocal angioproliferative neoplasm linked to Human Herpesvirus-8 (HHV-8), also known as Kaposi sarcoma-associated herpesvirus (1). It was first described in 1872 by the Hungarian dermatologist Moritz Kaposi as a multifocal pigmented skin sarcoma affecting elderly European men (2). Four epidemiological variants have been described: classical, endemic African, iatrogenic, and epidemic (HIV-associated) KS. Classical KS typically presents as slowly progressive violaceous macules, plaques, or nodules involving the lower extremities (1-3).

The incidence of classical KS varies geographically. Before the HIV/AIDS epidemic, KS was a rare cancer, with incidence rates ranging from 0.01 per 100,000 person-years in the United Kingdom to 1.6 per 100,000 person-years in Sardinia, and it occurred 2–3 times more frequently in men than in women. Recent international data reported KS incidence rates of 280 per 100,000 person-years in South Africa, 244 per 100,000 in Latin America, 237 per

100,000 in North America, 180 per 100,000 in Europe, and 52 per 100,000 in the Asia-Pacific region. HHV-8 infection is considered necessary, although not sufficient, for tumor development. Additional factors, including immune dysregulation, aging, and chronic inflammation, contribute to disease pathogenesis (1,3,4).

The diagnosis of KS may be challenging because its clinical appearance overlaps with several vascular and spindle-cell neoplasms. Dermoscopy has become increasingly useful in daily dermatologic practice. Among the dermoscopic features reported, the rainbow pattern has attracted particular attention and histologically is correlated with the presence of hyaline globules (5). Cheng et al. reported that this multicolored appearance is one of the most characteristic dermoscopic findings of KS and may serve as an important clue prompting histopathological confirmation (6).

We report a case of nodular Kaposi sarcoma in an elderly patient in whom dermoscopy, histopathology, and immunohistochemistry played complementary roles in establishing the diagnosis.

CASE PRESENTATION

A 72-year-old Caucasian male was referred to our dermatology department for evaluation of two slowly growing nodules located on the upper and lower extremities (Fig. 1).

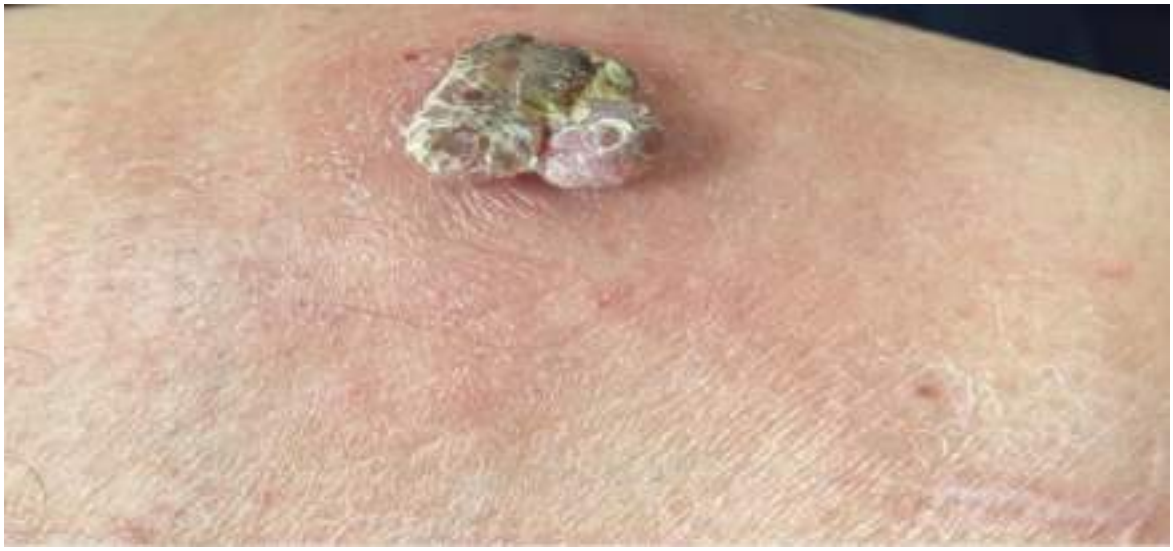

Figure 1. Clinical picture of the nodular lesion located in the forearm.

According to the patient, the lesions gradually enlarged over several months without pain, pruritus, bleeding, or ulceration. His medical history was significant for type 2 diabetes mellitus. He denied recent travel, animal contact, immunosuppressive therapy, or prior malignancies. Physical examination revealed two well-defined, skin-colored nodules. No mucosal lesions or palpable lymphadenopathy were noted.

