

Parvovirus B19



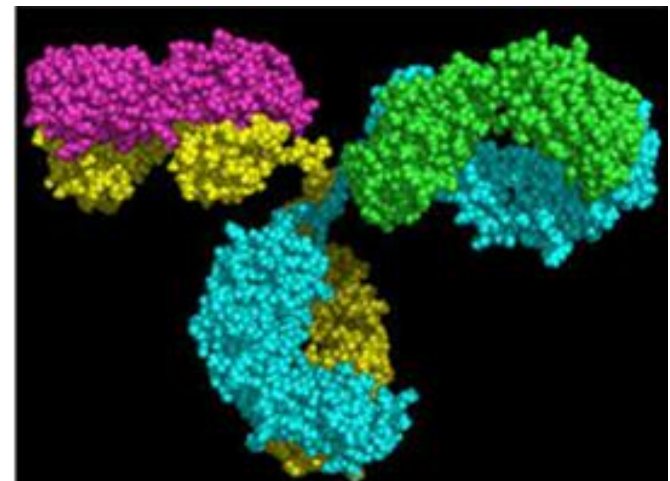
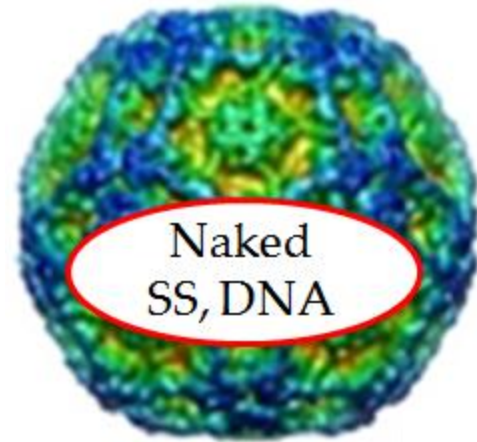
Howard J. Sachs, MD
www.12daysinmarch.com

