My Memorable Mistakes

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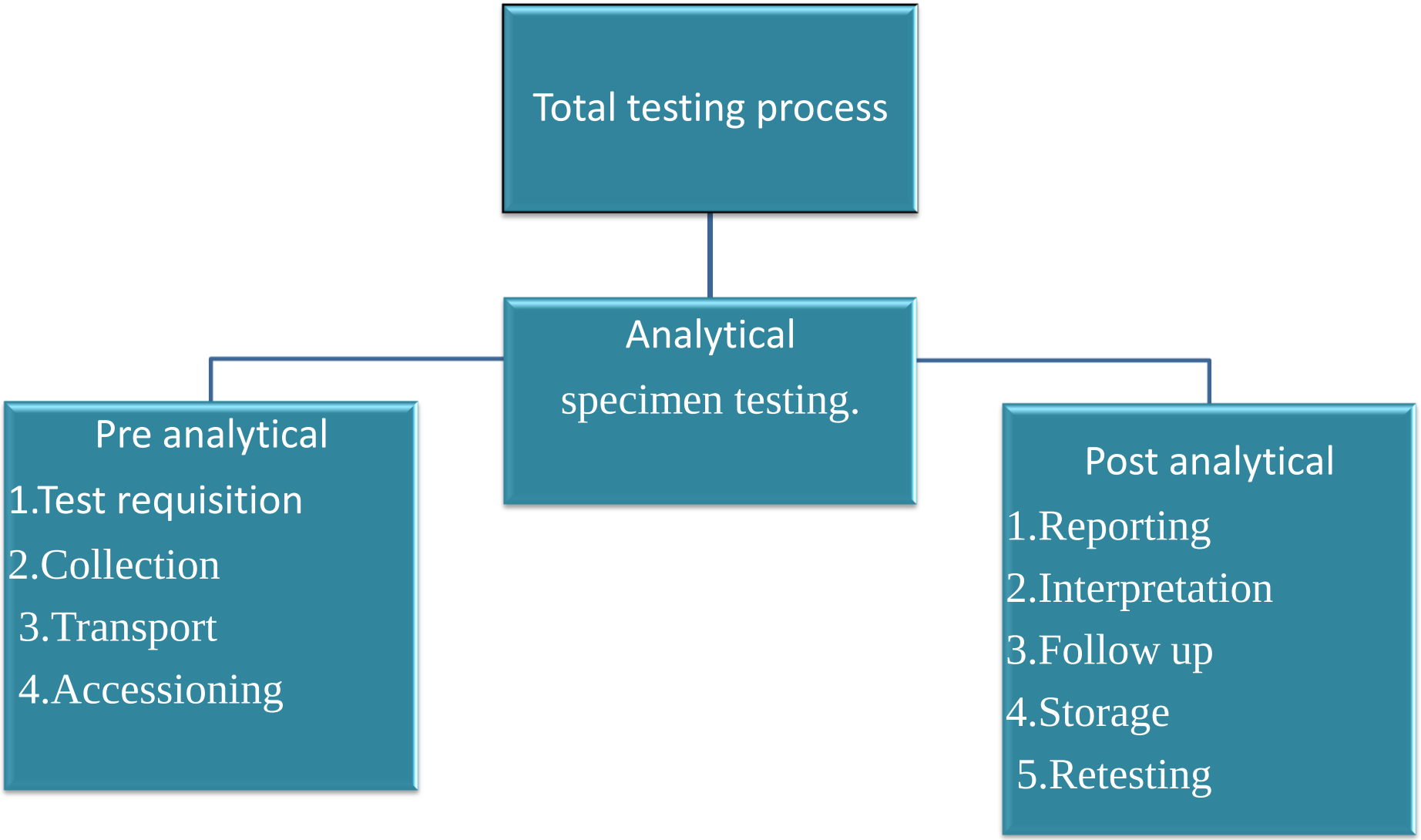
Introduction..

- A laboratory error is defined as any defect that occurs during the entire testing process, from ordering tests to reporting results, that in any way influences the quality of laboratory services.
- Any error during the laboratory testing process can affect patient care, including delay in reporting, unnecessary redraws, misdiagnosis, and improper treatment.
- Sometimes, these errors may even be fatal.


