CASE 1
A 55 year old female with a history of diabetes mellitus has difficulty and pain on urination. The patient has a slightly elevated temperature but no other abnormalities. A CBC with diff and urinalysis shows:

- **WBC** 28,500/uL
- **HGB** 13.2 g/dL
- **MCV** 86.1 fl
- **PLT** 258,000/cmm
- **ESR** 75 mm/hr

Diff:
- 64 segs-25 bands-9 lymphs-2 eos-0 basos

Ab# neutrophils = 25,365/ul (1800-7500)
Ab# lymphocytes = 2,565/cmm (1000-3400)

RBC morphology and platelets were normal but toxic granules Dohle bodies & vacuoles were noted in the neutrophils.

The patient's urine had increased protein as well as increased numbers of leukocytes and many bacteria.

What is the most likely cause of her disorder?

Has the patient’s bone marrow released immature cells into the blood?

Her disorder would best be described as:
- a. Pseudo or shift neutrophilia without a left shift
- b. Pathologic neutrophilia with a left shift
- c. Neutrophilic leukemoid reaction

Can this also be called a regenerative left shift?

Is her ESR result consistent with her disorder?

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CASE 2
A 60 year old white male presented with swollen, bleeding gums and fatigue. This farmer’s history was significant for pesticide exposure over the past 20 years. Lab data showed:

- **WBC** 1.7 K/cmm
- **RBC** 2.51 million/uL
- **HGB** 7.4 gm/dl
- **HCT** 21.7 %
- **MCV** 86.5 fl
- **PLT** 16,000/cmm
- **MCHC** 34.1 %

Diff:
- 9 segs-10 bands-70 lymphs-11 monos

Ab# neutrophils = 323/cmm (1800-7500)
Ab# lymphocytes = 1,190/cmm (1000-3400)

Retic 0.2%  Ab# retics = 5,000/cmm (25-100,000)

No significant RBC or WBC abnormalities were noted.

What is the most likely disorder and its cause?

Is the absolute neutrophil count significant? What procedure should be done?

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CASE 3
A female college freshman complaining of extreme fatigue, headaches, and a sore throat was seen in the student health clinic. Physical exam revealed that the patient had swollen lymph nodes and pharyngitis (sore throat). A CBC with diff was ordered.

- **WBC** 9.0 x 10³/cmm
- **HGB** 13.7 g/dL
- **MCV** 91 fl
- **PLT** 205 K/uL

Diff:
- 15 segs-11 bands-69 lymphs-5 monos

Ab# neutrophils = 2,340/cmm (1800-7500)
Ab# lymphocytes = 6,210/cmm (1000-3400)

RBC morphology appeared normal however many reactive lymphocytes were noted on the smear.

What is the most likely cause of her symptoms and physical findings? Is this typical?

What test should be performed next?