Parvovirus B19: an Erythrovirus

Panel B, Sample 19



Pronormoblast



Immune Mediated Injury

Parvovirus B19: an Erythrovirus

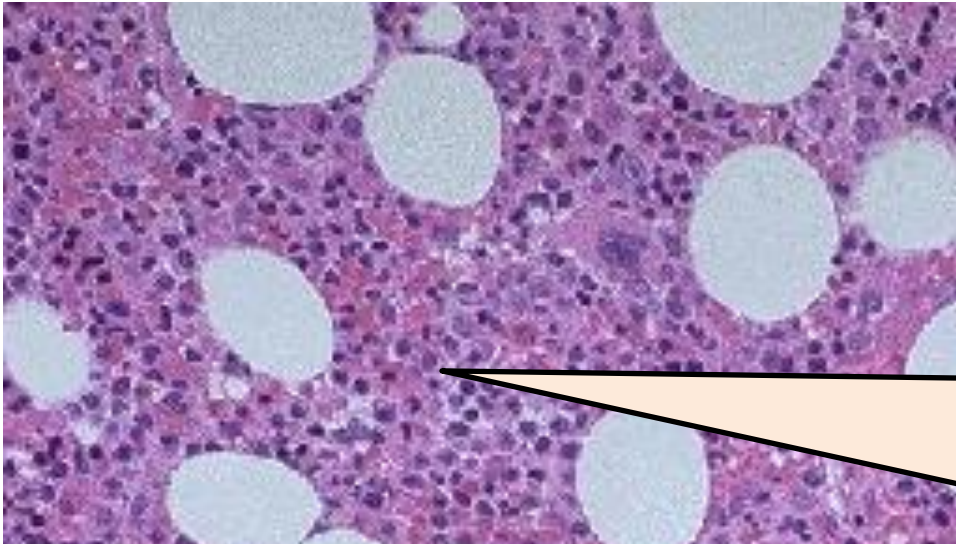
Panel B, Sample 19



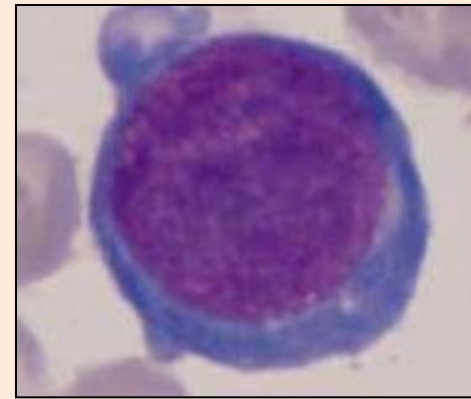
Pronormoblast

4 Scenarios

Scenario 1: Healthy

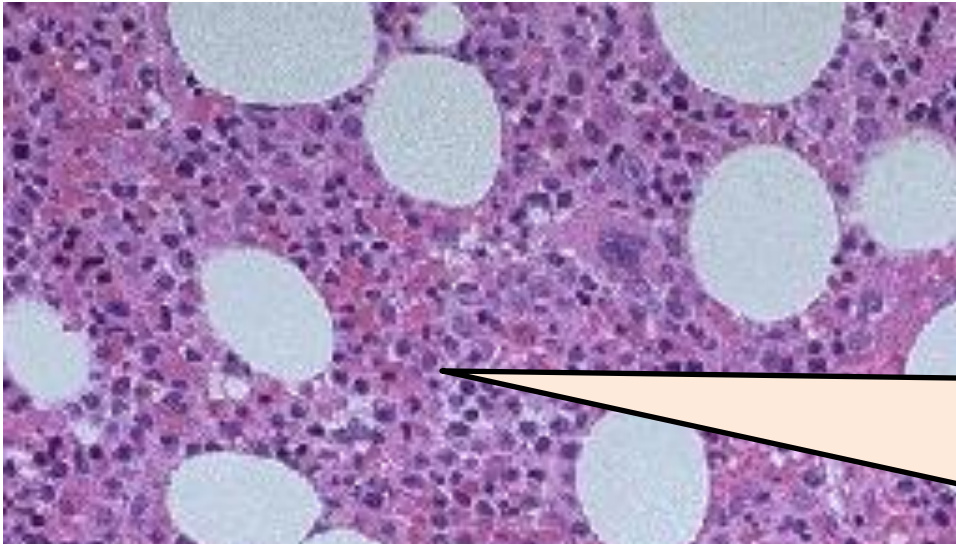


Normal Bone Marrow

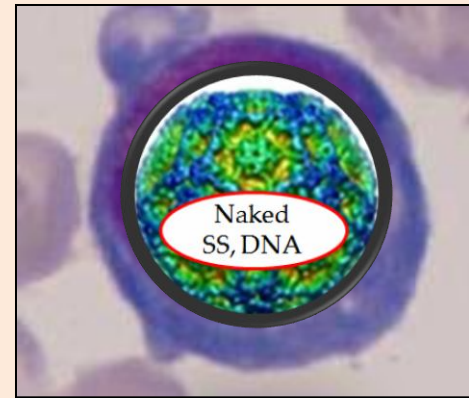


Pronormoblast

Scenario 1: Healthy



Normal Bone Marrow



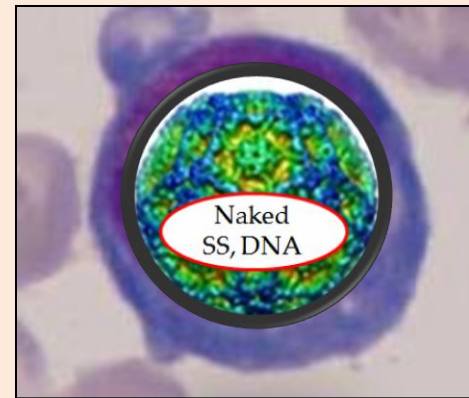
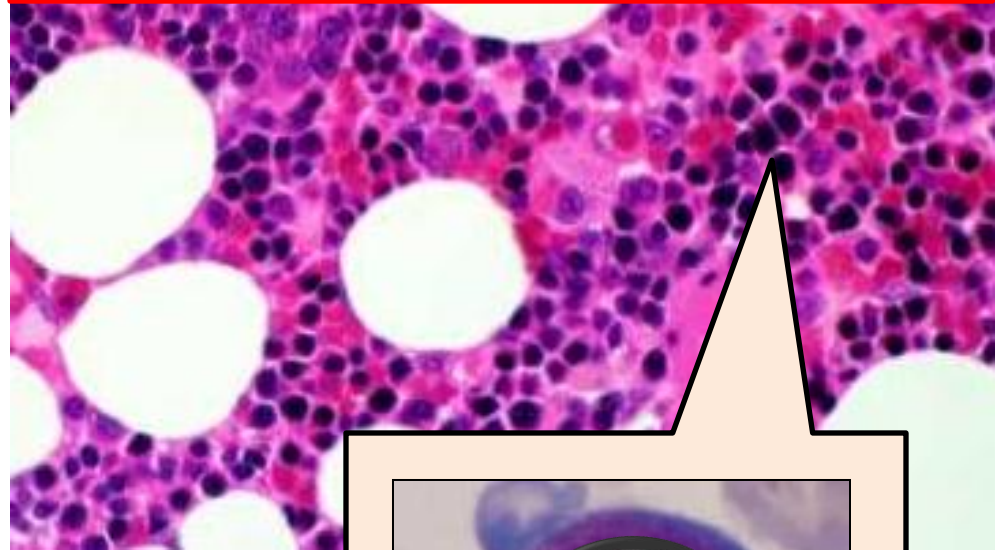
Pronormoblast

Outcome?:
Mild, Self-Limited Anemia

Scenario 2.