Total testing process
Analytical
specimen testing.
Pre analytical
1.Test requisition
2.Collection
3.Transport
4.Accessioning
Post analytical
1.Reporting
2.Interpretation
3.Follow up
4.Storage
5.Retesting

Error-1

- Sample received from ICU for coagulation profile, test performed in the lab showed -----

RESULTS

Test	Result	Unit	Normal Range
Prothrombin Time	**22**	**sec**	**12.7-15**
MNPT	**13**	**sec**	
INR	**1.76**		**0.8-1.2**
APTT	**60.8**	**sec**	**24 - 35.3**
control	**30**	**sec**	

Action taken as per lab policy…

- Delta check of previous test results
- check clinical history

If abnormal …. Find out the cause

If previous results are normal …….. Repeat assay

(In this case previous result is normal)

Repeat sample collected shows results as follows

TEST	RESULT	UNITS
PT	13.2	SECs
MNPT	13.5	SECs
APTT	31.0	SECs
CONTROL	29.5	SECs

This results are normal

- Possibilities. . .

1. Clinical conditions like patient suffering from bleeding, extensive transfusion, swelling, history of hematoma etc.

   (Not suggestive of the abnormal results)

2. Patient on anticoagulant .

   (NO)

3. c/o post operative.

   (NO)

- **Pre analytical**

➢ Improper blood to anticoagulant ratio.

➢ Sample quality

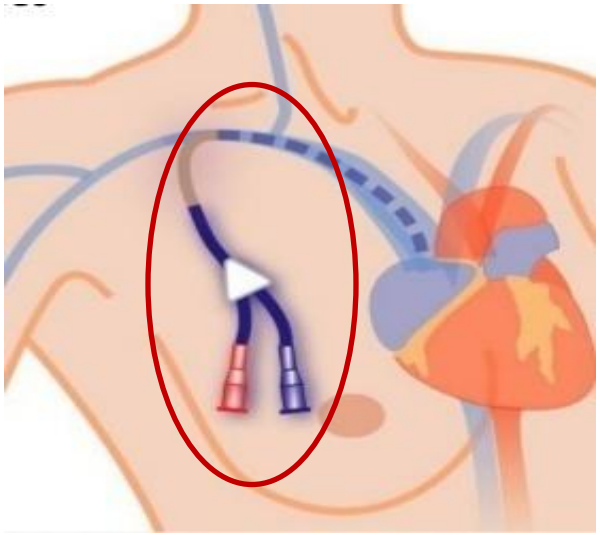
➢ Central line collection

- **Analytical error**

➢ Reagent Deteriorated , mixing of reagents, partial aspiration of reagent or sample, problem with Analyzer.

- **Sample Quality**
- **Sample Quantity**
- **Reagents**
- **Instrument issues**
- **Clinical conditions of patient**

On enquiring about the collection timings and site it was made clear that it was central line collection where, heparin is flushed through the line before collecting the sample.



