



“LITERATURE REVIEW OF MEGALOBlastic ANEMIA WITH SPECIAL REFERENCE TO PANDU VYADHI.”

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ABSTRACT

Megaloblastic anemia (MA) encompasses a heterogeneous group of anemias characterized by the presence in the bone marrow of large red blood cell precursors called megaloblasts. This condition is due to impaired DNA synthesis, which inhibits nuclear division. Cytoplasmic maturation, mainly dependent on RNA and protein synthesis, is less impaired; this leads to an asynchronous maturation between the nucleus and cytoplasm of erythroblasts, explaining the large size of the megaloblasts. The process affects the entire hematopoiesis as well as rapidly renewing tissues such as gastrointestinal cells. Megaloblastic anemia is most often due to hypovitaminosis, specifically vitamin B12 (cobalamin) and folate, which are necessary for the synthesis of DNA. In Ayurveda it may be correlated with Pitta Pradhan Pandu. Megaloblastic anemia is a multisystem disorder, which can easily be diagnosed with high index of suspicion and by correct application of its pathogenetic mechanisms. Any factor inhibiting deoxyribonucleic acid (DNA) synthesis, drugs (medications), infections like human immunodeficiency virus (HIV) and gas like nitrous oxide will cause megaloblastosis. Vitamin B12 deficiency can be correlated with Pittaj Pandu. However, poor diet, problems with absorption, transportation and metabolism of the vitamins, as well as factors that increase demand and ultimately exhaust the store of the vitamins like chronic hemolytic states, pregnancy, malignancies happen to be the commonest causes of megaloblastic anemia.

KEYWORDS : Megaloblastic Anemia, Pandu.

INTRODUCTION:

Megaloblastic anemia is a condition in which the bone marrow produces unusually large structurally abnormal, immature red blood cells (megaloblasts). Bone marrow, the soft spongy material found inside certain bones, produces the main blood cells of the body – red cells, white cells, and platelets. Anemia is a condition characterized by the low levels of circulating, red blood cells. Red blood cells are released from the marrow into the bloodstream where they travel throughout the body delivering oxygen to tissue. A deficiency in healthy, fully-matured red blood cells can result in fatigue, paleness of the skin (pallor), light headedness and additional findings. Megaloblastic anemia has several different causes - deficiencies of either cobalamin (vitamin B12) or folate (vitamin B9) are the two most common causes. These vitamins play an essential role in the production of red blood cells.

The word Pandu has been derived from the dhatu “padi gatou”. Padi means gati (i.e. parinaman or transformation). The word padi gatou implies the formation of rasa, raktadi dhatus. Pandu vyadhi is considered as pitta pradhan. The vitiating factors of pitta can also be taken as a cause of Pandu vyadhi.¹

Types of Pandu vyadhi

- 1) Vataja Pandu
- 2) Pittaja Pandu
- 3) Kaphaja Pandu
- 4) Tridoshaja Pandu
- 5) Mrudbhakshanjanya Pandu

Material And Methods:**Megaloblastic anemia****Signs & Symptoms**

Symptoms common to anemia usually develop at some point and may include fatigue, paleness of the skin (pallor), shortness of breath, light headedness, dizziness and a fast or irregular heartbeat. The specific symptoms present in each individual can vary greatly. Additional common symptoms include aches and pains, muscle weakness, and difficulty

breathing (dyspnoea). Individuals with megaloblastic anemia may also develop gastrointestinal abnormalities including diarrhoea, nausea, and loss of appetite. Some affected individuals may develop a sore, reddened tongue. These abnormalities may result in unintended weight loss. Mild enlargement of the liver (hepatomegaly) and a slight yellowing of the skin or eyes (jaundice) may also occur. Megaloblastic anemia resulting from cobalamin deficiency may also be associated with neurological symptoms. The initial neurological symptom may be tingling or numbness in the hands or feet. Additional symptoms develop over time including balance or gait problems, vision loss due to degeneration (atrophy) of the nerve that transmits impulses from the retina to the brain (optic nerve), and mental confusion or memory loss. A variety of psychiatric abnormalities have also been reported in individuals with cobalamin deficiency including depression, insomnia, listlessness, and panic attacks. The spectrum of potential neuropsychological symptoms potentially associated with cobalamin deficiency is large and varied.

