KAPOSIFORM HEMANGIOENDOTHELIOMA

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Kaposiform hemangioendotelioma is a rare vascular tumour, that typically appears during infancy or early childhood. The most serious complication is the Kasabach-Merritt phenomenon, a life-threatening coagulopathy. The heterogeneity and the presence of disease-related comorbidities make the management of KHE challenging. Although there's no consensus on the pharmacological treatment of nonresectable tumours, encouraging results have been seen in the last years with sirolimus, suggesting that it should be considered the preferred first-line therapy. There are no guidelines for surveillance, although long-term follow-up is advised to monitor for sequelae.

Kaposiform hemangioendothelioma (KHE) is a rare, locally aggressive vascular tumour, usually of congenital nature or diagnosed shortly after birth, even though some cases have been described in adolescents. The exact incidence is unknown, although some estimate it to be 0.071/100,000 children.[1]

It usually presents as a deep red mass, classically on distal extremities, but many unusual sites including the head and neck region and viscera without cutaneous involvement have also been reported. It has an infiltrative and destructive growth pattern, often involving the entire dermis and extending into the subcutaneous tissue or bone. The cause is unknown and both genders and all ethnicities appear to be equally affected, although a slight male predominance has been described.[2]

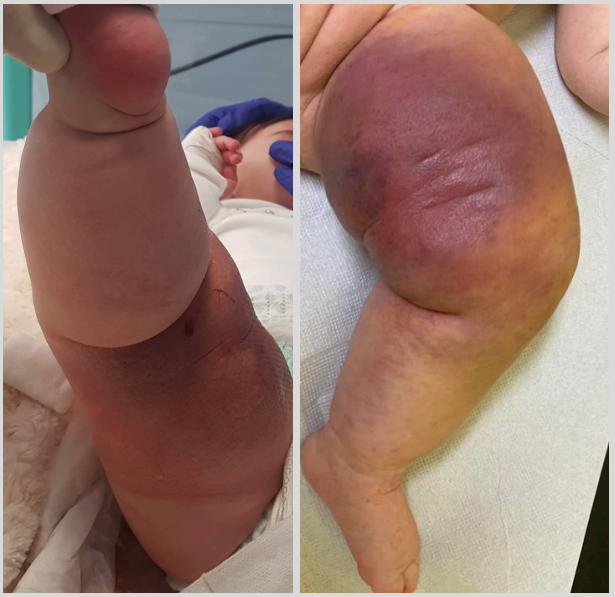
Kasabach-Merritt phenomenon (KMP) is a rare but life-threatening complication characterised by very low platelet count, anaemia, and consumptive coagulopathy. It occurs in up to 70% of patients with KHE and represents an aggressive tumour progression. It is known to occur exclusively in association with some specific vascular tumours: KHE and tufted angioma (TA), which some consider to be different forms of the same disease.[12]

Complications and severity depend largely on age, lesion size and deep extension, proximity to vital organs and hematologic abnormalities. The diagnosis requires a combination of clinical findings, imaging, haematology and/or histology. When safe, biopsy should be considered, although it's often challenging due to the location of the tumour or associated KMP, and can even worsen the coagulopathy.[4, 5]

Microscopically, it is characterised by a combination of nodular and spindle cell growth patterns, which may be surrounded by an ectatic lymphatic channel. Immunohistochemical staining shows that endothelial cells in KHE lesions are positive both for vascular endothelial markers CD31 and CD34, lymphatic endothelial markers VEGFR-3, D2-40, lymphatic endothelial hyaluronan receptor-1 and Prox-1, but negative for glucose transporter-1 (Glut-1).[6]

Due to the heterogeneous clinical, imaging and haematological findings, there is an extensive list of differential diagnoses that, if not correctly addressed, can lead to delayed or erroneous treatment.[2]

Management includes supportive therapy for KMP and treatment of the underlying tumour. Surgery is the treatment of choice for small, well-circumscribed tumours, although the majority is not usually amenable to safe resection. There is evidence that manipulation of the tumour from surgery or trauma can elicit KMP.[2,4]



4 month-old girl with the typical presentation of a KHE with KMP. A tumor on the thigh, that grew progressively after birth, with the appearance of a deep reddish-purple color mass, shiny, firm, warm to the touch, swollen and painful.

Source: Courtesy of the ANOVASC patients pictures database.

Due to its extraordinary rarity, there are no randomised controlled trials to determine the best treatment. Expert consensus treatment guidelines were proposed in 2013.7 In recent years, as sirolimus has become more widely available, several studies have demonstrated its efficacy in KHE with or without associated KMP.

Currently, most experts recommend the use of sirolimus plus prednisolone (or methylprednisolone), with or without vincristine, as the first-line therapy for patients with KHE with KMP.

Supportive care is of utmost importance in the face of this life-threatening disease, where there is a risk of bleeding or pain. Platelet transfusion should be reserved for active bleeding or the need for invasive procedures, as it may worsen the tumour.[7-11]

Despite new advances in genetics basis[12] and treatment in recent years, morbidity remains high. Long-term sequelae depend on several factors and include cutaneous and muscle atrophy, progressive thoracolumbar scoliosis, chronic pain, oedema and functional and aesthetic impairment.

The standard of care for the treatment of complex and rare vascular anomalies such as KHE should always be in the setting of a multidisciplinary team, able to centralize expertise, foster investigation and ultimately lead to better patient outcomes.

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FURTHER RESOURCES ON KAPOSIFORM HEMANGIOENDOTHELIOMA

The VASCA Working Group has produced a suite of resources to support clinicians and families navigating Kaposiform Hemangioendothelioma diagnosis and management. Click each title below to access:

VASCA-WG diagnostic and management pathway for kaposiform hemangioendothelioma

The VASCERN-VASCA working group diagnostic and management pathways for kaposiform hemangioendothelioma

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