



# **PSEUDOTHROMBOCYTOPENIA IN A PLATELET DONOR**

**Donor Center at Roswell Park Cancer Institute**

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# CASE REPORT

- 70 year old female donor
- 200 platelet donations during a 10 year period
- Low platelet count in EDTA sample collected during procedure
- Fingertick performed immediately prior to the subsequent collection was acceptable
- Eventually, a fingertick was also low.
- Donor returned for peripheral draw and additional samples were requested by the laboratory.



# DONOR LABORATORY FINDINGS

Date	Plt Count	
4/21/2009	271	last fingerstick CBC performed day of collection
5/5/2009	261	first week of post CBC providing pre for next collection
5/17/2010	243	
7/21/2010	121	278 repeat count
8/19/2010	45	
8/31/2010	73	EDTA induced thrombocytopenia identified
9/9/2010	35	
9/28/2010	174	
10/14/2010	212	
11/11/2010	206	using citrate
11/30/2010	205	citrate

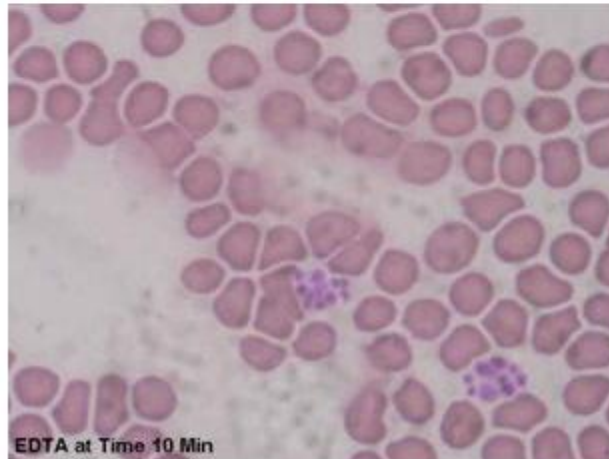
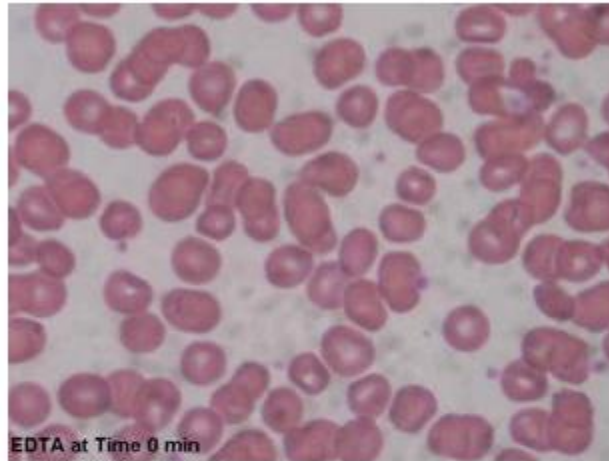


# CONFUSION

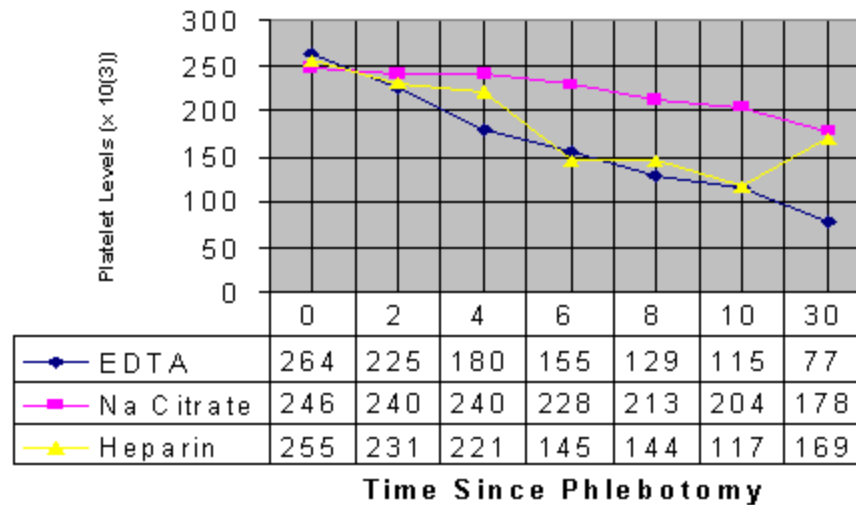
Date	Pre Count		Yield
4/21/2009	271	last fingerstick CBC	4.3
5/5/2009	261	first week of post CBC providing pre for next collection	4.5
5/17/2010	243		4.21
7/21/2010	121	278 repeat count	4.09
8/19/2010	45		3.34
8/31/2010	73	EDTA induced thrombocytopenia identified	NA
9/9/2010	35		3.89
9/28/2010	174		4.34
10/14/2010	212		4.7
11/11/2010	206	using citrate	4.85