Chronic Hemolysis:
Sickle Cell Anemia
Thalassemia
Spherocytosis

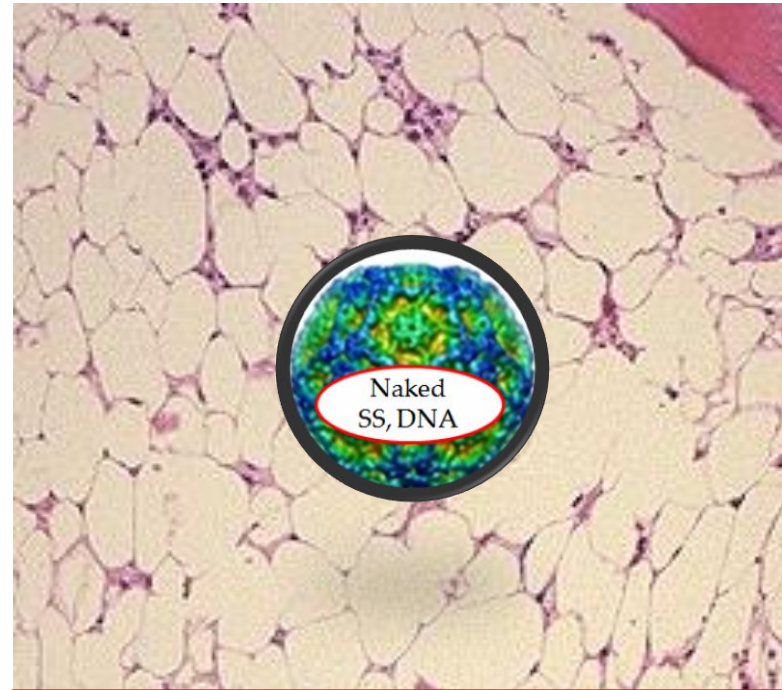
Erythroid Hyperplasia



Pronormoblast

Outcome?:

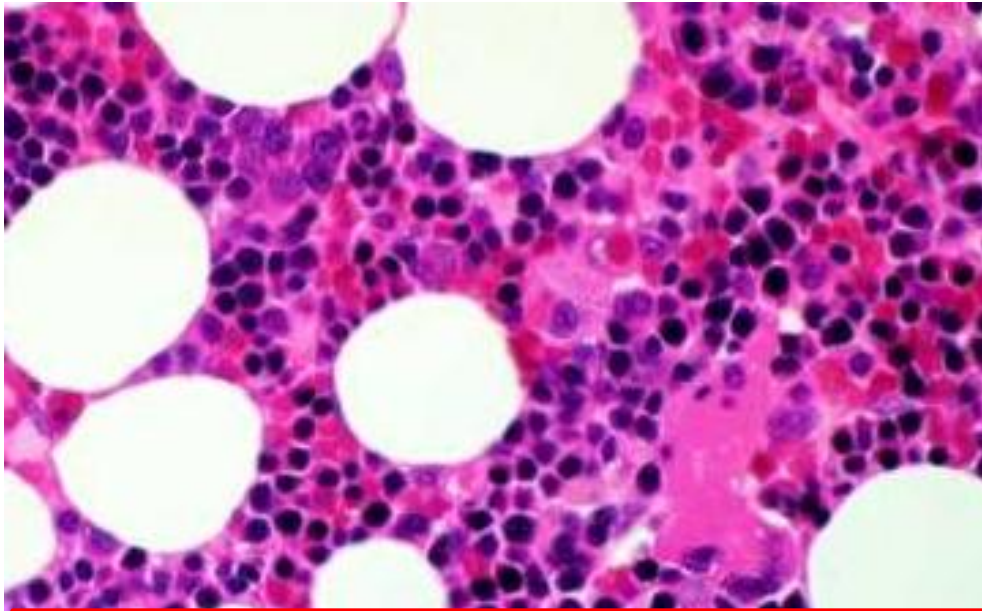
Scenario 2.
Sickle Cell Anemia
Thalassemia
Spherocytosis



Aplastic Anemia

Outcome:

