



Journal Homepage: -[www.journalijar.com](http://www.journalijar.com)  
**INTERNATIONAL JOURNAL OF  
 ADVANCED RESEARCH (IJAR)**

Article DOI:10.21474/IJAR01/6861  
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/6861>



### RESEARCH ARTICLE

#### CHILBLAIN ASSOCIATION WITH ANEMIA.

**Dhari Kettan Aouda Aladwan and Saja Mohammed Abbas.**

1. MBChB, DVD (dermatology) Head of department of dermatology, Al-Yarmouk Teaching Hospital.
2. MBChB, DVD (dermatology), Dermatologist, Al-Yarmouk Teaching Hospital.

#### Manuscript Info

##### Manuscript History

Received: 06 February 2018  
 Final Accepted: 08 March 2018  
 Published: April 2018

##### Keywords:-

Chilblain, pernio, erythema pernio,  
 Chill burns, anemia.

#### Abstract

**Background:** Chilblain is a medical situation that happens when liable persons are exposed to cold and humidity, causing tissue injury. Symptoms and signs are caused by insult to capillaries below the skin. Tend to develop during the winter months of the year. Although the cause is not determined, however, there are factors recognized to contribute to the development of chilblain such as poor circulation, poor nutrition, anemia, a familial tendency, hormonal changes and others.

**The aims:** To discover the relation of anemia, age and gender to chilblain

To discover the commonest feature and site of involvement in chilblain  
**Patients and method:** The current study was cross sectional study conducted at dermatology consultation unit in Al-Yarmouk Teaching hospital during the period from the 1<sup>st</sup> of December 2016 to the first of March 2017. It included 40 patients.

Preformed questionnaire formula was prepared and included the details of the patient full history and physical examination. All patients referred to perform complete blood picture.

**Results:** Forty patients included in the current study. Their age ranged from 9 – 44 years, there were 26 females (65%) and 14 males (35%), females to males ratio was nearly 1.9:1.

The commonest age group affected was the 11-20 years; and the least common age group affected was 41-50 years. Anemia was diagnosed in 42.5%. Females represent 35% and 30% from anemic and non-anemic patients respectively. Erythema was the commonest clinical feature noticed in both genders. The commonest site of involvement in females was the toes 50%, in males both toes and finger involvement was seen in 20% of the patients.

**Conclusions:** The commonest age group affected was 11 – 20 years. Chilblain was more frequent in females.

Anemia was seen in good no. of the patients. Occurrence of anemia in females makes them more prone to chilblain.

*Copy Right, IJAR, 2018.. All rights reserved.*

**Corresponding Author:- Dhari Kettan Aouda Aladwan.**

Address:- MBChB, DVD (dermatology) Head of department of dermatology, Al-Yarmouk Teaching Hospital.

**Introduction:-**

Chilblain also known as pernio, chill burns and perniosis<sup>(1)</sup> other synonyms are cold induced vascular disease and erythema pernio.<sup>(2)</sup> It is a medical situation that happens when a liable persons are exposed to cold and humidity, causing tissue injury. It is frequently confused with frostbite and trench foot and usually misdiagnosed as Raynaud's<sup>(3)</sup>. Symptoms and signs are caused by insult to capillaries below the skin.<sup>(4)</sup> Tend to develop during the winter months of the year. Appearance of the lesions is approximately 12-24 hours after exposure to cold.<sup>(5,6)</sup> It is a form of inflammation of small blood vessels (vasculitis) seen when the skin is exposed to non-freezing temperatures for long time.<sup>(7)</sup> Usually targets the legs, hands, toes, feet, ears and face. It is manifested as bluish red discoloration of the skin and presented with pain, itching, burning sensation and swelling especially as the body becomes warmer. Blisters may formed in severe cases and even ulcerate and secondarily infected. These lesions are usually last for 2 to 3 weeks.<sup>(2,5,6)</sup> Although the cause is not determined, however, there are factors recognized to contribute to the development of chilblain such as poor circulation, poor nutrition, anemia, a familial tendency, hormonal changes, connective tissue disorders, and bone marrow disorders. Certain drugs, such as beta-blockers, may causes vasoconstriction and results in chilblains.<sup>(8)</sup> it can be related to serious medical condition that must be investigated as lupus. Low body mass index and genetic predisposition are more likely to predispose for development of chilblains.<sup>(7,9)</sup> Preventive measures should be followed by those persons living in such conditions or who are predisposed for chilblains. Precautionary measures may include regular care of feet as soaking in warm water and drying them, the use of emollients, wearing nylon socks in layers and avoiding tight or loose shoes.<sup>(10)</sup>