Proper procedure is to be followed while collecting sample from central line

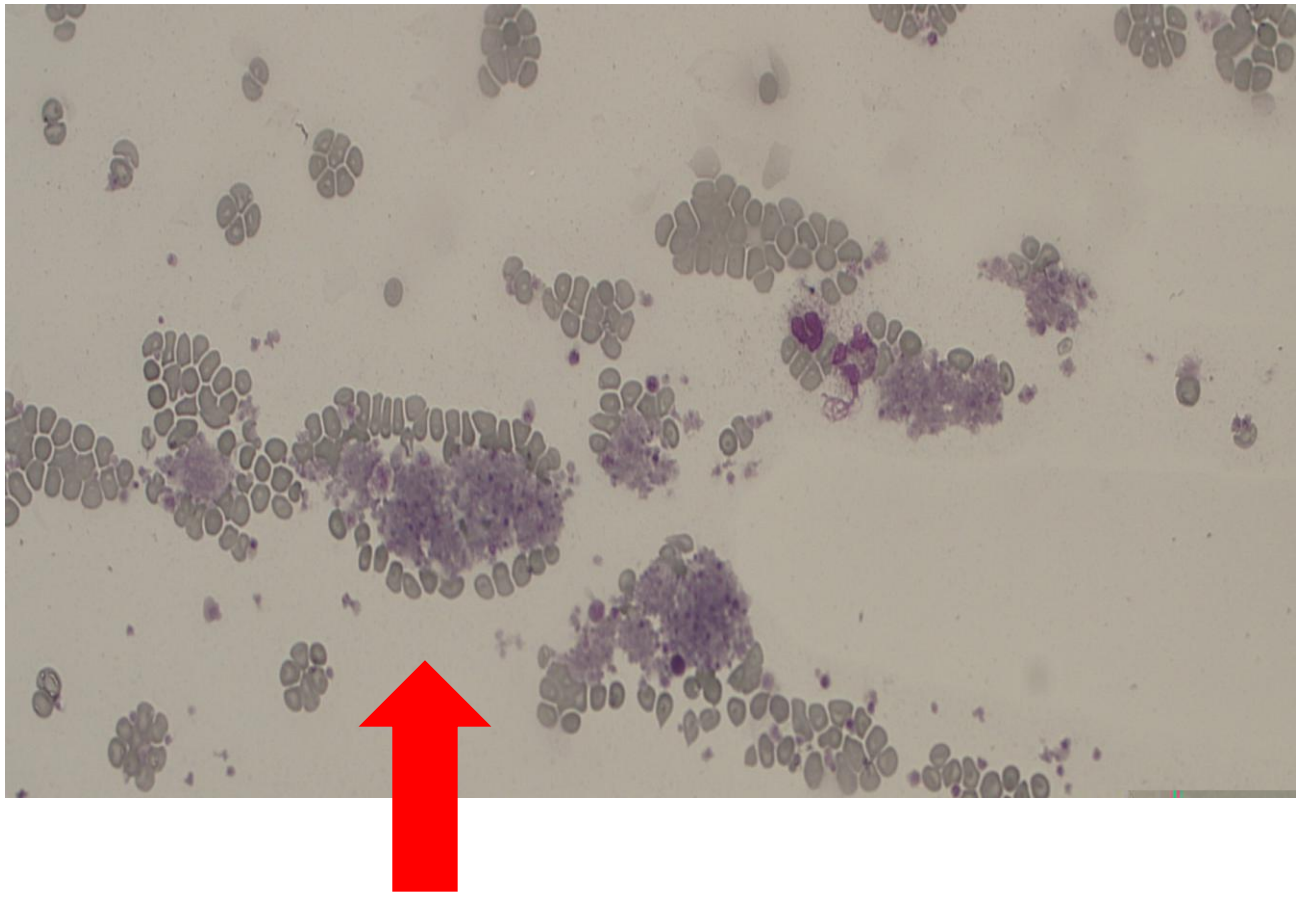
Tips and warning

- Avoid blood collection from heparin-flushed lines to avoid heparin contamination and specimen dilution.
- If heparin line must be used, flush line with 5-mL saline and discard the first 5 mL of blood (or 6 line volumes) of blood.
- Underfilling or overfilling results in an imbalance in the blood to anticoagulant ratio and can produce artificially prolonged or shortened clotting times, respectively.

Error-2

- A 35 years /F Sample received for complete blood count -----

Peripheral Blood Smear – WRIGHT STAINING



PLATELET SEEN IN CLUMPLS

Causes of Platelet clumping in EDTA Sample

- Slow collection
- Improper mixing
- EDTA induced psuedothrombocytopenia.