Transient Aplastic Crisis

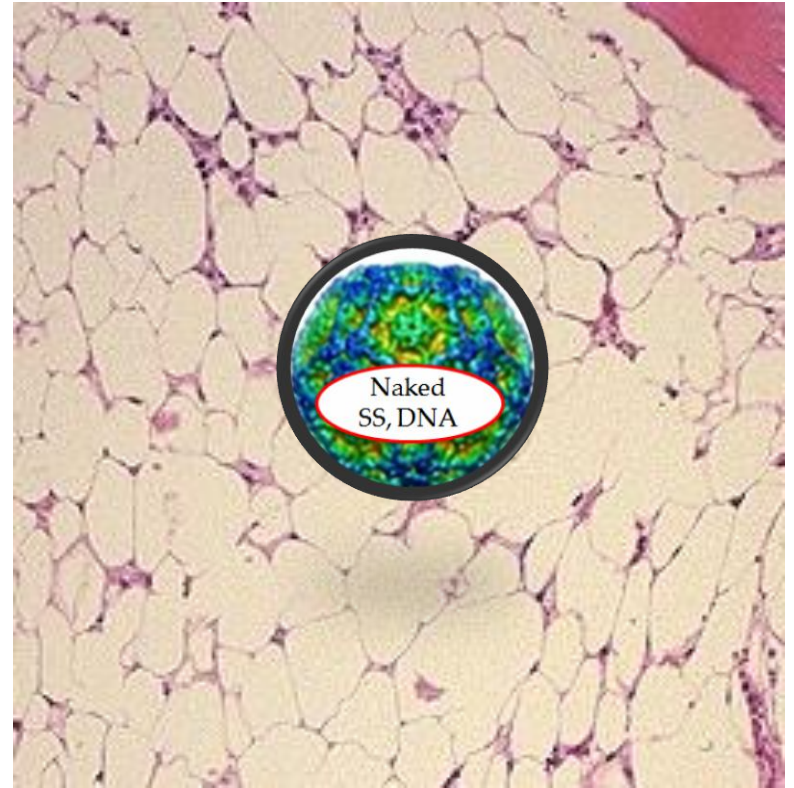


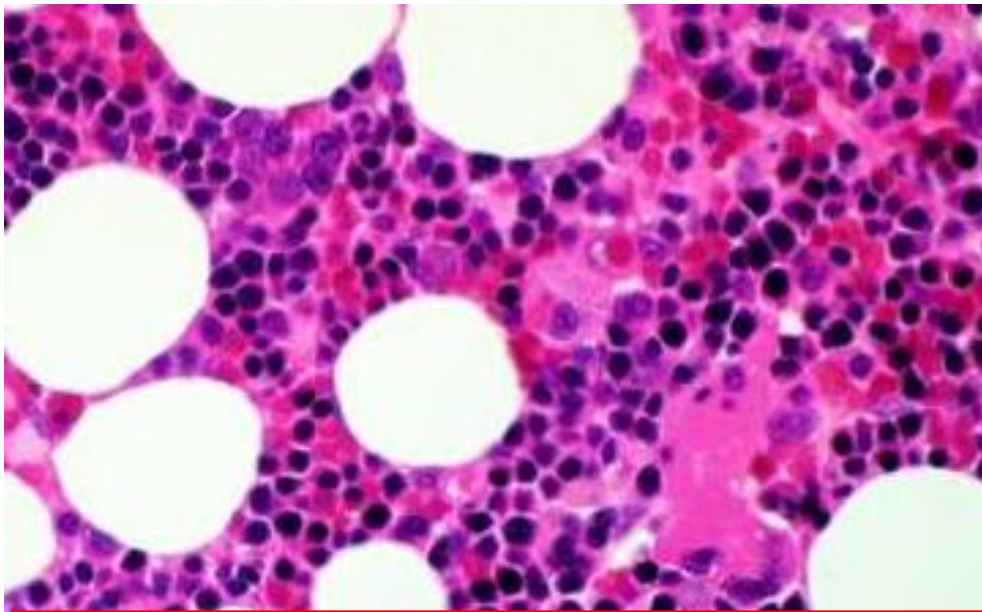
Why Crisis?

Chronic Hemolytic Conditions
require a reactive bone marrow.

