

Prevalence Of Howell-Jolly Like Inclusions In HIV Positive Patients And Their Correlation With CD4 Counts And HIV RNA Viral Load: A Potential Biomarker For Good Prognosis

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INTRODUCTION

Howell-Jolly bodies are nuclear remnants found in red blood cells (Figure 1). Their counterpart in leukocytes, referred to as Howell-Jolly body like inclusions, have been reported in immunocompromised patients, particularly those with HIV. In our study we sought to determine whether the presence of these inclusions in HIV patients could be correlated with the state of their disease.

MATERIALS & METHODS

Peripheral blood smears from HIV positive patients who had flow cytometry performed between July 2011 and November 2011 were selected. The smears were prepared using the Wright-Giemsa stain, CD4 counts were determined by flow cytometry, and HIV RNA viral load were measured by the Roche COBAS AmpliPrep instrument and the Roche COBAS TaqMan HIV-1 Real-time PCR System, respectively.

RESULTS

A total of 65 peripheral smears were reviewed, of which five contained Howell-Jolly body like inclusions within segmented neutrophils (Figure 2), resulting in a prevalence of 7.7%.

In these five positive cases (Table 1), four had CD4 levels >200 cells/ μ L (highest = 966 cells/ μ L) and viral loads <850 copies/mL (lowest = “undetectable”). The fifth case had a CD4 count of 60 cells/ μ L and viral load of 8,690 copies/mL.

Among the remaining 60 cases (Table 2) without the inclusions, a significant number had CD4 counts <40 cells/ μ L and viral loads >10,000 copies/mL.

CONCLUSIONS

The findings in our study show that the presence of Howell-Jolly body like inclusions tend to occur in HIV patients who have higher CD4 counts and lower viral loads. Clinically, these serologic markers are used to monitor disease progression and response to highly active anti-retroviral therapy. Although our initial sample size is small, these results provide early insight into the potential significance of Howell-Jolly body like inclusions in neutrophils correlating with having a low-risk for disease progression and or a favorable response to drug therapy.

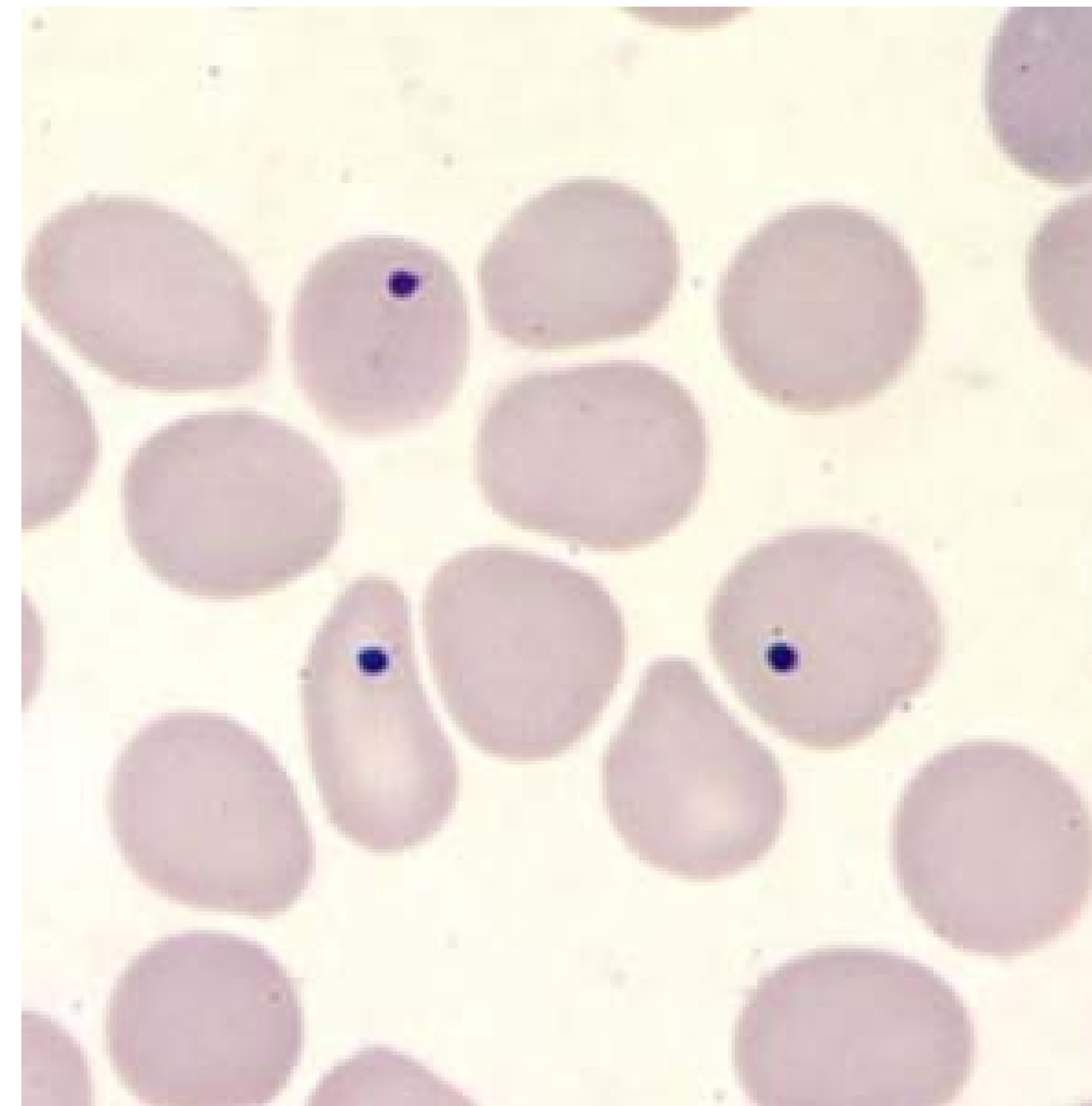


Figure 1: Howell-Jolly bodies within red blood cells.
Image courtesy of www.cdc.gov

