

# **Hematology Case Conference**



**8/27/02**

# Case 1: Pediatric bone marrow

## HB-02-115



- ⌘ Clinical history: 4 y/o Asian-American male with 2-week history of fever, (L) side weakness
  - ⌘ Physical exam: no organomegaly
  - ⌘ Lab tests: Hgb=10.1
- Bone scan: increased activity in (L) 7<sup>th</sup> rib, (L) proximal humerus, scapula, and iliac

# CBC



⌘ Hgb=9.3, MCV= 73

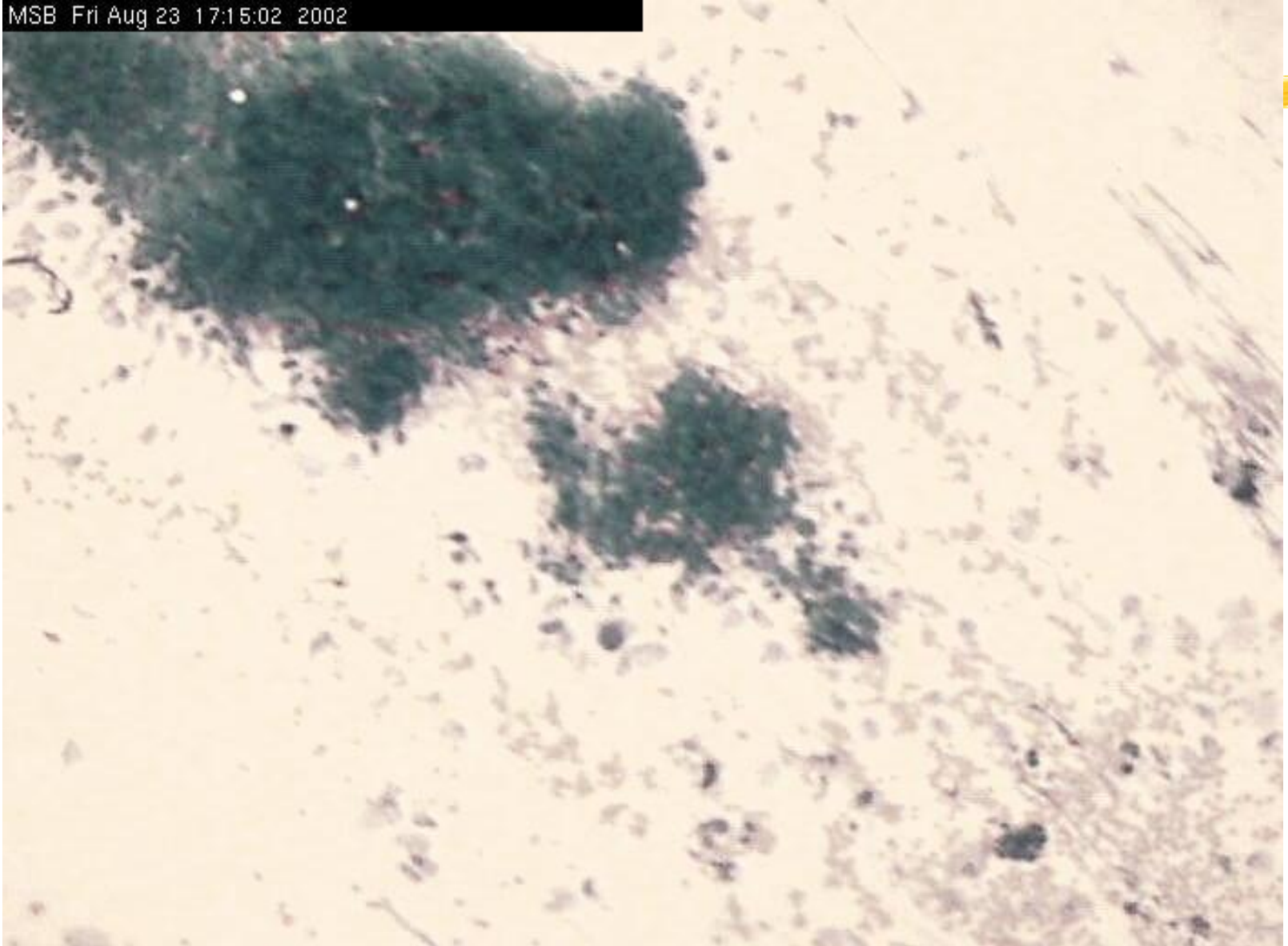
Microcytic hypochromic anemia with  
anisopoikilocytosis