Transfusion Support

Transient Aplastic Crisis



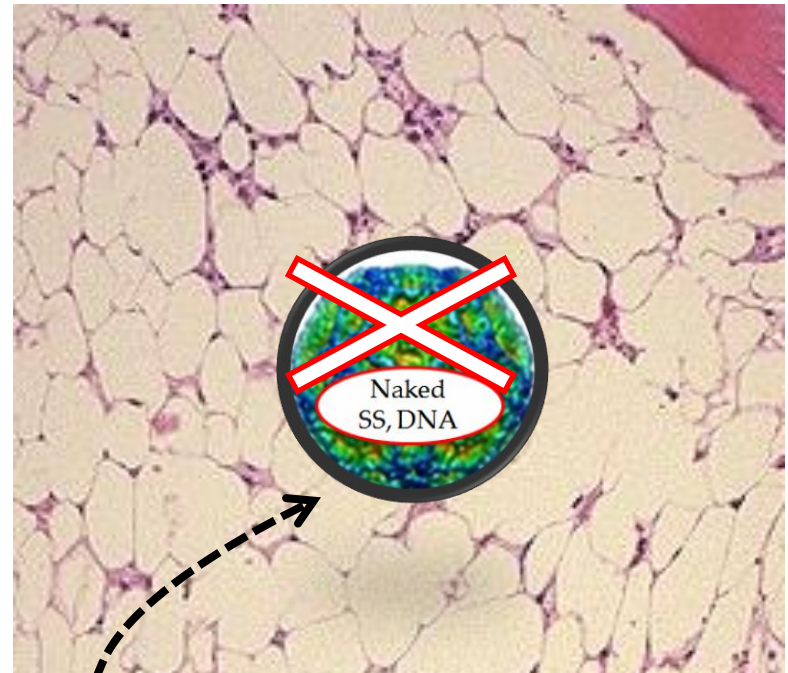


Why Crisis?

Chronic Hemolytic Conditions
require a reactive bone marrow.

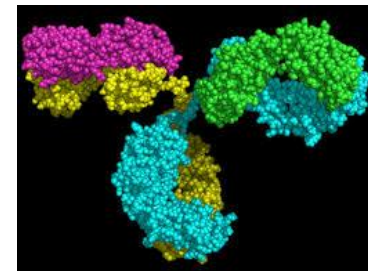
Transfusion Support

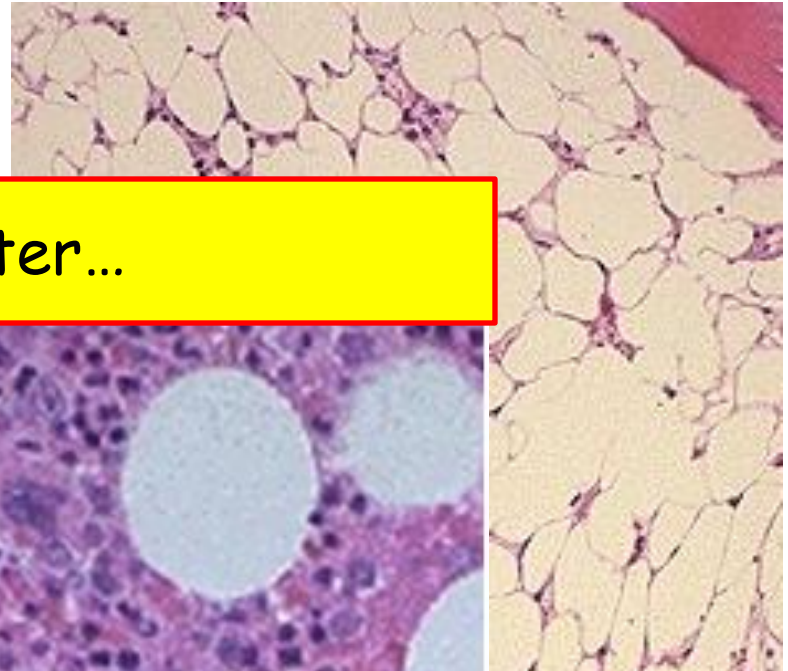
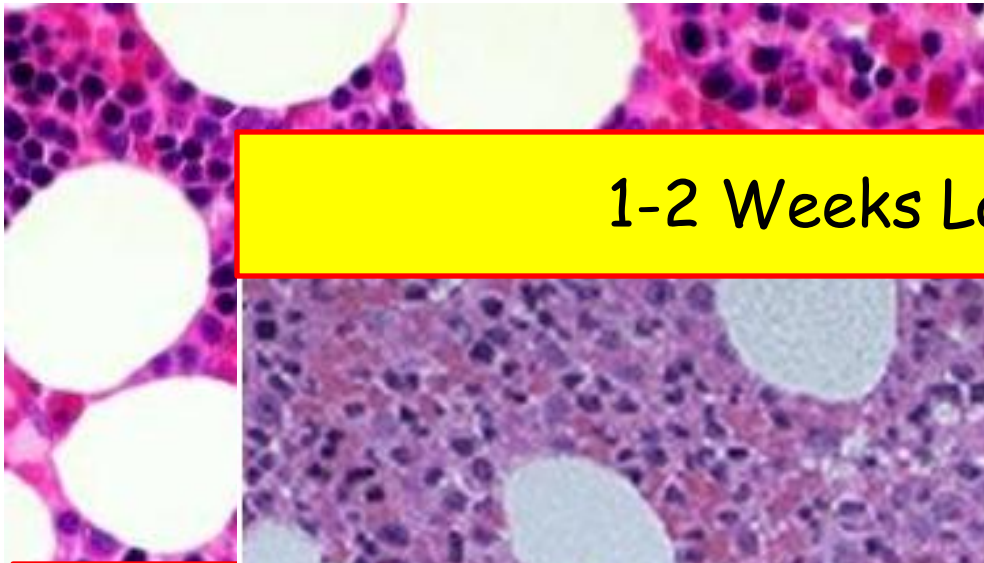
Transient Aplastic Crisis



