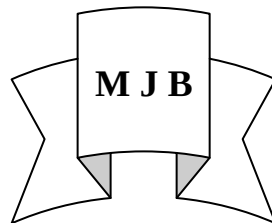


Intralesional Triamcinolone Injection in the Management of Cutaneous Hemangiomas in Children

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Abstract

Background: Infantile hemangiomas are the most common vascular tumors in children. Various approaches have been advocated in the management of hemangioma. This study was designed to evaluate the efficacy and safety of intralesional triamcinolone injection in the treatment of hemangioma.

Patients and methods: All patients studied regarding the age, number of lesions, presence of any complications, site and size of lesion and the percentage of regression after treatment with steroid. The patients were treated with local injection of diluted triamcinolone (40 mg) with 5 ml normal saline in a dose of 3 – 5 mg/kg. The injection was given every 4 – 6 weeks. The number of injections varied from two to six.

Results: The response was excellent (more than 75% regression in size) in 10 patients (42%), good (50-75% regression in size) in 6 patients (25%), poor (25-50% regression in size) in 5 patients (21%) and no response (less than 25% regression in size or no response at all) was seen in 3 patients (12%).

Conclusion: Intralesional injection of triamcinolone is a safe and effective treatment of hemangiomas. To get optimum response, it should be used in patients below one year of age.

الخلاصة

الورم الوعائي الجلدي هو أكثر الأورام الوعائية شيوعاً لدى الأطفال. هناك عدة طرق لعلاج الورم الوعائي الجلدي والغرض من هذه الدراسة هو معرفة فعالية ومضار استخدام حقنة التريامسينيولون الجلدية الموضعية في علاج الورم الوعائي الجلدي لدى الأطفال. تم دراسة الحالات مع الأخذ بنظر الاعتبار العمر، عدد الأورام، وجود أي مضاعفات، مكان وحجم الورم، ونسبة انحصار حجم الورم بعد العلاج. تم علاج جميع المرضى باستخدام حقنة التريامسينيولون وبجرعة ٣-٥ ملغم / كغم مع إعادة الحقنة كل أربعة إلى ستة أسابيع. تراوح عدد الحقن ما بين اثنين وستة حقن لكل مريض.

أظهرت نتائج البحث أن الاستجابة للعلاج كانت ممتازة في عشرة مرضى (٤٢%) وجيدة في ستة مرضى (٢٥%) وضعيفة في خمسة مرضى (٢١%). كما أنه لم يستجيب ثلاث مرضى (١٢%) للعلاج. إن حقنة التريامسينيولون الجلدية الموضعية علاج فعال وأمن للورم الوعائي الجلدي لدى الأطفال ويتم الحصول على أفضل النتائج إذا استخدم العلاج في الأطفال قبل بلوغ السنة الأولى من العمر.

Introduction

Vascular lesions of infants and children are classified into two major types, (tumors and vascular malformations). Infantile hemangiomas are the most common

vascular tumors [1,2]. Infantile hemangiomas are characterized by a growth phase and an involution phase [2]. The approach to the treatment of hemangiomas is individualized based upon the size of the lesion,

morphology, location, presence or possibility of complications, the age of the patient, and the rate of growth or involution at the time of evaluation. Most cutaneous hemangiomas are managed with clinical examination and education of the family [3]. Education of the family should include information about the natural course, potential complications, treatment indications and risks and benefits. Parents, who are usually extremely anxious about the hemangioma, are often satisfied to know simply that "It is a birthmark, it doesn't hurt, and it will get better" [4]. Intervention may be required for lesions with potential to interfere with a vital structure or function. These include lesions in the airway, liver or gastrointestinal tract and lesions in the periorbital region. In addition, intervention may be indicated for very large rapidly growing cutaneous hemangiomas, lesions associated with other complications such as ulceration and/or bleeding, increased risk of scarring or disfigurement, these include lesions complicated by ulceration, lesions of the nose, lip, ear, large, segmental hemangiomas of the face and pedunculated hemangiomas [5, 6].

Systemic corticosteroids (prednisolone) are the first-line therapy for complicated hemangiomas. The mechanism of action is still not well understood. Vasoconstriction, inhibition of angiogenesis, decreases mast cells, and/or decrease levels of estrogen are possible mechanisms that may be involved [7]. The usual starting dose is 2 to 3 mg/kg. A single morning dose is preferred to minimize adrenal suppression. A response (stabilization $\pm$ regression) is usually seen within the first few weeks. Treatment is generally continued for several months and prednisone should be discontinued by

slowly tapering over several months. Abrupt discontinuation or rapid tapering of corticosteroids while a hemangioma is still in its active growth phase may result in rebound proliferation [7]. Corticosteroid use for infantile hemangiomas often results in minor and transient side effects, but long-term complications are rare. Short-term effects are more likely to develop with corticosteroid courses of six months or longer and resolve with drug tapering. The most common complication is the development of a cushinoid facies, personality changes (eg. depressed mood, agitation and restlessness), depression of the immune system and gastric upset [7]. Delayed skeletal growth and serious corticosteroid complications, such as aseptic necrosis of the femoral head, hypertension, osteoporosis, and cataracts, are extremely rare in children [8]. Local steroid therapy is an option of treatment to avoid the side effects and complications of systemic steroid. The current study was conducted to evaluate the efficacy and safety of intralesional triamcinolone injection in the treatment of cutaneous hemangiomas.