⌘ Platelet=292,000

WBC=7.6 with 59% N, 27% L, 12% M, 2%E

# Bone Marrow Aspirate (low mag)

MSB Fri Aug 23 17:15:02 2002



# Bone Marrow Aspirate (high mag)

MSB Fri Aug 23 17:17:06 2002



# Cytological Features

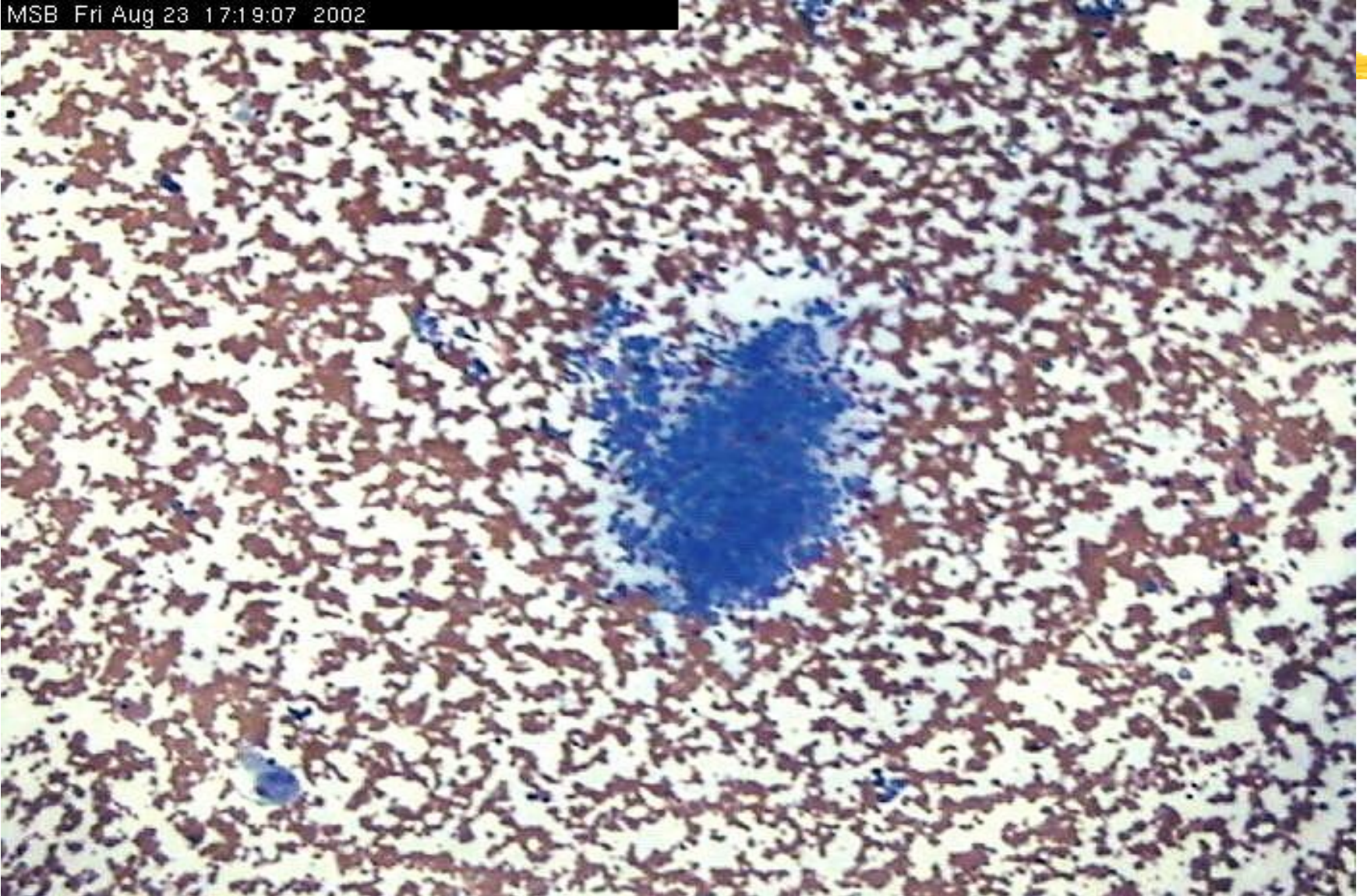


- ⌘ Small, primitive-appearing cells with dark nuclei, scant cytoplasm. Clusters of cells with poorly-defined border
- ⌘ Diff Dx of small, blue round cell tumors:
  - Neuroblastoma
  - Ewing's sarcoma
  - Rhabdomyosarcoma