Corrective action taken

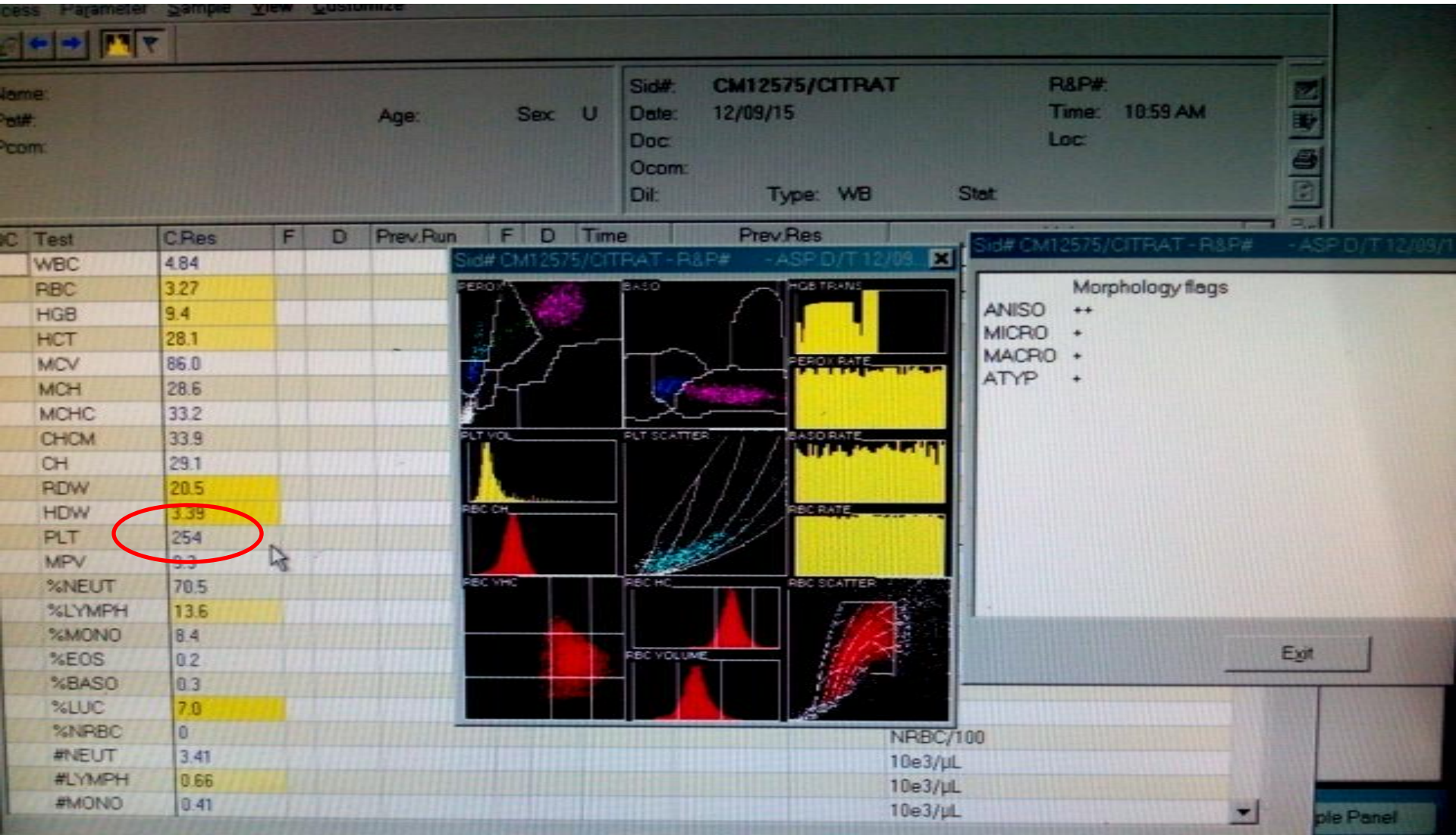
Repeat collection was advised in

1) EDTA

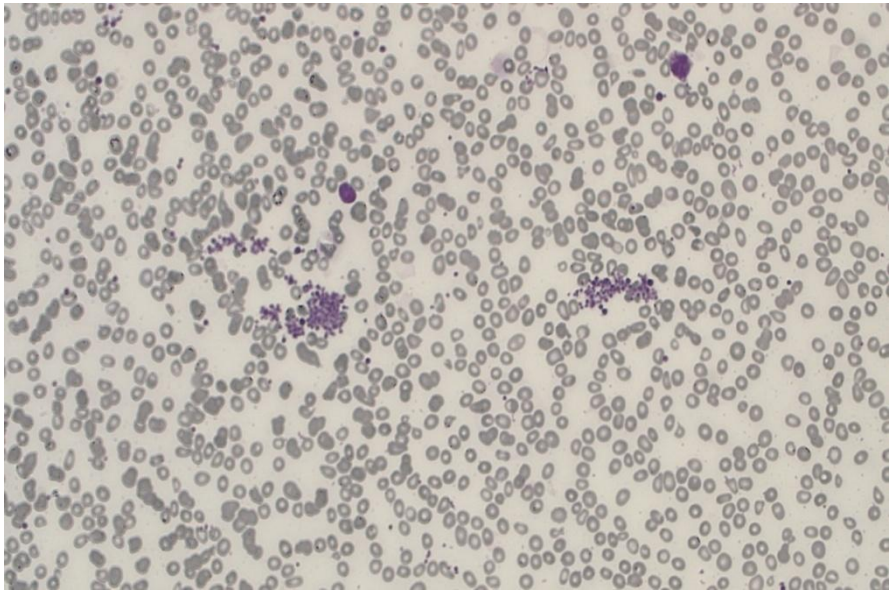
2) Na-Citrate anticoagulant.

