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Case Report

Vincristine: A new treatment option for Kasabach-Merritt Syndrome

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ABSTRACT: Kasabach-Merritt syndrome (KMS) is characterized by a rapidly enlarging hemangioma, thrombocytopenia, microangiopathic hemolytic anemia and consumption coagulopathy as a result of platelet and red blood cell trapping and activation of clotting system within the vasculature of hemangioma. This syndrome is shown to be associated with kaposiform hemangioendotheliomas or tufted hemangioma.

KEY WORDS: ***Kasabach-Merritt Syndrome; Microangiopathic hemolytic anemia; Thrombocytopenia; Consumption coagulopathy***

INTRODUCTION

KMS is a rare disease, usually of infants, in which a vascular tumor leads to decreased platelet counts and sometimes other bleeding problems which can be life-threatening.[1] It is also known as Hemangioma thrombocytopenia syndrome. It carries the names of Dr Haig Haigouni Kasabach and Dr Katharine Krom Merritt, the two pediatricians who first described the condition in 1940.[2] The diagnosis is based upon three basic findings; enlarging hemangioma, thrombocytopenia and consumption coagulopathy. The thrombocytopenia and consumption coagulopathy is known as Kasabach-Merritt phenomenon.[3] Untreated Kasabach-Merritt syndrome has a 10-37% mortality rate.[4]

CASE REPORT

I present a case of a 4 month old male child admitted to department of Pediatrics for the complaints of swelling on right cheek at right corner of mouth. This child was a product of full term uncomplicated pregnancy and was delivered by lower segment cesarean section. There was no history of consanguinity. According to the mother, there was a bluish purple birth mark of approximately 5cm x 5cms at the right corner of mouth at birth. This mark progressively increased in size and gradually involved whole right cheek with posterior extension up to right ear lobule. Because of this swelling the child was not able to take feeds for the last few days. The developmental milestones were normal as per age and he was on exclusive breast milk feeding. On examination it was a pink colored hemangioma of approximately 15cm x 15cm in size (**Figure 1**). Because of it, the child was unable to open his mouth sufficient for feeding. We started treatment with oral prednisolone (2mg/kg/day) but there was no reduction in the size of swelling after 2 weeks of therapy. During the hospital stay, one morning, the child developed bleeding from the local swelling site and also multiple petechial spots all over the body. So, coagulation profile of the child was assessed. The investigations showed platelet count - 5000/mm^3, prothrombin - more than 1 min (control - 10.9 Seconds) with Prothrombin concentration < than 10% (reference range 70 - 130%) and APTT more than 2 minutes (control 26.05 seconds). Keeping the possibility of consumptive coagulopathy in view, the child was further investigated and this showed plasma fibrinogen less than 50 mg/dl and D-dimer levels more than 500 ng/ml. This triad of hemangioma, thrombocytopenia and consumption coagulopathy led to the diagnosis of KMS.

To control the life threatening bleeding, the patient was given 5 units of platelet transfusions, 1 unit of packed red cell transfusions and 2 units of fresh frozen plasma transfusions. After the two weeks of the conventional steroid with no therapeutic benefit, injectable Vincristine was started in dose of

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0.05 mg/kg/week. At the time of initiation of Vincristine treatment, the platelet count was 9600/mm^3. After 3 weeks of Vincristine, the platelet count increased to 1, 06,000/mm^3 along with 25% reduction in the size of swelling. Vincristine was continued for a total period of 6 weeks. After starting treatment with Vincristine, no further transfusions were required and child started breast feeding normally**.** At the end of chemotherapy by Vincristine for 6 weeks, there was a small lesion 6 cm x 4 cms size, which was planned for surgery later in life if it increases in size at all. The patient was followed till 1 year of age; the features of coagulopathy subsided during admission and never recurred after discharge and tumor size reduced.