# Bone Marrow Touch Prep (low mag)

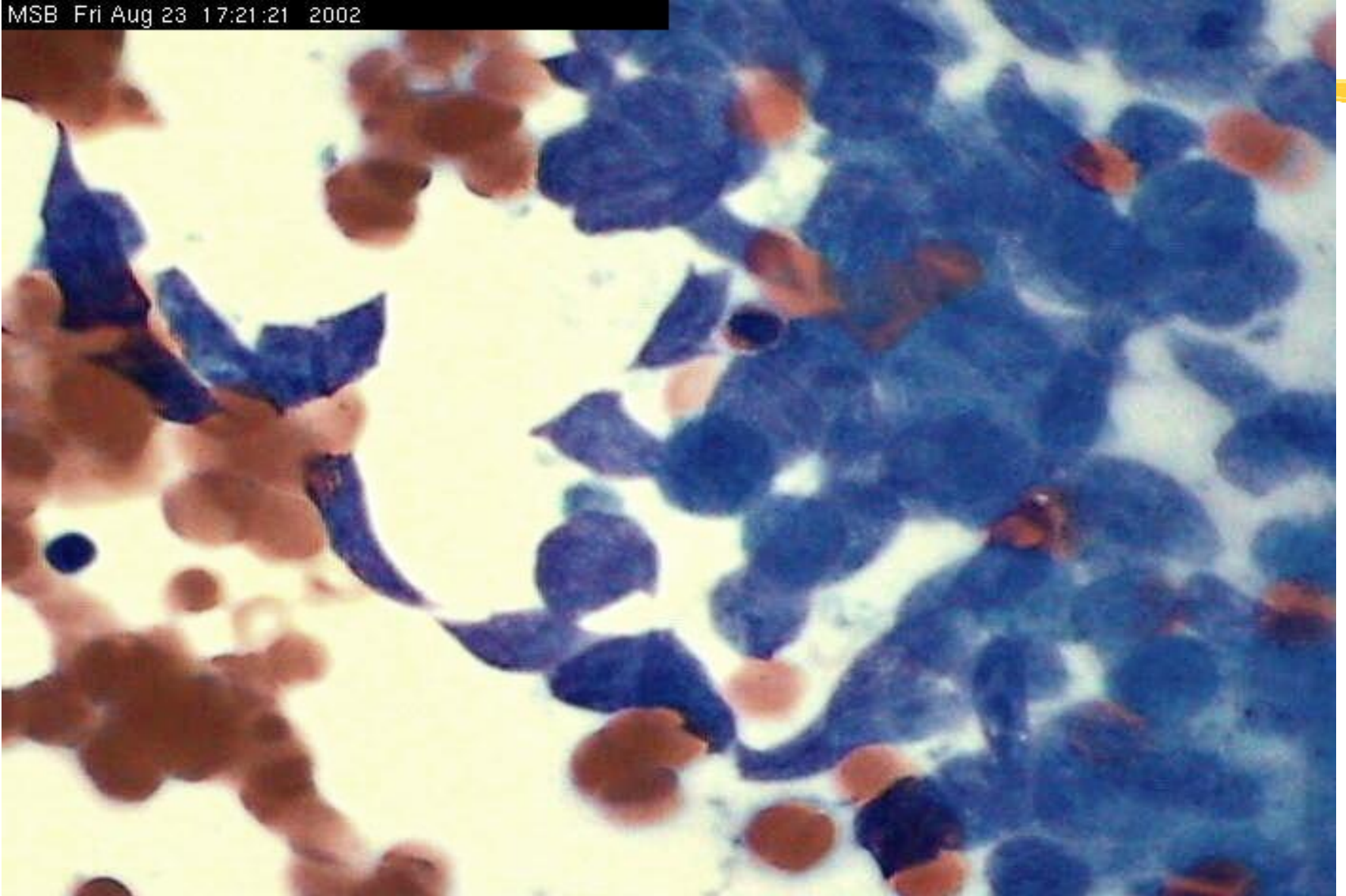
MSB Fri Aug 23 17:19:07 2002





# Bone Marrow Touch Prep (high mag)

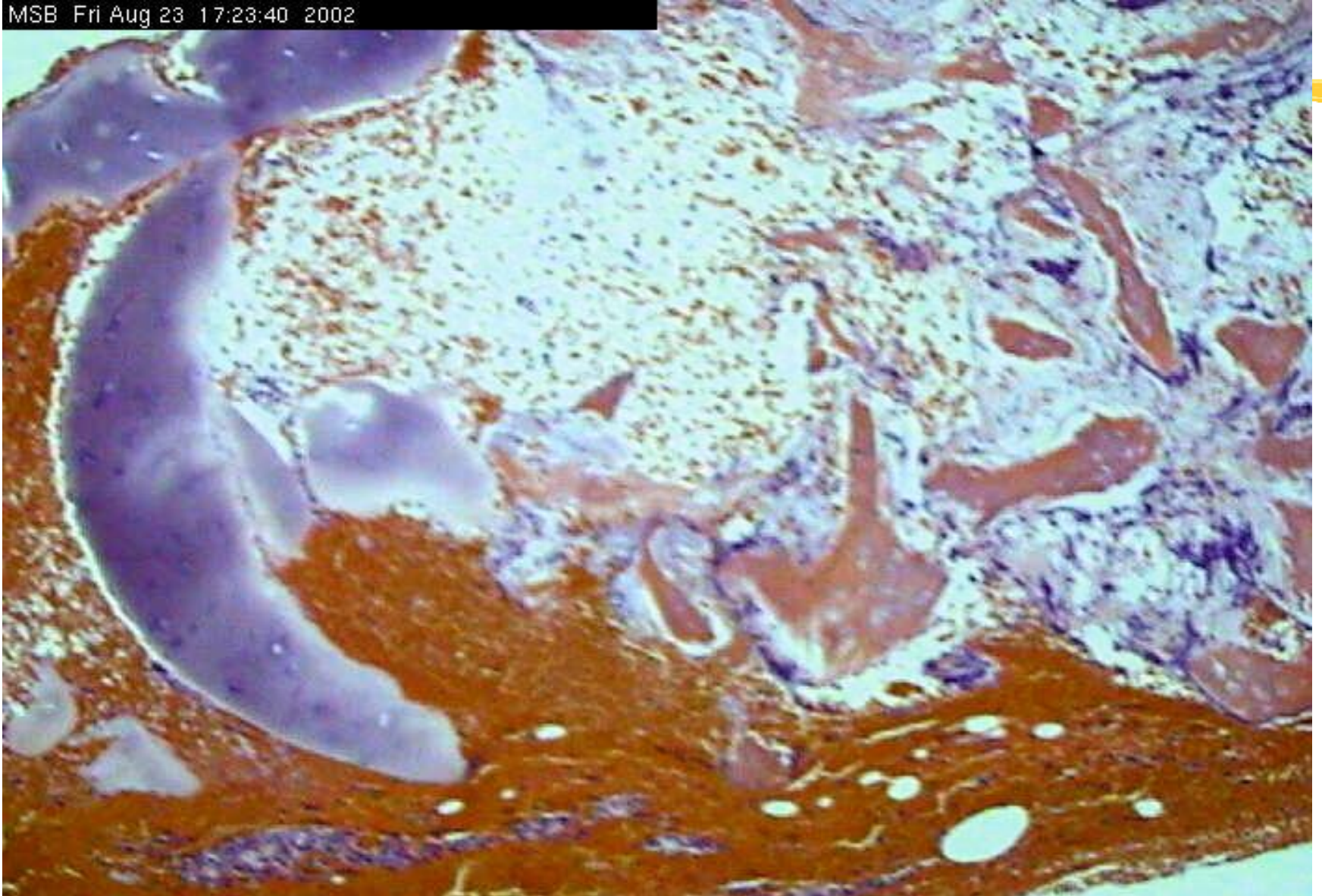