Patients and Methods

A prospective study was carried out with a total of 24 patients with complicated cutaneous hemangioma of different age groups evaluated at the Pediatric Surgery Center in AL-Khansaa Teaching Hospital in Mosul. Detailed history was taken from patient's relatives concerning age at presentation, age at which the hemangioma or hemangioma like lesion was first noted, age at which the lesion started to proliferate, number of hemangiomas, whether any imaging studies, biopsies, or other prior

evaluations have been performed and previous treatment and response.

The clinical examination was done for each patient including full systemic examination and local examination of the lesion including documentation of lesion morphology and location, approximate size, number of lesions, documentation of the presence and severity of ulceration, and whether there is evidence of secondary infection.

In all cases ,the diagnosis of the hemangioma was established clinically based on the history and physical examination. However, some patients were sent for investigations. All patients with multiple hemangiomas have been sent for abdominal ultrasonography to exclude associated visceral hemangioma. Patients with neck hemangioma have been sent for ultrasonography of the lesion to exclude any other possible differential diagnosis like cystic hygroma.

The indications for treatment were ulceration, bleeding, rapidly growing lesions, cosmetic concern, interference with function or movement, parental anxiety, obstruction of anatomical orifice and pedunculated hemangioma. The patients were treated by intralesional steroid injection. The injection [Diluted triamcinolone (40 mg) with 5 ml normal saline in a dose of 3 – 5 mg/kg of body weight

(maximum 40 mg)] done under local anesthesia (7 patients) or general anesthesia (17 patients) depending on age of patient, site and size of lesion. The injection was given every 4 – 6 weeks. The number of injections varied from two to six injections. The injection was given by a 22 gauge needle directly into the lesion and pressure was applied to stop bleeding for 5 minutes. At each visit, besides detailed examination of the hemangioma, assessment was also made for growth delay or any other side effect of the treatment. The criteria for the cessation of the injection treatment included development of complications or lack of response to the treatment.

Results

As shown in table 1 and according to the indications mentioned in patients and methods, it has been found that 6 patients (25%) had rapidly growing lesions, 4 patients (17%) had lesions which interfere with function & movement, 4 patients (17%) had bleeding, 3 patients (12.5%) had lesions which cause obstruction of anatomical orifice, 3 patients (12.5%) injected because of cosmetic concern, 2 patients (8%) had ulceration and 2 patients (8%) had lesions which cause parental anxiety.

Table 1 Number of patients (treated by intralesional injection) according to each indication and sites of hemangiomas.

Indication	No. of patients	Head & neck	Trunk	Extremities
Rapidly growing lesion	6	1	3	2
Interference with function or movement	4	3	1	
Bleeding	4	3	1	
Obstruction of anatomical orifice	3	3		
Cosmetic concern	3	3		
Ulceration	2	2		
Parental anxiety	2	2		
Total no.	24	17	5	2

Table 2 shows the response of hemangiomas treated with intralesional triamcinolone injection according to patient's age. The response was excellent (more than 75% regression in size) in 10 patients (42%), good (50-75% regression in size) in 6 patients (25%), poor (25-50% regression in

size) in 5 patients (21%) and no response (less than 25% regression in size or no response at all) was seen in 3 patients (12%). One patient developed complication from triamcinolone injection in form of minor skin atrophy.

Table 2 Response of hemangiomas treated with intralesional triamcinolone injection according to patient's age.

Age of patient	No. of patients	Excellent	Good	Poor	No Response
<1 year	14	6	5	2	1
1 - < 2 years	4	2		1	1
2 - < 6 years	3	1	1	1	
6 – 13 years	3	1		1	1
Total	24	10	6	5	3

Discussion

This study shows that intralesional injection of triamcinolone is a safe and effective treatment of hemangiomas. The best response is in patients below one year of age. This agrees with the Akyus - C, who found that the age of initiation of treatment is the most important factor affecting the response to treatment [9]. The overall response rate of our 24 patients who were treated by intralesional steroid injection was 67% and this is less than that found by Chen & Horng who found the overall response rate (with response defined as >50 percent reduction in volume) was 85 % [10]. This may be due to involvement of lesions of the head and neck and the age of all patients were less than one year while in our study patients of different age group and lesions of different locations were treated.

Intralesional corticosteroid injections (eg, triamcinolone acetonide 10 to 40 mg/mL) may be beneficial for small (<3 cm in diameter), localized hemangiomas and for ulceration [7]. Individual doses should not exceed 3-5 mg/kg. A response usually is noted within few weeks, with continued response over the ensuing six to eight weeks, serial injections are sometimes needed [7].

Intralesional therapy should be performed cautiously particularly for periocular hemangiomas which should be managed by a specialist, most often an ophthalmologist with knowledge and experience in this area. Rare but serious side effects including eyelid necrosis and central retinal artery occlusion have been reported [11].

The most appropriate management of hemangioma is still a subject of great discussion and it may vary among different institutions depending on the availability of different modalities and

experience of the surgeon who treats the hemangioma. The systemic use of steroids is not ideal as this therapy requires careful monitoring of the child's growth, metabolic status and exposure to infectious agents. Regrowth of the hemangioma was noted after reduction or termination of therapy [11].

In conclusion, intralesional injection of triamcinolone is an effective treatment of hemangiomas. To get optimum response, it should be used in patients below one year of age. Intralesional steroid is free from major side effects. Intralesional injection of triamcinolone is required for treatment of complicated hemangiomas especially when the lesion is near a vital structure. In any case, the injections must be repeated several times to see an effect and the treatment regimen should include frequent office visits and close parental support until the regression in size is achieved.

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