MEDICAL CHANNEL

Case Report

REACTIVE THROMBOCYTOSIS DUE TO IRON DEFICIENCY ANEMIA LEADING TO UNILATERAL RAYNAUD PHENOMENON IN HAND OF A MALE PATIENT

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ABSTRACT

Patients with reactive thrombocytosis are generally asymptomatic and platelet counts of up to 1000, 000/μL are seen in this disorder. [1] Secondary thrombocytosis (reactive thrombocytosis) is generally considered a benign condition. Extremely high platelet elevations may require treatment in order to minimize vascular complications, although such complications are rare. No sex predilection exists for secondary thrombocytosis, except that iron deficiency is more prevalent in females during childbearing years [2] In the present report we describe a rare case of reactive thrombocytosis due to iron deficiency anemia leading to unilateral raynaud phenomenon in hand of a male patient, he was evaluated for thrombocytosis and given supportive treatment after which he improved clinically.

Key Words : reactive thrombocytosis, iron deficiency anemia, raynaud phenomenon, iron profile, acrocynosis

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INTRODUCTION

Raynaud's phenomenon is a clinical disorder with episodic digital ischemic vasospasm triggered by cold or emotional stress[1,2,4]. Initially it presents with triphasic color changes in the digits, with blanching (white) leading to cyanosis (blue) followed by red. Raynaud's phenomenon can be primary (idiopathic) or secondary to a connective tissue disease such as scleroderma, systemic lupus erythematosus, rheumatoid arthritis, Sjogren's syndrome, or polymyositis[5-7]. The initial white phase is marked by demarcated pale skin caused by vasoconstriction and cessation of regional blood flow. The second phase is a cyanotic phase as the residual blood in the finger desaturates. The attack usually ends with rapid reflow of blood to the digits, which results in a red appearance of the digits [2]. Blood carries heat to the skin of the fingers, but vasospasms reduce blood flow, resulting in low temperature of the fingers[8]. The diagnosis

of Raynaud's phenomenon is by a history of pallor of digit(s), followed by at least one other colour change cyanosis, which is usually precipitated by cold. A good history, physical examination, and laboratory results can help rule out secondary Raynaud's phenomenon. Review of symptoms or signs for connective tissue disease should be done. Laboratory testing may include full blood count (FBC), erythrocyte sedimentation rate (ESR), and antinuclear antibodies (ANA) with pattern, if connective tissue diseases are suspected. Magnification of the nailbeds to observe abnormal capillaries is also important in order to rule out Raynaud's phenomenon associated with connective tissue disease.

CASE REPORT

55 years old married male, supervisor of laborers by profession with no known comorbids presented to our department with the history of pain in left hand and bluish discoloration of fingers of left hand for 15 days. According to the patient, he was in a usual state of health when he developed easy fatigability, dyspnea on walking and blackouts. He went to a private clinic where he was diagnosed as a case of severe anemia. Meanwhile, he also developed fever which was continuous, documented, and moderate in intensity, not associated with chills and rigors and only relieved on taking medications. It lasted for 4 days and relieved itself without any specific treatment.

On the 2nd day of fever, when he woke up early in the morning, he felt pain in left hand which was severe and burning in nature. Pain started in left elbow and radiated to left hand. Pain in elbow lasted only for10 minutes. Pain in hand is continuous and of same intensity for the last 10 days. It is accompanied by bluish discoloration of the fingers of left hand. Bluish discoloration increases on exposure to cold and gets better on warming the hand. There is restrictive movement of the fingers as well. With these complains he was referred to Hyderabad hospital where he was transfused 4 pints of Red Packed Cells. He was then referred to Karachi where he remained admitted in Liaquat Hospital for a day. There is no previous history of such events. Also, there is no history of jaundice, alteration in bowel habits, weight loss, any cardiac issue, arthralgia, smoking or respiratory symptoms. His past medical, surgical and family histories were insignificant .on examination, Elderly person of average height and built ,moderately anemic comfortably sitting on bed, well-oriented to time, place and person.

Examination of Left hand:
Normal bulk, tone, power and reflexes in both the upper limbs.
Blood pressures were equal and normal in both the limbs. Brachial and radial arteries were bilaterally palpable, regular, and of normal volume.
Patient was wearing glove in left hand.
On removing the glove, mild bluish discoloration of 4th and 5th fingers was noticed which increased within few minutes on exposure to environmental temperature. The 2nd and 3rd fingers also became discolored on exposure to environment. Initially 4th and 5th fingers were cold. Later 2nd and 3rd fingers also became cold on touch. Thumb was spared. The four fingers were tender to touch and flexion at interphalangeal and metacarpophalangeal joints was painful.There was no ulceration or gangrene.