Laboratory investigations, including routine hematologic and biochemical analyses, showed no significant abnormalities. HIV serology was negative. Whole-body computed tomography and ultrasonography revealed no lymph node enlargement or visceral involvement. Dermoscopic examination under polarized light showed a polychromatic appearance with a rainbow pattern (Fig. 2), along with whitish structures and vascular features.

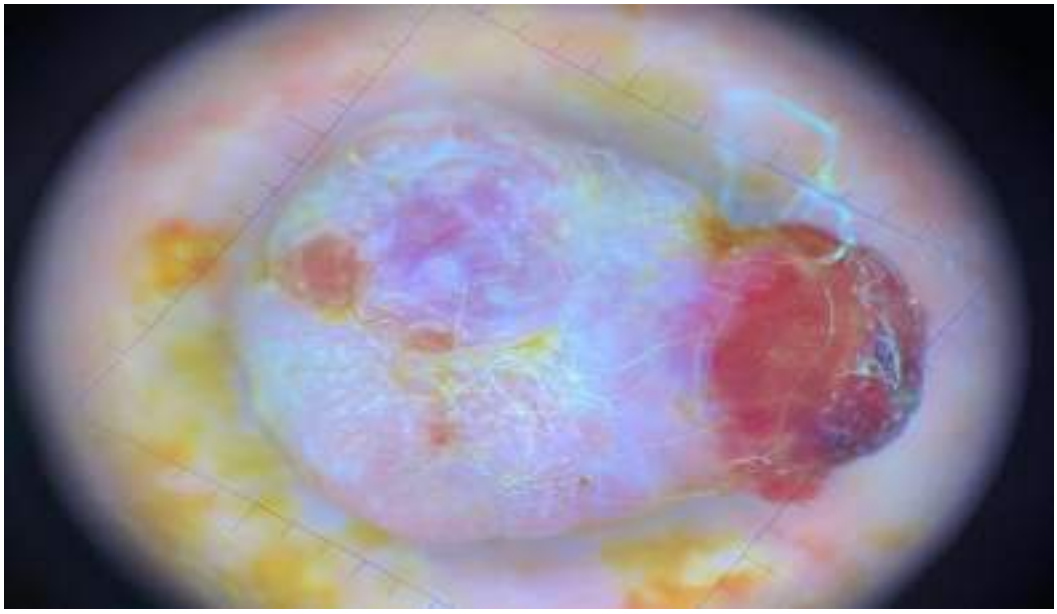

Figure 2. Dermoscopy of the nodular Kaposi sarcoma with a rainbow pattern.

A skin biopsy was performed. Histopathological examination revealed a nodular proliferation of spindle-shaped cells arranged in fascicles, associated with slit-like vascular spaces containing erythrocytes and a mixed inflammatory infiltrate. Immunohistochemical analysis demonstrated positivity for CD34, D2-40, and HHV-8 (Fig. 3), confirming the diagnosis of Kaposi sarcoma.

