CASE REPORT

Title: IRON DEFICIENCY ANAEMIA OF UNKNOWN CAUSE – A CASE REPORT

Abstract:

Iron deficiency anaemia is the most common nutritional deficiency disorder in children and is worldwide in distribution. The definition of anaemia is decrease in the number of red blood cells or the decreased percentage of haemoglobin in blood. It is characterised by fatigue, weakness, pallor and koilonychias. Thus oral physician play an important role in diagnosis and thereby prevention of anaemia, as oral manifestations may be the earliest feature of the condition. The purpose of this article is to present a case of iron deficiency anaemia of unknown cause in a 16 year old female child.

KEY WORDS: Anaemia, Iron deficiency anaemia, Koilonychia, Haemoglobin, Oral manifestations.

Introduction:

Iron deficiency anaemia is a form of anaemia which occurs due to lack of significant iron to form normal red blood cells[3]. It is typically caused by inadequate intake of iron, chronic blood loss or by combination of both[3]. Iron deficiency is the most common type among all other anaemias and is frequently observed in infants and in adolescents who have menstruation[2].

World Health Organization [WHO] defines anaemia as haemoglobin level of less than 12 gm/dl in women and less than 13 gm/dl in men[4].WHO estimates that globally 293 million young children suffer from anaemia, among which approximately 50% are due to iron deficiency[5]

Iron deficiency develops in the body in three stages as prelatent stage, latent stage and marked iron deficiency anaemia stage[2].Development of iron deficiency anaemia and speed of anaemia progression will depend on basal iron body stores[4].

Here, we present a case of Iron deficiency anaemia of unknown cause in a 16 year old female child.

CASE REPORT:

A 16 year old female patient reported to the Department of Oral Medicine and Radiology, with a chief complaint of pain in upper front teeth region since a week. Patient gives a history of improper digestion and generalized weakness. Family history and personal history were not significant.

On examination, all vital signs were stable. No bruising, petechiae, rash or lymphadenopathy was evident. No facial asymmetry. Pallor and Spoon shaped nails [KOILONYCHIA] were seen [fig 6,7]. Dark pigmented lips, angular cheilitis were present [fig4,5]. On intraoral examination yellowish

tinge with paleness in relation to right and left buccal mucosa, melanin pigmentation was present in relation to right posterior buccal mucosa and lateral borders of tongue [fig 2,3]. Dental caries present in relation to 36,37,46,47. Root stumps present in relation to 22. On palpation there was no burning sensation. Based on clinical findings, provisional diagnosis of Iron Deficiency anaemia was made and patient was advised to get all the laboratory investigations.

CLINICAL LABORATORY INVESTIGATIONS

PARAMETERS[UNITS]	TEST VALUES	NORMAL VALUES
Hemoglobin[gm%]	3.4	11.5-16
Total RBC count[mil/mm3]	2.33	3.8-5.8
Total WBC count[/mm3]	5400	4000-11,000
Platelet count[lakh/mm3]	3.4	1.5-4
Packed cell volume[vol%]	17.6	3.6-4.6
Mean corpuscular volume[fl]	69.6	80-100
Mean corpuscular hemoglobin[pg]	13.4	27-32
RDW[%]	25.2	11-14.5
Erythrocye sedimentation ratio[mm/hr	20	0-20
Recticulocyte count[%]	1.2	0.5-2.5
Serum folic acid[ng//ml]	24	3-17

Serum iron[mcg/dl]		11	50-190
Serum feritin[ng/ml]		1.5	7-140
Total iron binding capacity[mcg/dl]		37.6	250-400
Serum ferritin[ng/ml]		1.0	20-400
Electrophoresis	HbF[%]	<1.00	<1.50
	HbA1[%]	88.70	83.24-90.79
	HbA2	**2.00**	**1.5-3.5**
Stool occult blood analysis		Negative	
Peripheral blood smear		RBC-Severe Anisocytosis,Poikilocytosis ,Hypochromic mycrocytic	

DISCUSSION:

Iron deficiency is usually defined as the decrease of the total content of iron in the body[10] .Approximately, 1.62 billion people are affected by anaemia globally,which accounts for 24.8% of population.[8] The predominant cause of microcytic hypochromic anaemia in infancy and in childhood is Iron deficiency anaemia. Iron deficiency symptoms are secondary to anaemia and include weakness, headache,fatigue,koilonychia[spoon shaped nails],exercise intolerance[3]. Oral signs and symptoms of anaemia are well recognised and easily detectable which include glossitis,glossodynia,pallor of oral mucosa,angular cheilitis,erythematous mucositis. These oral changes occur as a result of basic changes in metabolism of oral epithelial cells[8].

