

An 8-year-old African American child is brought to the office for the evaluation of a 1-day history of fever and back pain. He has sickle cell disease, and has had 5 hospitalizations for similar painful crises. His laboratory report shows normocytic anemia, reticulocytosis and leukocytosis. What finding is most likely to be present on this patient's peripheral smear?

- ☐ A. Bite cells
- ☐ B. Helmet cells
- ☐ C. Howell Jolly bodies
- ☐ D. Heinz bodies
- ☐ E. Basophilic stippling

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- ☐ A. Bite cells [7%]
- ☐ B. Helmet cells [10%]
- ☒ C. **Howell Jolly bodies** [70%]
- ☐ D. Heinz bodies [9%]
- ☐ E. Basophilic stippling [4%]

Proceed to Next Item

Explanation:

User Id: [REDACTED]

Sickle cell patients usually have infarcted spleens by the first 18 to 36 months of life. Repeated microinfarctions from clumping of sickle cells can destroy tissues, thereby leading to microvascular beds that promote sickling. The peripheral smear characteristically reveals Howell-Jolly bodies. These bodies are nuclear remnants of red blood cells which are generally removed by a functional spleen; therefore, their presence suggests splenectomy or functional asplenia. Functional asplenia renders a patient susceptible to infections, particularly from capsulated organisms such as pneumococci.

In this case, the patient has several years history of sickle cell disease and multiple, previous, similar, painful crises. By this time, these repetitive occlusive events must have already damaged his spleen, leading to functional asplenia. Howell Jolly bodies are most likely to be seen in his peripheral smear.

(Choices A and D) Heinz bodies are aggregates of denatured hemoglobin, and are commonly seen in patients with hemolysis due to G6PD deficiency and thalassemia. When phagocytes extract this rigid precipitate, they form characteristic bite cells.

(Choice B) Helmet cells are fragmented red blood cells. Their presence is suggestive of traumatic hemolytic conditions such as DIC, HUS and TTP.

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(Choice B) Helmet cells are fragmented red blood cells. Their presence is suggestive of traumatic hemolytic conditions such as DIC, HUS and TTP.

(Choice E) Basophilic stippling are ribosomal precipitates which appear as blue granules of various sizes dispersed throughout the cytoplasm of the red cell. These are often seen with thalassemias, as well as lead or heavy metal poisoning.

Educational Objective:

Howell-Jolly bodies are nuclear remnants of the red blood cells which are generally removed by a functional spleen; therefore, their presence in a peripheral smear suggests functional asplenia in sickle cell patients.

Time Spent: 2 seconds

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