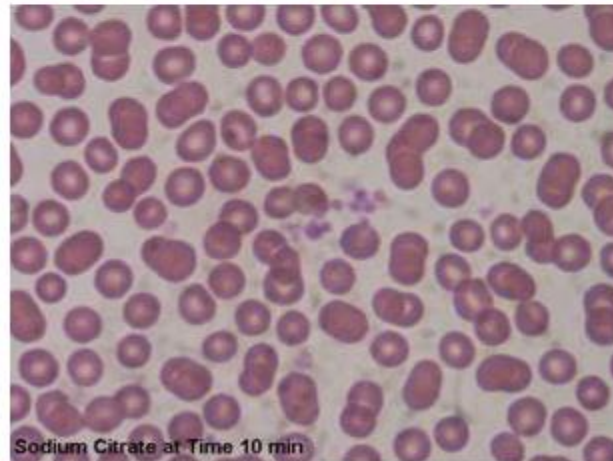
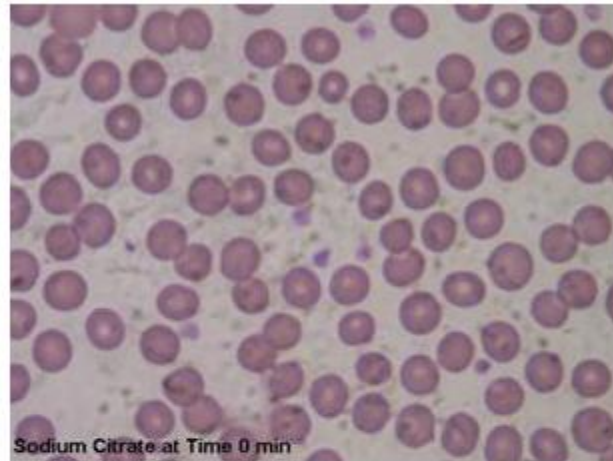
# DONOR SAMPLE UNDER THE MICROSCOPE



# IN EFFECTED PATIENTS, THE PLATELET COUNT DECREASES WITH TIME.



# CITRATE SAMPLE UNDER MICROSCOPE



# WHAT IS EDTA INDUCED PSEUDOTHROMBOCYTOPENIA?

- It is an in vitro phenomena of platelet clumping in the test tube
- First described by Gowland et al in 1969
- This causes a false decrease in the platelet count obtained using an automated analyzer whether it uses an impedance method or an optical method.



## HOW COMMONLY IS IT SEEN?

- 0.1% of the general population
- Sweeney estimated 0.2% of platelet donors from a study looking for this in 2125 apheresis donations from 945 donors.
- It has been characteristically identified in individuals with HIV, rubella, CMV, autoimmune disorders, trauma, malignancy, surgery, essentially patients who are having counts performed on a more frequent basis



# PROPOSED ETIOLOGIES

- Antibody
- Cold reacting more frequently mentioned than warm reactive
- All Heavy and light chain combinations have been included.
- Antibody against the cytoadhesive receptor of gpIIb/IIIa
- Also reported in patients receiving abciximab (ReoPro) which blocks the platelet fibrinogen receptor gpIIb/IIIa – this is temporary and dose dependent.



# MANAGEMENT

- Draw samples in another anticoagulant.
- When there is a known problem, changes are made in standard practice, why hasn't it been done in this situation?
  - EDTA does not distort the shape, appearance of blood cells, something which happens when heparin or citrate are used for anticoagulation of routine CBC samples.



# PRODUCTS COLLECTED

- Average yield  $4.313 \pm .52$
- Median yield 4.255



## RESPONSE TO INFUSION

- Average change in platelet count  $30.96 \pm 19.3$
- Median change in platelet count 27 (-8 – 68)
- No reactions reported



# DONOR MANAGEMENT

- This donor is continuing to donate platelets approximately 20 times a year.
- She is aware that her platelet counts are likely inaccurate when samples are drawn in a purple top tube.



# ACKNOWLEDGEMENTS

## ○ Donor Room

- Elizabeth Rodriguez
- Terry Wolfe
- Nancy Stabile
- Rose Delecki
- Patricia Murphy
- Lynn Mohler
- Julia DiPazza
- Raphael Matthews
- Steve Frank
- Melanie Secor

## ○ Hematology Lab

- Tom Smietana
- Jen Mazurowski
- Amy Michnik
- Denise Alessandra