"The practice of adding tea leaves and beet to warm water for soaking of the feet in these areas requires scientific analysis. Though the Defence Research and Development Organization (DRDO) of India has introduced nitroglycerine and salbutamol sulfate creams for the prevention of cold injuries after pilot studies on soldiers and workers residing in high altitudes,<sup>(11)</sup> larger clinical trials are needed to establish their efficacy. "Cutfar, an Ayurvedic cream is effective in treating chilblains; however, this needs validation by a clinical trial"(envi derma). Oral nifedipine has been found to be effective but should be prescribed under supervision.<sup>(12)</sup>

**The aim:-**

To discover the relation of anemia, age and gender to chilblain  
To discover the commonest feature and site of involvement in chilblain

**Patients and method:-**

The current study was cross sectional study conducted at dermatology consultation unit in Al-Yarmouk Teaching hospital during the period from the 1<sup>st</sup> of December 2016 to the first of March 2017. It included 40 patients. Patient selection was sequential according to their presentation to the clinic during the study period. Patient eligibility for the study was according to pre-accustomed inclusion criteria.

**Eligibility:-****Inclusion criteria:-**

1. Age: all ages
2. Gender: both
3. Duration of symptoms: any duration

**Exclusion criteria:-**

1. Any obvious predisposing factor for chilblain
2. Patients who failed to attend the follow up
3. Patients who have chronic systemic diseases

Preformed questionnaire formula was prepared and included the details of the patient full history and physical examination. All patients referred to perform complete blood picture. The ethical issue is satisfied.

**Results:-**

Forty patients included in the current study. Their age ranged from 9 – 44 years, there were 26 females (65%) and 14 males (35%), females to males ratio was nearly 1.9:1.

**Table no. 1:-**Age distribution among the studied group in relation to gender and Hb%

Age group	No.	%	Females	%	Males	%	Anaemic	%	Normal Hb%	%
1 – 10	2	5%	1	50%	1	50%	1	50%	1	50%
11 – 20	17	<b>42.5%</b>	14	<b>82.3%</b>	3	17.6%	11	64.7%	6	35.2%
21 – 30	12	<b>30%</b>	8	<b>66.6%</b>	4	33.3%	4	33.3%	8	66.6%
31 – 40	8	<b>20%</b>	2	25%	6	<b>75%</b>	1	12.5%	7	87.5%
41 – 50	1	2.5%	1	<b>100%</b>	0	0%	0	0%	1	100%
Total	40	100%					17	42.5%	23	57.5%

The commonest age group affected was the 11-20 years; and the least common age group affected was 41-50 years.

**Table no. 2:-** The percentage of Hb among the studies patients

	Total No.	%	Gender			
			Females		Males	
Anemic range of Hb%	17	42.5%	14	35%	3	7.5%
Normal range of Hb%	23	57.5%	12	30%	11	27.5%

**Table no. 3:-**Distribution of clinical feature variants among the involved patients in relation to gender

Symptoms and signs	No.	%	Females	%	Males	%
Erythema	31	77.5	19	<b>47.5%</b>	12	<b>30%</b>
Swelling	23	57.5	14	35%	9	<b>22.5%</b>
Itching	18	45	15	<b>37.5%</b>	3	7.5%
Pain	9	22.5	7	17.5%	2	5%
Dusky discoloration	9	22.5	8	20%	1	2.5%
Exudate	8	20	7	17.5%	1	2.5%
Burning sensation	5	12.5	2	5%	3	7.5%
Tenderness	2	5	2	5%	2	5%

**Table no. 4:-** Site of involvement in relation to gender

Site of involvement	No.	%	Females	%	Males	%
Toes	28	70	20	<b>50%</b>	8	<b>20%</b>
Fingers	21	52.5	13	<b>32.5%</b>	8	<b>20%</b>
Nose	6	15	3	7.5%	3	7.5%
Ears	5	12.5	2	5%	3	7.5%
Lower legs	1	2.5	1	2.5%	-	0%

## Discussion:-

Forty patients included in the current study. Their age ranged from 9 – 44 years, there were 26 females (65%) and 14 males (35%), females to males ratio was nearly 1.9:1.

Table no. 1 showed that the commonest age group affected was 11 – 20 years (17 patients 42.5%) and this may be due to hormonal changes. Half of the patients were in the age group 21 – 30 years (12 patients, 30%) and the age group 31 – 40 years (8 patients, 20%), these 2 groups constituted the main working groups and this is may explain the higher percentage of exposure to weather and the development of perniosis.

Pramanik T et al in their study discussed the frequency of perniosis in 49 patients in relation to age and gender and they documented that 25 patients (10 males, 15 females) were in the age group of 7-20 years a result nearly similar to the results of the current study. Also they revealed that eighteen patients (7 males, 11 females) were in the age group of 21-40 years and only 6 (2 males, 4 females) were in the age group of 41-65 years.<sup>(13)</sup>

Z Meltem Akkurt et al<sup>(14)</sup> discovered the following results in their study of 69 patients with chilblains, 45 (65.2%) were females and 24 (34.8%) were males. These results run parallel to the gender distribution in the current study.