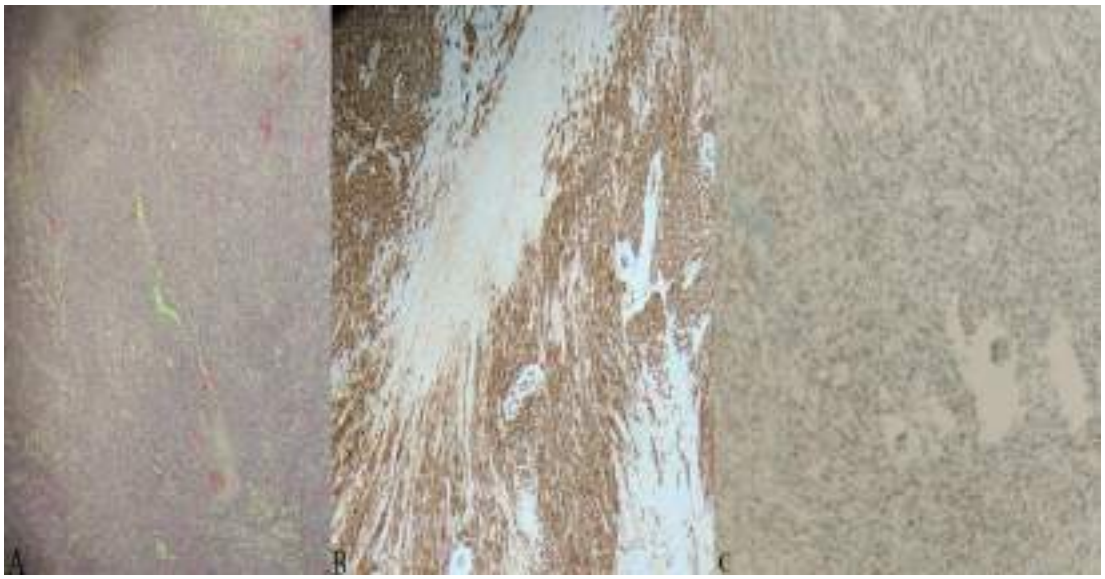

Figure 3. Histopathology. A) H&E staining showing the lobular architecture. B) Immunohistochemistry positive for CD34. C) Immunohistochemistry positive for HHV-8.

Considering the localized nature of the disease, the absence of visceral involvement, and the limited number of lesions, radiotherapy was selected as the preferred therapeutic approach. This decision was based on the well-established radiosensitivity of localized KS and the excellent cosmetic and therapeutic outcomes reported in the literature.

DISCUSSION

Kaposi sarcoma (KS) is a low-grade vascular neoplasm characterized by endothelial and spindle-cell proliferation driven by infection with Human Herpesvirus-8 (HHV-8). Since its first description, the disease has evolved from being considered a rare dermatologic entity to a well-recognized vascular tumor with distinct epidemiological variants. Although HIV-associated KS remains the most prevalent form worldwide, classical KS continues to represent an important diagnostic consideration in elderly individuals, particularly in Mediterranean and Eastern European populations (1,3,7).

The patient described in our report aligns with the demographic profile of classical Kaposi sarcoma, presenting as an elderly male with slowly progressive nodular lesions and no evidence of HIV infection or systemic immunosuppression. Classical KS typically follows an indolent clinical course and predominantly affects the lower extremities; however, lesions may also occur at other anatomical sites, as observed in our patient. Because the clinical presentation can be highly variable, a diagnosis based solely on visual inspection may be challenging.

The pathogenesis of KS is complex and multifactorial. HHV-8 infection is considered a necessary prerequisite for disease development, yet only a minority of infected individuals develop tumors (8). Cesarman et al. reported that HHV-8 promotes oncogenesis by interacting with host pathways that regulate angiogenesis, inflammation, apoptosis, and cell proliferation. Viral proteins stimulate the production of vascular endothelial growth factor (VEGF), basic fibroblast growth factor (bFGF), interleukin-6, and other proangiogenic mediators, leading to the characteristic vascular proliferation observed in KS lesions (1). In classical KS, age-related immune dysregulation may further contribute to disease development by facilitating viral persistence and endothelial transformation (4).

One of the most notable features of the present case is its dermoscopic appearance. Dermoscopy has become an indispensable diagnostic tool in modern dermatology and increasingly plays a role in assessing vascular tumors (9). Among the dermoscopic features described in Kaposi sarcoma, the rainbow pattern is considered one of the most characteristic findings. Under polarized dermoscopy, it appears as multiple colors forming a polychromatic structure (5,6). Initially thought to be pathognomonic of KS, subsequent studies have shown that rainbow patterns may be observed in other vascular and hemorrhagic lesions (10). Nevertheless, the presence of this feature should raise strong suspicion for Kaposi sarcoma, especially in the appropriate clinical context (5,6,9,10). The optical basis of the rainbow pattern remains incompletely understood. Current theories suggest that it results from diffraction and polarization of light within densely packed vascular channels and spindle-cell bundles. Extravasated erythrocytes may further contribute to this appearance (11). In our patient, identification of a rainbow pattern significantly narrowed the differential diagnosis and prompted histopathological confirmation.