Causes

1. The most common causes of megaloblastic anemia are deficiency of either cobalamin (vitamin B12) or folate (vitamin B9).
2. Inadequate intake of cobalamin and folate in the diet, poor absorption of these vitamins by the intestines or improper utilization of these vitamins by the body. Cobalamin is found in meat fish and eggs. Deficiency of cobalamin due to poor dietary intake is extremely rare, but has occurred in some total vegetarians (vegans).
3. Malabsorption may result from surgery on the intestines, intestinal diseases such as Crohn's disease or tropical sprue, or infection (bacterial growth) within the gastrointestinal tract. Pernicious anemia may also cause cobalamin deficiency. This form of anemia is characterized by a lack of intrinsic factor, a protein that binds with cobalamin and aids in its absorption by the small intestines. Without enough intrinsic factor, the body cannot absorb enough cobalamin.
4. In rare cases, a fish tapeworm known as *Diphyllobothrium*

- latum may take root in the small intestine and use up cobalamin, thereby depriving the body of necessary amounts of this essential vitamin.
5. In some cases, bacteria may compete with the body for cobalamin as in blind loop syndrome, a disorder in which obstruction of the small intestines results in the abnormal build up of bacteria in the gastrointestinal tract.
 6. Alcoholics may develop folate deficiency because alcohol does not contain folate and may impair the breakdown (metabolism) of folate in the body.
 7. Surgery involving the stomach or intestines can result in impaired absorption of folate. Certain intestinal disorders such as Crohn's disease or tropical sprue can cause malabsorption and subsequent folate deficiency.
 8. Pregnant women, women who are breastfeeding, individuals who have chronic haemolytic anemias, and individuals undergoing hemodialysis for kidney disease all have higher-than-normal demands for folate.

6. <https://library.net/document/q2gmlgey-study-vitamin-deficiency-special-reference-types-pandu-vyadhi.html>

Pandu Vyadhi:

- 1) Pittaja Pandu:- In Pittaja Pandu, the person has Greenish yellow discolouration of mutra, mala, netra, nakha, burning sensation of the body, trushna, jwara and deep yellow watery stool. Excessive perspiration, craves for cold things, do not relish food and has a pungent taste in mouth, loose bowels, durbalata, ushna amla udagara, vidahata, durgandata, murcha.
- 2) Tridoshaja Pandu: -When all tridosha gets vitiated they cause tridoshja Pandu and show all symptoms of three doshas.

Diagnosis:

All types of megaloblastic anemia present the same laboratory findings, whether they are due to cobalamin or folic acid deficiency. In a complete blood count (apart from anemia), the most noteworthy finding is macrocytosis.⁴

DISCUSSION:

In vitamin B12 deficiency, Pittaja Pandu is the commonest type of Pandu found in present study. Ranjak Pitta brings raktatva to rasa i.e. it imparts color to rasa leading to natural formation of rakta dhatu. Due to vitiation of this pitta, rakta formation hampers and Pandu occurs i.e. occurrence of pallor. Alochak, Bhrajak, Pachak, Ranjak and Sadhak Pitta all types of pitta have an ashrayashrayi bhava with Rakta dhatu.

Hence, the predominance of Pittaj type of Pandu is seen. These things happen in Pittaj Pandu vyadhi.

Pittaj pandu lakshanas in vitamin B12 deficiency:-
Finally vitamin B12 deficiency can be correlated with Pittaj Pandu.⁵

CONCLUSION:

1. The most common causes of megaloblastic anemia are deficiency of either cobalamin (vitamin B12) or folate (vitamin B9).
2. Appropriate replacement therapy of deficient nutrient, cobalamin or folate or both, easily corrects megaloblastic anemia.
3. There is a need to apply multidisciplinary approach to the management of megaloblastic anemia.

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