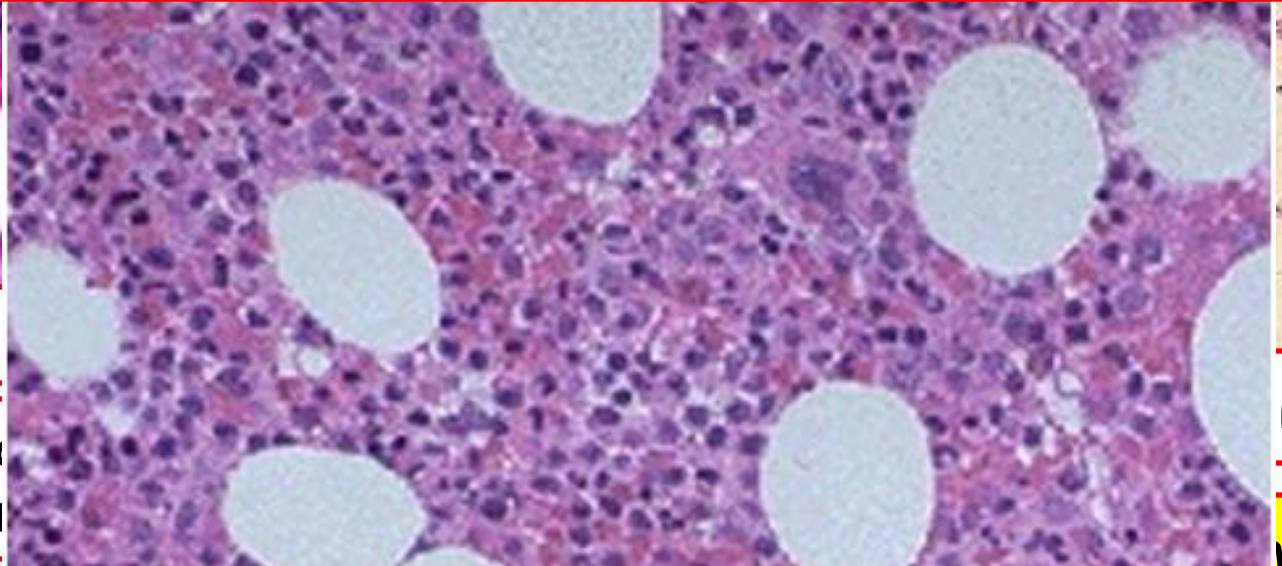
Why Transient?

Immunocompetent





1-2 Weeks Later...



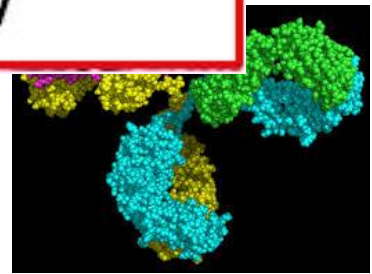
Chro
requi

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petent

Normal Bone Marrow

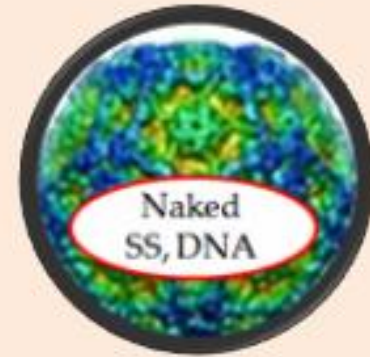
Transient Aplastic Crisis



Scenario 3



Immunocompromised



Pronormoblast

Outcome?

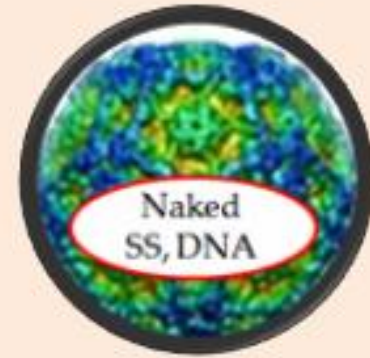
Scenario 3



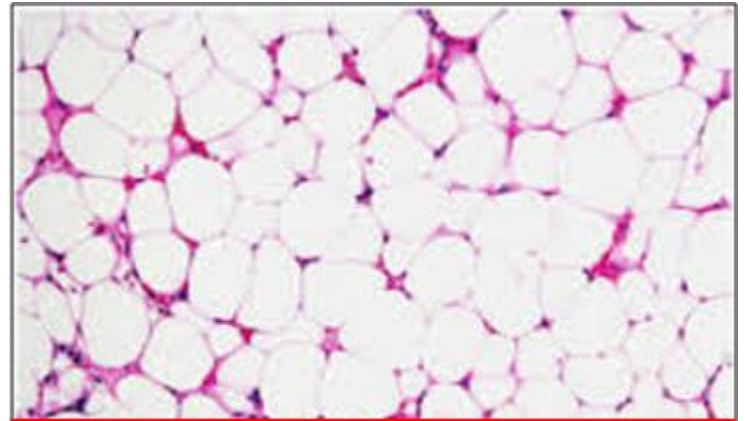
Immunocompromised

Outcome?