MSB Fri Aug 23 17:21:21 2002





# Bone Marrow Biopsy (low mag)

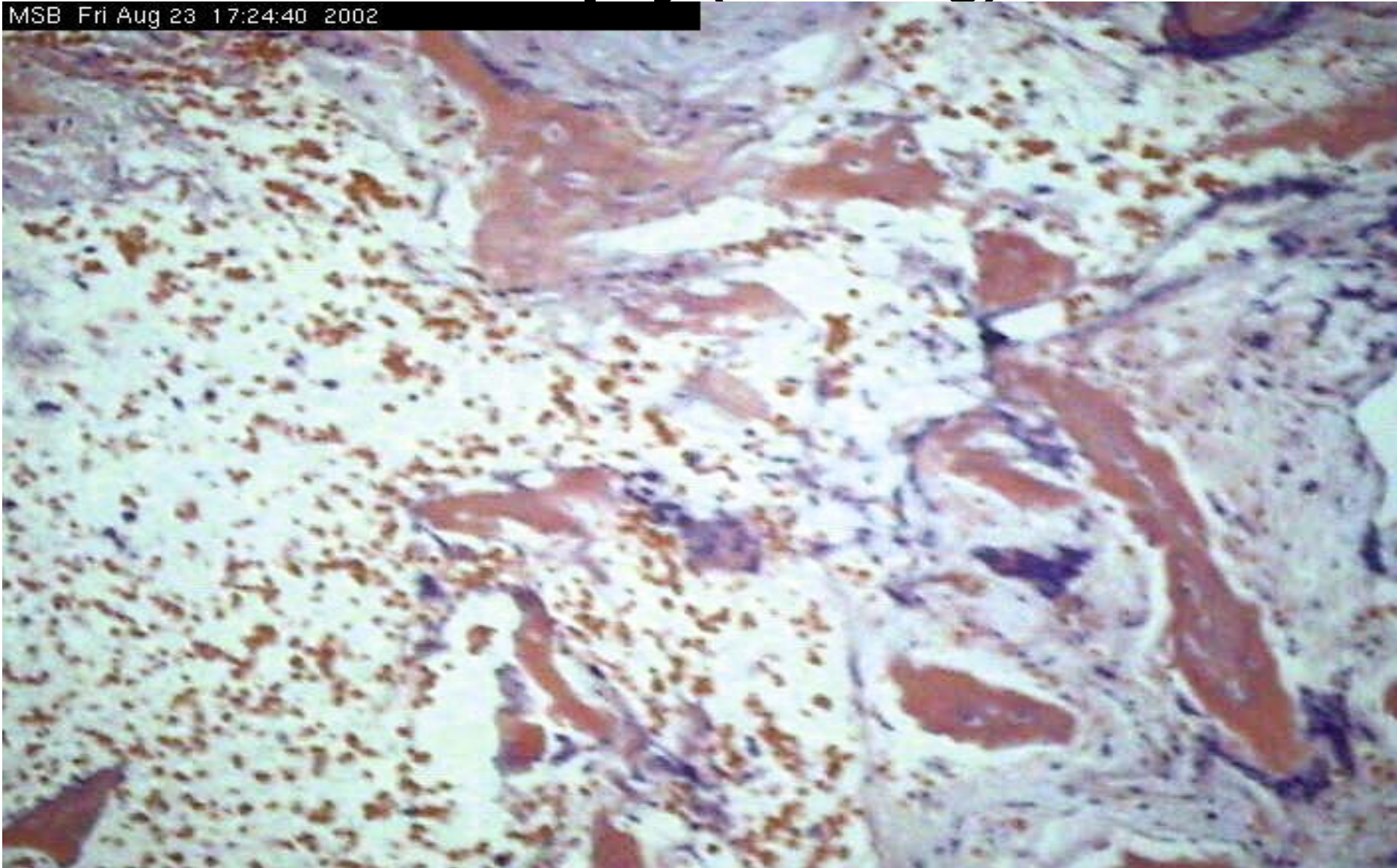
MSB Fri Aug 23 17:23:40 2002