From the forty patients involved in the current study 17 patients were anemic (42.5%) and 23 patients were not (57.5%) as shown in table no. 2. Females represented as 35% and 30% from the anemic and non-anemic patients respectively. Correlation of data in table no. 2 and no. 1; the following information can be obtained:

Adolescent females (age group 11 – 20 years) are more prone to perniosis than males especially when they are anemic; however, males when they are non-anemic are more prone to perniosis than females in all other age groups. It seems that anemia has uneven influence on the frequency of chilblain and this influence is modulated by the age and gender of the patients were the main impact on 11 – 20 age group especially in female patients.

Table no.3 revealed the frequency of the clinical features among the studied patients, the commonest clinical feature noticed among the patients was erythema, and it was seen in 77.5% of the patients, followed by swelling 23%. The least common feature seen was tenderness; it was seen in 2 patients 5%.

The main features in female and male patients was erythema, 47.5% and 30% respectively, however, the 2<sup>nd</sup> commonest feature in females was itching 37.5% and in males was swelling of the affected part 22.5%. The least common feature was tenderness with equal gender distribution.

Z Meltem Akkurt et al<sup>(14)</sup> in their study documented different result regarding the main features seen in the affected patients, they revealed that 71.2% of the patients complained of itching, 51.6% of pain, 31.3% of burning in the lesions.

Table no. 4 revealed the sites of involvement; nearly 2 thirds of the patients (70%) presented with involvement of the toes, nearly half of the patients (52%) suffered from finger lesions and the least common area involved was the legs, it was affected in one patient (2.5%).

The commonest site of involvement in female and male patients was the toes, 50% and 20% respectively; however, males show equal frequency of involvement of both the toes and fingers 20%, the 2<sup>nd</sup> commonest site of involvement in females was the fingers 32.5%. The lowest site of involvement was the lower legs in females and males, 2.5% and 0% respectively.

Z Meltem Akkurt et al<sup>(14)</sup> revealed that only the feet were involved in 50.7% and only the hands were involved in 26.1%. Both the hands and feet were involved in 23.2%. Acral cyanosis was observed in 23.2%. The mean number of fingers with lesions of chilblains was seven. The mean number of toes with lesions was five.

### Conclusions:-

1. The commonest age group affected was 11 – 20 years.
2. Chilblain was more frequent in females.
3. Anemia was seen in good no. of the patients. Occurrence of anemia in females makes them more prone to chilblain.

### References:-

1. James, William D.; Berger, Timothy G.; et al. (2006). *Andrews' Diseases of the Skin: clinical Dermatology*. Saunders Elsevier. ISBN 0-7216-2921-0.
2. <https://rarediseases.org/rare-diseases/perniosis/> (4/4/2018)
3. S. Padeh, M. Gerstein, S. Greenberger, Y. Berkun. Chronic chilblains: The clinical presentation and disease course in a large paediatric series. *Clinical and Experimental Rheumatology* 2013; 31: 000-000
4. Cold Stress: Chilblains. National Institute for Occupational Safety and Health. Retrieved January 6, 2009.
5. Tonoli,RE, Souza,PR. Case for diagnosis. Chilblains. *An.Bras.Dermatol.*2012; 87:649–650.
6. Vano-Galvan S, Martorell A. Chilblains. *CMAJ.* 2012;184:67.
7. Goette DK. Chilblains. *J Am Acad Dermatol* 1990;23:257-62.
8. <https://www.nativeremedies.com/ailment/chilblains-skin-bumps.html> (4/4/2018)
9. DeGroot DW, Castellani JW, Williams JO, Amoroso PJ. Epidemiology of U.S.Army cold weather injuries, 1980-1999. *Aviat Space Environ Med* 2003;74:564-70.
10. Cappaert TA, Stone JA, Castellani JW, Krause BA, Smith D, Stephens BA. National Athletic Trainers' Association Position Statement: Environmental Cold Injuries. *J Athl Train* 2008;43:640-58.
11. Rustin MH, Newton JA, Smith NP, Dowd PM. The treatment of chilblains with nifedipine: The results of a pilot study, a double-blind placebo controlled randomized study and a long term open trial. *Br J Dermatol* 1989;120:267-75.
12. Brochure-DRDO. Available from: <http://www.drdo.gov.in/drdo/labs/INMAS/collaboration/brochure.htm>

13. Pramanik T<sup>1</sup>, Jha AK, Ghimire A. A retrospective study of cases presenting with chilblains (Perniosis) in Out Patient Department Of Dermatology, Nepal Medical College and Teaching Hospital (NMCTH). Nepal Med Coll J. 2011 Sep;13(3):190-2
14. Z Meltem Akkurt, Derya Ucmak, Kenan Yildiz, Safiye Kutlu Yürüker, and Heybet Özkaya Celik. Chilblains in Turkey: a case-control study. An Bras Dermatol. 2014 Jan-Feb; 89(1): 44–50.