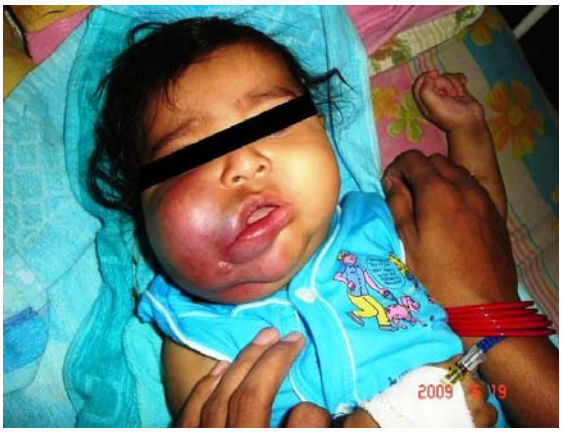

Figure 1: Hemangioma

DISCUSSION

For the treatment of KMS there are no consensus guidelines as it is uncommon and thus no large trials are available to guide treatment. Multiple modalities have been used by various workers including surgical excision (if possible), laser photocoagulation, high dose corticosteroids, anti-neoplastic agents and anti-angiogenic agent such as interferon-α.

On reviewing the literature, corticosteroids are the drugs used commonly for treatment, although the results were not satisfactory. There is a case report of successful treatment of abdominal wall mass associated KMS with Vincristine along with surgery.[3] In a recently published case series of 4 cases, the authors recommend that Vincristine should be considered early in the management of KMS.[5] In another case report, the authors have successfully used Vincristine to treat a 1 month old infant with KMS.[6] In our case, we were able to treat Kasabach Merritt phenomenon along with considerable reduction in the size of swelling with Vincristine. In all the previous case reports, surgery was done in conjunction with treatment with Vincristine. We have deferred surgery at present and it is planned if on follow up the swelling again increases in size.

In addition to conventional doses, high-dose steroids, pulsed or intravenous steroids have also been used with variable results. Interferon-α (1-3 MU/m^2/day) has been also used as initial therapy and especially in patients who do not respond to corticosteroid therapy. There is a case report of treatment of an infiltrating angiolipoma with KMS with complete disappearance of mass after 6 months treatment with interferon-α.[7] Similarly there is a case report where after the conventional doses and pulsed high doses of methylprednisolone, authors have successfully used interferon-α in a 1 month old infant with tumor regression. Radiotherapy in combination with interferon-α can also be used as a treatment modality after the failure of conventional steroid.[8] Intermittent pneumatic compression has also been used as a treatment modality to treat angiomatous nevus of leg with KMS in a 6 week old infant.[9] Pentoxifylline and Tranexamic acid have also been used to treat KMS. Komiyama et al have done endovascular treatment which constituted transfemoral embolization using polyvinyl alcohol particles and resulted in rapid clinical improvement.[10] There are some other case reports where authors have used Vincristine to treat KMS.[11-14] This treatment is used nowadays with increasing frequency. There are several case reports of successful treatment of KMS with disappearance of bleeding and shrinkage of the size of the tumor by treatment with Vincristine alone or in conjunction with some other agents as given in **table 1**.

CONCLUSION

Hemangioma associated with KMS is a rare entity. We found a rapid rise in platelet count following Vincristine treatment which was life-saving for the infant. Therefore, it is concluded that Vincristine is a good treatment modality for KM syndrome especially to treat the consumption coagulopathy refractory to conventional doses of steroid. In addition, Vincristine will help to reduce the size of the swelling, which can then be surgically excised.

Table 1: Treatment modalities used in conjunction of Vincristine

Studies	Age of patient	No. of patient	Lesion location	Other/ancillary treatment	Outcome
Hu et al[13] (1998)	Six year	1	Right leg	Vincristine Actinomycin Cyclophosphamide	9 months follow up decrease in size of tumor
Komiyama et al[10] (2000)	2 months	1	Cervicofacial-Causing airway compromise	Vincristine with transfemoral embolization	Rapid clinical improvement & patency of airway
Haisley-Royster et al[14] (2002)		15	Five- kaposiform hemangioendotheliomas, 3 tufted angiomas, 1 both kaposiform hemangioendothelioma	Vincristine	In 13 patients' significant decrease in size of lesion, 4 relapsed.
Thomson et al[5] (2007)	Birth - 11 months	4		Vincristine	Regression of mass
Abbas et al[3] (2008)	5 months	1	Abdominal wall mass	Vincristine with surgery	Excised completely
Hara et al[6] (2009)	1month	1	Cutaneous Right axilla	Vincristine with Corticosteroid	Regression of mass
Lopez et al[11] (2009)	Newborn	1	Skin	Vincristine with Ticlopedine	Progressive remission
Drucker AM et al[12] (2009)	Newborn	1	Right leg	Vincristine with Corticosteroid	Tumour shrinkage- 1 yr of age
Present Study	4 months	1	Right Cheek	Vincristine	6 weeks follow up – decrease in tumor size

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