Peripheral Smear:
Hypochromic, microcytic. Anisocytosis, pencil cells, few oval macrocytes, target cells and tear drop cells suggestive of iron deficiency anemia

That patient was managed and responded well on Tab. Nifedipine, Tab. Aspirin and Tab. Cilostazol Therapy.

DISCUSSION

Raynaud's phenomenon is the triad of pallor, cyanosis and redness of the acral regions of the body (hands and feet) due to episodic digital vasospasms. Classically it is brought about by cold environment or emotions [10] Pallor is a result of ischaemia due to vasospasms, cyanosis due to deoxygenation of blood and redness being the result of reperfusion following reversal of the spasms. Two subtypes are described, primary Raynaud's which is not associated with any other illness and secondary Raynaud's phenomenon, where vasospasms are associated with another disease, commonly autoimmune diseases, mixed connective tissue disease and scleroderma. Pathogenesis of primary Raynaud's phenomenon is not fully understood but vascular, intravascular and neural mechanisms are proposed [6],[11] Further studies are needed for a better knowledge regarding the contribution of iron deficiency in Raynaud's phenomenon. Although several etiologies are described in-relation to Raynaud's phenomenon as primary Raynaud's's disease, occupational, haematological, autoimmune, connective tissue diseases, vasculitis, thrombo-embolic disease, carpal tunnel syndrome,





Laboratory investigations :

Hb	8.6 g/dl
Haematocrit	36.7 g/dl
MCV	62 fl
MCH	18.2
MCHC	29.4
TLC	7500/ul
PLT count	787000/ul
ESR	17mm in 1st hr
HbA1C	5.8%
TIBC	443mcg/dl
Iron	46ug/dl
Fer	15ng/ml
Iron saturation	10.38%
Vit B12	622pmol/dl
Autoimmune Profile	Normal
OGD and Colonoscopy	Gapping lower esophageal sphincter
	Mild pan gastritis
	Small non-congested internal hemorrhoids
	Multiple tiny apthoid like ulcers in colon and rectum
Cholesterol	138mg/dl
HDL	10mg/dl
Triglycerides	190mg/dl
Carotid Doppler	normal
Doppler U/S of Left Arm hand suggestive of arterial insufficiency	Increased peripheral resistance in the arteries of Left arm and
Angiography of Left Hand	Normal flow in Left hand.

thoracic outlet syndrome, reflex sympathetic dystrophy, pheochromocytoma, acromegaly, lung adenocarcinoma and Fabry s disease. extensive literature survey did not reveal Raynaud's phenomenon in association with iron deficiency anemia.

The patient in this case report presented with Raynaud's phenomenon with reactive thrombocytosis due to iron deficiency anemia supported by iron profile and endoscopy of patient.

The patient described in this case report was presented with a unilateral acrocyanosis. This diagnosis was based on his clinical course and exclusion of other causes of unilateral acrocyanosis including vascular anomalies and thoracic outlet syndrome. Even though acrocyanosis is very common condition, involvement of only one hand was an atypical finding for adult acrocyanosis.[2]

No other site of infection was identified and as he had received antibiotics prior to being admitted in the hospital, no infective organism could therefore be isolated. However with the institution of calcium channel blocker, hydration and antiplatelet therapy,the patient improved systemically and the digital bluish discoloration stabilized without local infection.

Although the exact mechanism for reactive thrombocytosis is unknown, it may result from persistent overproduction of one or more thrombopoietic factors that act on megakaryocytes or their precursors in addition to principal factor thrombopoeitin (TPO) which is expressed primarily in liver but is also found in bone marrow, spleen and kidney.[4,5]

The presence of elevated levels of IL-1, IL-6, C-reactive protein, granulocyte colony-stimulating factor (G-CSF), and granulocyte-macrophage colony-stimulating factor (GM-CSF)

in individuals with this condition suggests that these cytokines may be involved in reactive thrombocytosis states. IL-6 is mainly produced by monocytes, but it can also be produced by lymphocytes, endothelial cells and fibroblasts. Infusion of IL-6 have shown an increase in platelet numbers.[6,7] More than 80% of platelets with reactive thrombocytosis have raised IL-6 levels.

CONCLUSION

Reactive thrombocytosis due to iron deficiency anemia presenting with Raynaud's phenomenon is not being reported in literature previously. Although the underlying mechanism is not fully understood, Raynaud's phenomenon should prompt the physician to consider reactive thrombocytosis with a complimentary clinical picture.

Informed Consent :

Written informed consent was obtained from the patient for publication of this case report.

CONFLICT OF INTEREST

There is no conflict of interest among authors in this case report.

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CONTRIBUTION OF AUTHORS

* Concieve topic, article writing (case report) introduction and discussions
** Review the paper
*** Article writing (case report) contribution
**** History of patient, abstract and conclusion writing.