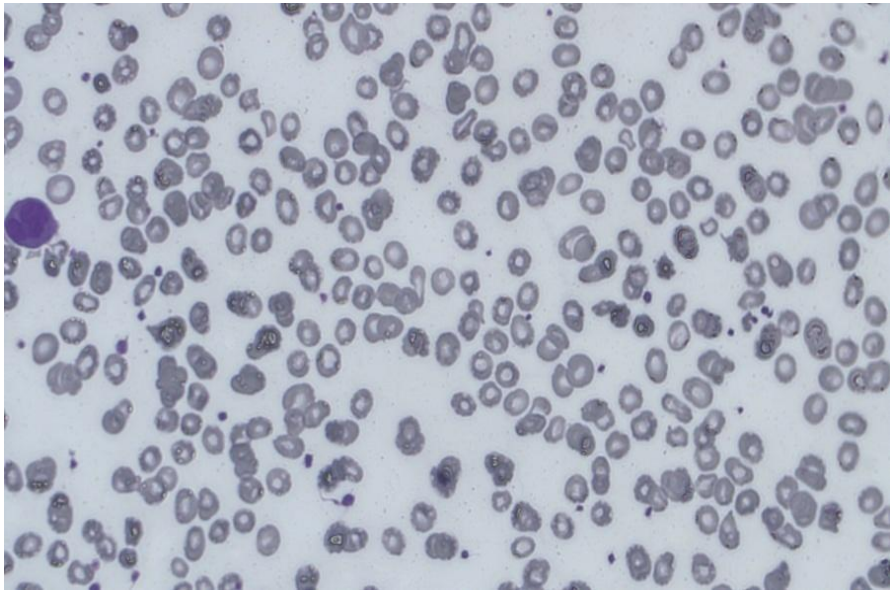
NOTE: **Na-Citrate collection is only for Platelet count & not for reporting of other CBC parameters**.

Citrate sample run on analyzer for Platelet count



EDTA VS CITRATE SAMPLE PERIPHERAL BLOOD SMEAR





Calculation for Plt count of Citrate sample

Plt count = (citrate plt count X 1.1) X 10^9/L

Plt count = (254 X 1.1) X 10^9/L

Plt count = 280 X 10^9/L

Lombarts AJ, de Kieviet W. Recognition and prevention of pseudothrombocytopenia and concomitant pseudoleukocytosis. Am J Clin Pathol. 1988;89:634–639.

CASE 1 - EDTA induced Pseudothrombocytopenia

- EDTA- induced pseudothrombocytopenia is a common laboratory phenomenon which gives spurious low platelet count.

- It is often overlooked because blood smears are not evaluated visually in routine practice and histograms as well as warning flags of hematology analyzers are not interpreted correctly.

- Awareness of typical PLT and WBC patterns may alert to the presence of EDTA-PTCP in routine laboratory practice helps to avoid unnecessary investigations and over-treatment.

Conclusion

It is important to carry out our work in lab with utmost care and alertness.

- To follow a technically correct methodology from time of collection to reporting the results ,so that the results are precise, accurate and reliable.
- To avoid erroneous results due to technical errors.

Prevention is Better than cure!

'It costs less to prevent a problem than it does to correct it'

A formal quality system in the laboratory should prevent mistakes by means of:

- quality assurance measures
- quality control of the analytical results
- thorough documentation of the system
- efficient maintenance of records
- regular audits of all aspects of the system

IT'S NOT A MISTAKE
TO MAKE A MISTAKE,
BUT IT'S A MISTAKE
TO REPEAT THE
SAME MISTAKE.