

Pseudoneutropenia in a 53 years old man with helicobacter pylori infection and peptic ulcer

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Abstract: Neutrophil aggregation is a rare finding in peripheral blood smear. It may result in pseudoneutropenia by automated hematology analyzer. A few case reports of Neutrophil aggregation is observed in association of some diseases such as: malignancy, Systemic Lupus Erythematosus ,infection, psychiatric drugs and with use of Ethylene Diamine Tetra Acetic acid(EDTA) as an anticoagulant. Here we report Neutrophil aggregation in peripheral blood smear of a 53 years old man with peptic ulcer and with low WBC count report in Sysmex KX21N.

Keywords: pseudoneutropenia, Helicobacter pylori, neutrophil, leukopenia, EDTA.

INTRODUCTION

Today automated hematology analyzer is used in every routine clinical laboratory. So possibility of any spurious result should be kept in mind. Among these platelet aggregation, platelet satellitosis and presence of nucleated red cells may result to pseudothrombocytopenia and pseudoleukocytosis. Neutrophil aggregation in peripheral blood smear is an extremely rare phenomenon. Some disease has been known as underlying condition with this phenomenon since 1983[1,2,3,4,5,6,7,11], like malignancy, hepatic disease. It also reports with the use of Ethylene Diamine Tetra Acetic acid(EDTA) as anticoagulant[5,7,8,9,10,12].

Neutrophil aggregation may results to pseudoneutropenia which eliciting further laboratory investigation. Neutrophil aggregation has not been reported in association with Helicobacter Pylori (H.Pylori) infection and in peptic ulcer as an underlying condition. To the best of our knowledge. This is the first time of occurrence of Neutrophil aggregation and H. Pylori.

CASE REPORT

A 53 years old man admitted in hospital for the first time because of severe epigastric pain and melena

from 2 days prior to admission with diagnosis of peptic ulcer. In history taking he had on and off epigastric pain since 1 years ago. Familial history and physical examination revealed no positive finding. He had consumed Aluminium -Mg syrup when epigastric pain is vexing him.

Laboratory investigation revealed: WBC=3000/μl with relative lymphocytosis, Hemoglobin=10.5 mg/dl, Platelet= 336000/μl, mild elevation of ESR=45mm(1hour) and 2+ CRP. The result of serologic test , ANA, ANCA, was negative , but high Titer of anti H. pylori IgG was detected=1500(positive titer is more than 35).

Endoscopy finding show few clean base ulcer and erosion in an erythematous gastric antral mucosa. Histopathologic examination of gastric mucosa shows ulceration and severe chronic active gastritis with many H. pylori. Chest X-ray was normal. Peripheral blood smear shows Neutrophil aggregation otherwise unremarkable. Neutrophil aggregation persist even peripheral blood smear is prepared from heparinized blood but resolved one month later, after treatment for H. Pylori and peptic ulcer.

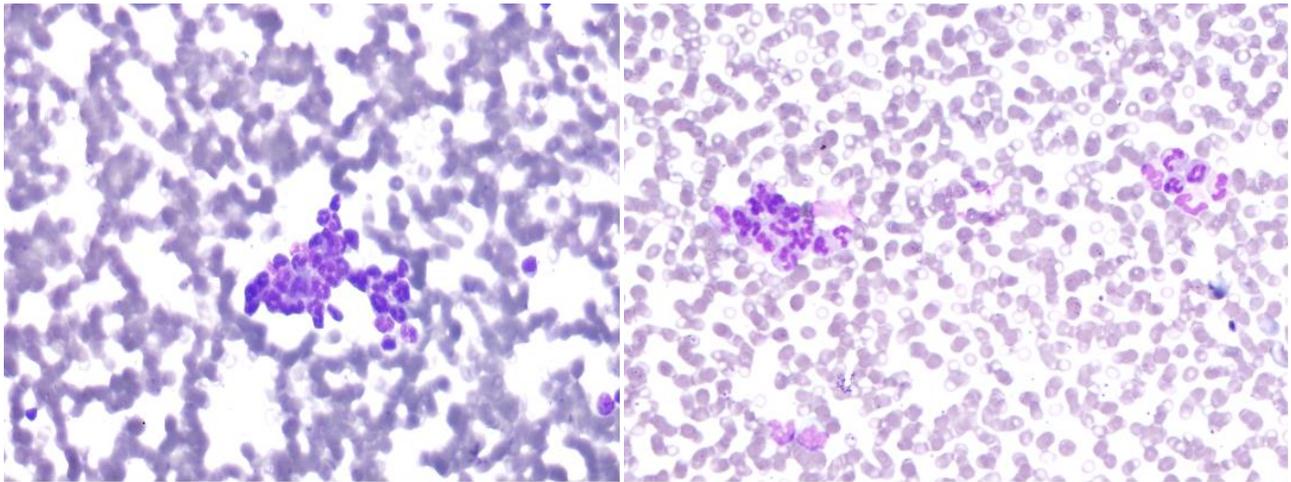


Fig-1: neutrophilic aggregation in Peripheral blood smear Wright-Geimsa staining

DISCUSSION

We should note that, this type of Neutrophil aggregation differs from the artificial leukocyte aggregation at the edge of the smear because of rough edge of spreading slide. This type of leukocyte aggregation is an unique form that is consisted of only neutrophil series. The neutrophil aggregation consisted of small clumps of 2-3 neutrophils to large ones with more than 100 neutrophils. Although this extremely rare phenomenon is described in association of diseases such malignancy, Mycoplasma and EBV infections, liver disease, use some psychiatric drug and with use of EDTA as anticoagulant [1,2,8,11,13,14] but not in association with H. Pylori infection and in peptic ulcer patient ;so this is the first report of leukocyte aggregation in a patient with peptic ulcer and H. Pylori Infection. We suggest a kind of IgM antibody is responsible for this phenomenon and is not related to use of EDTA, because aggregation decrease by 2-Mercapto Ethanol(2ME) reagent incubation and not resolved by substitution of EDTA by heparin or citrate as anticoagulant. Disappearance of this phenomenon after treatment may be in favor of IgM nature of the antibody which produce this phenomenon.

CONCLUSION

Although leukocyte aggregation is a rare, transient and self-limited phenomenon, but as a cause of pseudoneutropenia eliciting the study of the peripheral smear, so every physician should aware of this phenomenon and should rule out as a pitfall of automated hematology auto analyzer before to order imaging study, cytogenetic study, examine bone marrow exam and every other invasive procedure for patient .

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