Iron deficiency anaemia and B thalassemia triats are close differentials for the hypochromic microcytic anaemia[7].However,low serum ferritin levels in association with high RDW is helpful in distinguishing Iron deficiency anaemia from Thalassemia[7].High performance liquid chromatography [Electrophoresis]will confirm thalsseima if present[7].In the current case laboratory investigations showed extremely low serum ferritin levels of 1.5 ng/ml,high RDW of 25.2% and normal HbF, HbA1, HbA2 levels .

This is a rare unknown case of severe Iron deficiency anemia observed in a young female child.Here,in this case patient experienced the symptoms of fatigue and generalized weakness which is due to reduced oxygen carrying capacity by the deficiency of Hb.The laboratory investigations reports of Hb concentration,packed celll voume,MCV,MCH reveals the evidence for anemia .The reasons for iron deficiency were still unclear and further evaluations are necessary to rule out the actual etiology.

In the present case the patient presented the features of angular cheilitis,pallor which were similar to the findings seen in case presented by Halim N, et al.[8] in a 68 year old female patient with angular cheilitis, atrophic glossitis,and pallor which was diagnosed as Iron deficiency anaemia based on

oral manifestations.Revoori et al, in 2015 presented a case of iron deficiency anemia in which the laboratory investigations revealed a diagnosis of Iron deficiency anemia but of unknown etiology similar to our case.

Based on all the above clinical,laboratory findings, a final diagnosis of Iron deficiency anamia was made and she was referred to general physician for further assement following which dental treatment was provided.

CONCLUSION:

In conclusion,a wide range of disorders of red cells have manifestations in oral cavity.These manifestations should be properly diagnosed to initiate the correct treatment.Iron deficiency anaemia is a common type of all other anaemias.As, oral manifestations may be the earliest feature of the condition, oral physicians play an important role in diagnosis and thereby prevention of anaemia.

Fig 1:Patient's extraoral front profile

Fig2: Pallorness seen on the right buccal mucosa with yellowish tinge

Fig 3 Pallorness seen on the left buccal mucosa with yellowish tinge

Fig 4: Black Pigmented lips with angular cheilitis

Fig 5: Loss of filiform papillae over the dorsum of tongue

Fig 6: Hands showing nails with Koilonychia

Fig 7: Legs showing nails with Koilonychia

REFERENCES:

1]Revoori SR ,Mandava K:A cse report on Iron deficiency anemia of unknown cause.Annuals of Drug discovery and Biomedical Research 2015;2[1]:254-258

2]Ozdemir N:Iron deficiency anaemia from diagnosis to treatment in children.Turk Ped Ars 2015;50:11-9

3]Terri D. Johnson – wimbley ,David Y. Graham :Diagnosis and management of Iron deficiency anaemia in the 21st century. Therapeutic Advances in Gastroenterolology 2011;4[3]:177-184

4]Ibanez GB ,Sanchez AS, penafiel COR:Iron deficiency anaemia Review articleRevista Medica Del Hosp Gen Mex.2016;79[2]:88-97

5]Chandyo RK,Henjum S,Ulak M,Thorne Lyman AL,Ulvik RJ et al:The prevalence of anaemia and iron deficiency is more common in breastfed infants than their mothers in bhaktapur,Nepal.Eurpoean Journal of Clinical Nutrition 2016;70:456-462

6]Jadhav SU,Khaparde S :Study of the red cell indices ,hemogram and platelet variations in anaemic patients by automatic cell counter in a tertiary care centre ,Ahmednagar, Maharashtra,I ndia. InternationalJournal of Research in Medical Sciences 2017;5[4]:1582-1588

7]Agarwal A ,Chaudhary P, singh P :severe iron deficiency anaemia in an infant :A case report.Indian J Child Health 2017;4[3]:449-450.

8]Nilofer H, Chaithra Kalkur,Padmashree S,Anusha LR.Diagnosis of Iron Deficiency anaemia through oral manifestations –A case Report .JOJ Case Stud.2018;7[5]:555724

9] Adeyemo TA, Adeyemo WL,Adediran A et al ,Orofacial manifestations of hematological disorders :Anaemia and hemostatic disorders.Indian Journal Of Dental Research 2011;22[3]:454-461.

10]Rocha MC, Kamrul R, Rehman HU ,Iron deficiency anaemia in a premenopausal women .Global J Med

Clin Case Reports 2014;1[2]:043-045.

11] Hao S, Li H, Sun X et al, An unusual case of Iron deficiency anaemia is associated with extremely low level of transferring receptor. Int J Clin Exp Pathol 2005; 8[7]:8613-8618

12]Torsvik IK,Markestad T,Ueland PM et al,Evaluating iron status and the risk of anaemia in young infant using erythrocyte parameters. International Paediatric Research Foundation, 2012; 73[2]:214-220.

FIGURE1

FIGURE 2

FIGURE 3

FIGURE 4

FIGURE 5

FIGURE 6

FIGURE 7