Why isn't this transient?



Pronormoblast

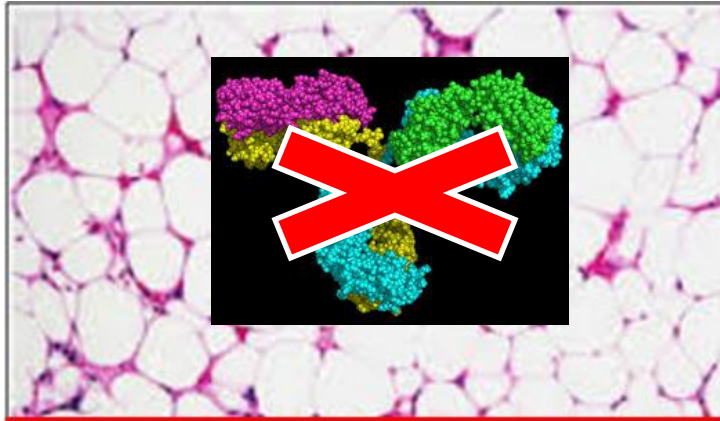


Aplastic Anemia

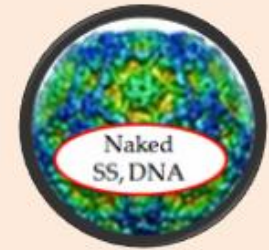
Scenario 3



Immunocompromised



Aplastic Anemia



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No humoral response
No viral clearance
Erythroid progenitors remain chronically infected

Scenario 4
The Fetus (<20 weeks)



Yolk sac
Liver, Spleen



Scenario 4
The Fetus (<20 weeks)