The differential diagnosis of nodular Kaposi sarcoma is broad and includes both benign and malignant conditions. Bacillary angiomatosis is a major clinical mimic, particularly in immunocompromised patients. Both diseases may present as violaceous papules and nodules; however, bacillary angiomatosis typically shows lobular capillary proliferation with prominent neutrophilic inflammation and Bartonella organisms detectable with special stains

(12). Pyogenic granuloma may resemble nodular KS because of its vascular appearance and reddish coloration. Unlike KS, pyogenic granuloma typically grows rapidly, bleeds easily, and histologically exhibits a lobular capillary architecture without spindle cells or HHV-8 expression (9). Angiosarcoma shares the vascular nature and violaceous appearance of KS but is generally more aggressive. Histologically, angiosarcoma shows marked cellular atypia, pleomorphism, and numerous mitoses, features that are absent or minimal in KS. Furthermore, angiosarcoma is HHV-8 negative (9). Dermatofibrosarcoma protuberans (DFSP) can present as a slowly enlarging nodular lesion similar to KS. However, DFSP is characterized by a storiform spindle-cell proliferation infiltrating the subcutaneous fat and lacks the vascular spaces and HHV-8 positivity typical of KS (13). Merkel cell carcinoma may clinically resemble nodular KS in elderly patients. However, it expresses CK20 and neuroendocrine markers, whereas KS demonstrates vascular differentiation and HHV-8 positivity (13). Rosai-Dorfman disease may occasionally manifest as cutaneous nodules, but it is distinguished by large S100-positive histiocytes showing emperipolesis, a feature not seen in KS (14). Pseudo-Kaposi sarcoma (acrocangiodermatitis) may present with violaceous plaques or nodules on the lower extremities. However, pseudo-Kaposi sarcoma is a reactive vascular proliferation associated with venous insufficiency and lacks HHV-8 positivity and true spindle-cell neoplastic proliferation (15).

Histopathology remains the gold standard for diagnosis. The characteristic microscopic features of KS include spindle-cell proliferation, slit-like vascular spaces, erythrocyte extravasation, hemosiderin deposition, and inflammatory infiltrates rich in plasma cells. However, histological overlap with other vascular neoplasms occasionally necessitates immunohistochemical confirmation. HHV-8 latent nuclear antigen-1 (LNA-1) staining is considered the most specific diagnostic marker and has significantly improved diagnostic accuracy in recent decades. Positive HHV-8 staining, together with expression of vascular markers such as CD34 and D2-40, established the diagnosis in our patient and effectively excluded alternative spindle-cell tumors (1,16).

An additional strength of this case is its multimodal diagnostic approach, combining clinical examination, dermoscopy, histopathology, and immunohistochemistry. Increasing evidence supports using dermoscopy as an intermediate step between clinical suspicion and tissue diagnosis, enabling clinicians to identify lesions that warrant biopsy and facilitating earlier diagnosis. In daily practice, recognizing dermoscopic clues, such as the rainbow pattern, may shorten diagnostic delay and reduce the likelihood of misclassification as benign vascular lesions.

A staging system for classical Kaposi sarcoma was proposed in 2003, classifying disease into four stages (macular–nodular, infiltrative, florid, and disseminated). However, this classification has not been prospectively validated; therefore, there is no specific prognostic staging system for classical KS (17). Treatment selection in Kaposi sarcoma depends on disease subtype, number of lesions, anatomical distribution, symptoms, cosmetic concerns, and systemic involvement. Localized disease can often be managed successfully with local therapies, including surgical excision, intralesional chemotherapy, or radiotherapy. In contrast, disseminated disease may require systemic treatment such as liposomal doxorubicin, paclitaxel, interferon-alpha, or targeted therapies (18). Radiotherapy was chosen for our patient because the lesions were localized and there was no evidence of visceral disease.

Kaposi sarcoma is highly radiosensitive, and radiotherapy has consistently demonstrated excellent response rates. Several studies have reported local control rates of 80%-90%, with significant symptomatic improvement and favorable cosmetic outcomes. Radiotherapy avoids surgical morbidity and is particularly suitable for elderly patients or cosmetically sensitive areas. The literature supports doses of 20 to 30 Gy for localized disease, providing durable tumor control while minimizing adverse effects (18-20).

CONCLUSIONS

The identification of a rainbow pattern in a nodular lesion should prompt consideration of Kaposi sarcoma. Although not entirely specific, this dermoscopic finding may represent an important diagnostic clue when interpreted in the appropriate clinical context. For localized disease, radiotherapy represents a highly effective therapeutic option, offering excellent local control and favorable cosmetic outcomes. Early recognition and multidisciplinary evaluation remain essential for optimal patient management.

Patient Consent: Written informed consent was obtained from the patient (or his legal guardians) for publication of the clinical data and identifiable clinical images.

Conflict of Interest: The authors declare no conflict of interest.

Author Contributions: All authors contributed to the preparation of the manuscript and approved the final version.

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