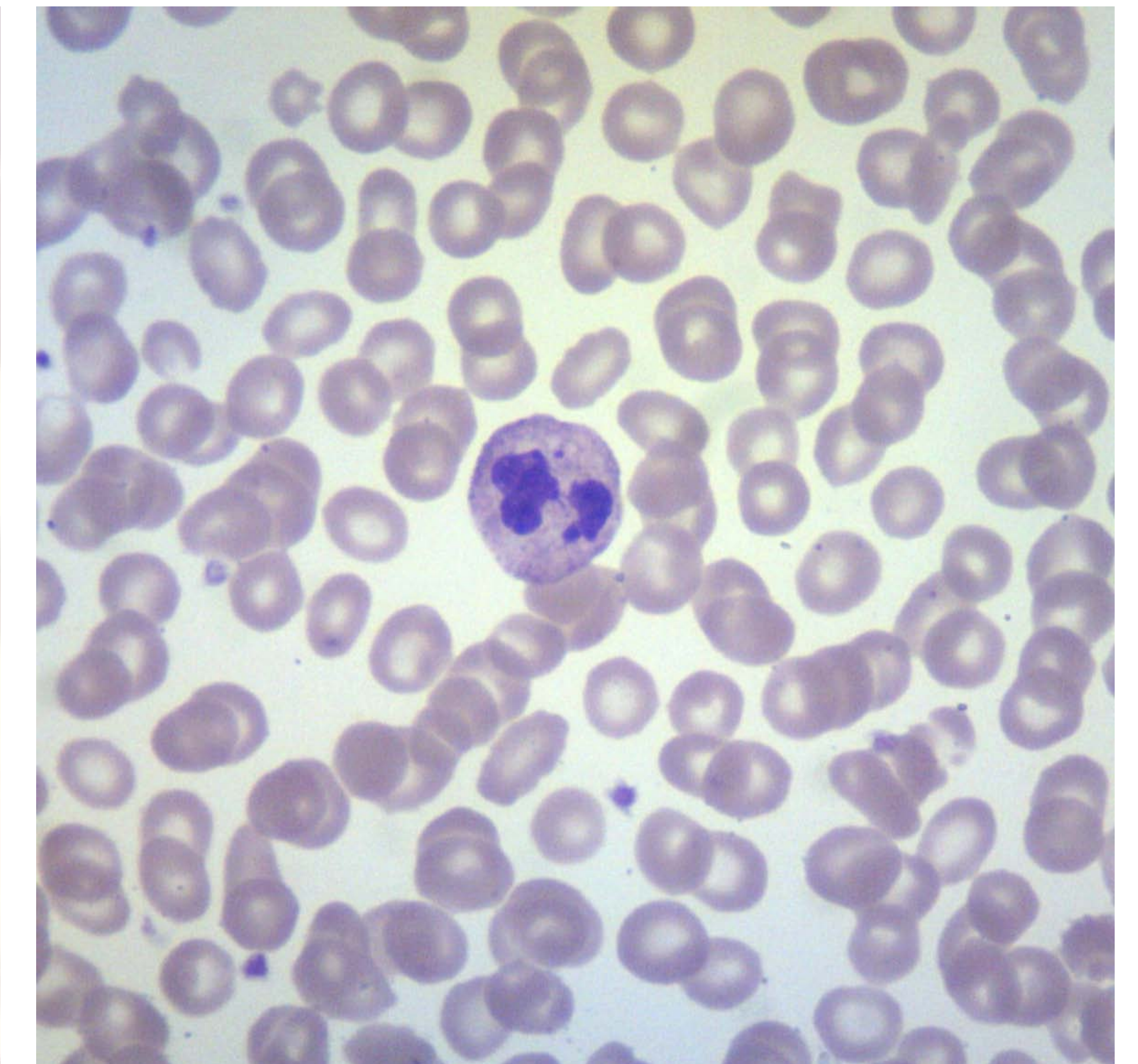


Figure 2: Howell-Jolly body like inclusion within a neutrophil.
100x magnification

	CD4 (cells/ μ L)	HIV RNA (copies/mL)	Viral load Log ₁₀
Patient 1	710	94	2
Patient 2	556	<48	<1.68
Patient 3	966	Undetectable	<1.3
Patient 4	390	849	2.9
Patient 5	60	8690	4

Table 1: Serologic indices of the five cases with Howell-Jolly body like inclusions.

N = 60	Range	Median
CD4 count (cells/ μ L)	3 - 991	195
HIV RNA (copies/mL)	Undetectable – 1,390,000	8580
Viral load Log ₁₀	<1.3 – 6.1	3.9

Table 2: Serologic indices of the sixty cases without Howell-Jolly body like inclusions.