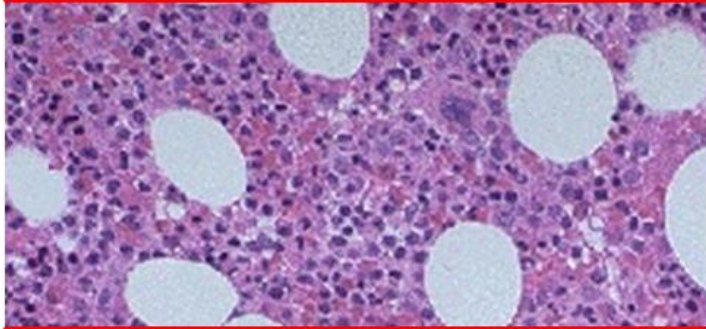
Yolk sac
Liver, Spleen



Nonimmune
Hydrops fetalis

High output failure from severe anemia

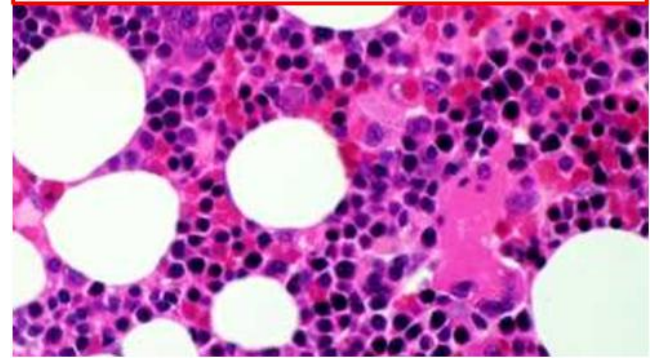
Scenario 1



Normal Bone Marrow

Self Limited Anemia

Scenario 2
Erythroid Hyperplasia



Transient Aplastic Crisis

Scenario 3



Immunocompromised

Aplastic Anemia

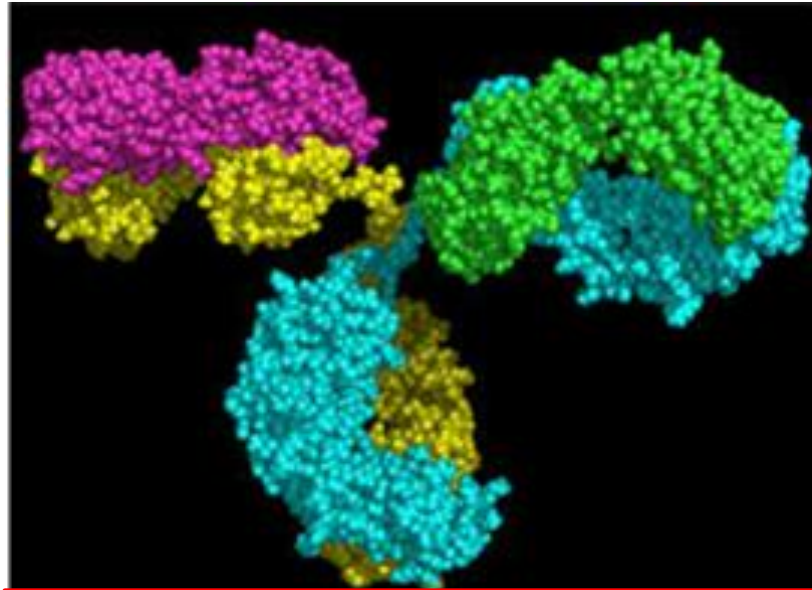
Scenario 4
The Fetus (<20 weeks)



Hydrops Fetalis

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Panel B, Sample 19



Immune Mediated Injury

Fifth Disease
(Erythema
Infectiosum)



'Slapped
Cheeks'

Cheeky smile

If you understand why he is smiling,
you understand this disease

Fifth Disease
(Erythema
Infectiosum)



'Slapped
Cheeks'

Cheeky smile

If you understand why he is smiling,
you understand this disease

Presentation:

- Viremic phase: days 5-10 with mild febrile illness.
- Rash appears **AFTER** viremia; immune manifestation of viral infection
- 'Cheeky smile': rash is present, but the kid feels better

Parvo-associated arthropathy



RA-like Presentation

Presentation:

- Joint symptoms follow the viremic phase
- Involvement: Small joints hands and wrists; Adults (women) >> kids.
- Self limited resolving in ~3 weeks.

Parvo-associated arthropathy



RA-like Presentation



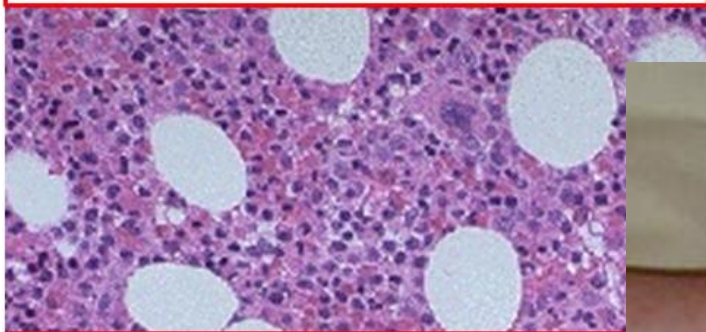
Presentation:

- Joint symptoms follow the viremic phase
- Involvement: Small joints hands and wrists; Adults (women) >> kids.
- Self limited resolving in ~3 weeks.

Classic question:

Adult develops wrist pain following exposure to a kid who had a viral syndrome that included a facial rash.

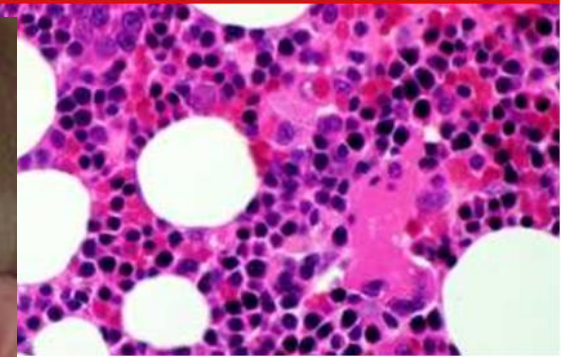
Scenario 1



Normal Bone Marrow



Scenario 2
Erythroid Hyperplasia



Scenario 3



Immunocompromised



Scenario 4
The Fetus (<20 weeks)

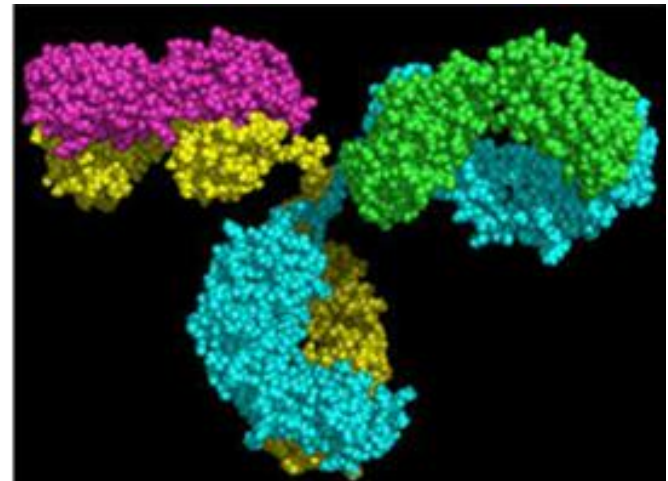


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