# Bone Marrow Biopsy (low mag)

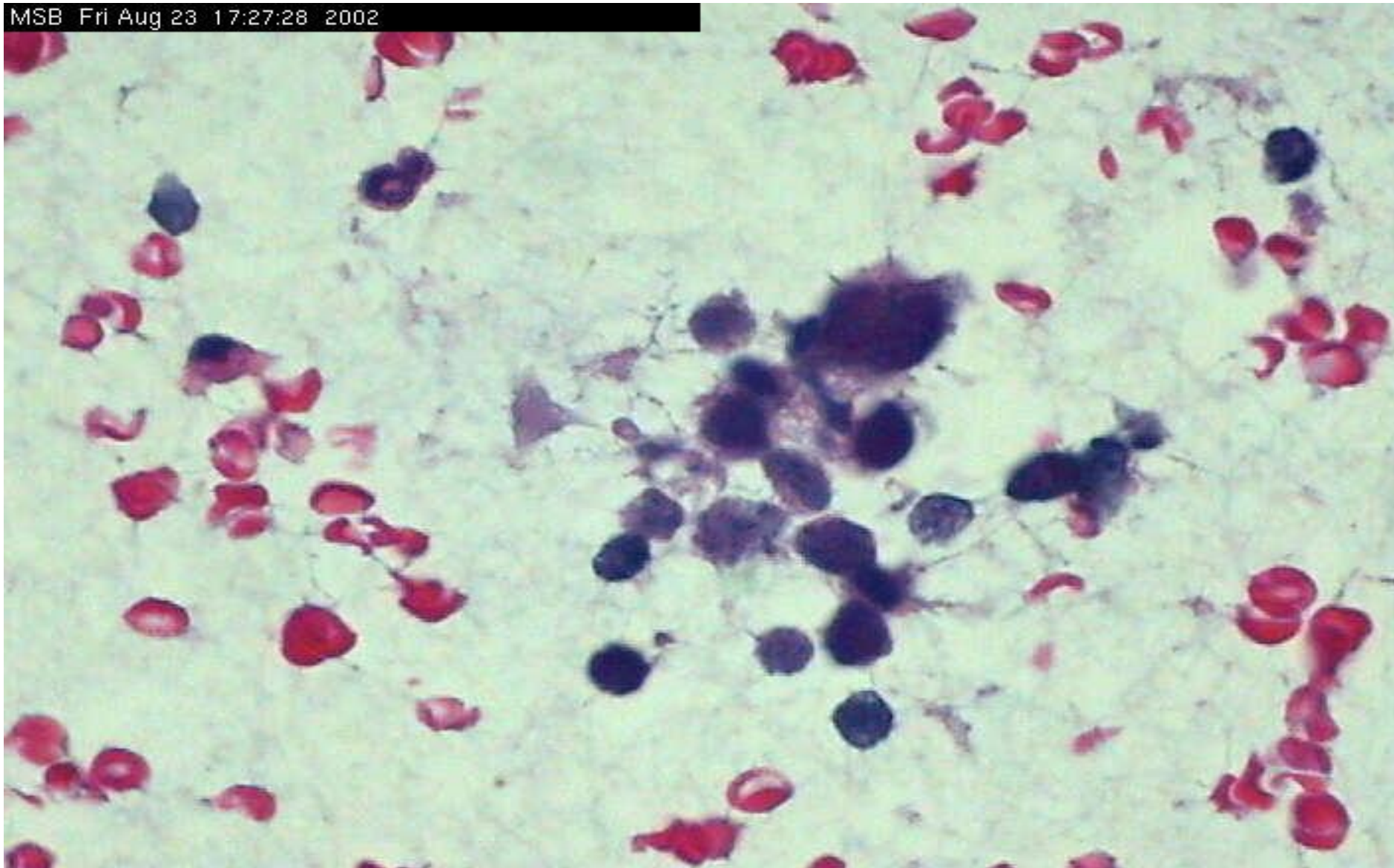
MSB Fri Aug 23 17:24:40 2002





# Bone Marrow Biopsy (high mag)

MSB Fri Aug 23 17:27:28 2002



# Immunostain studies



- ⌘ Positive for: CD56
- ⌘ Negative for: CD99, NFP, myogenin, LCA, Desmin
- ⌘ Diagnosis: metastatic neuroblastoma



# Differential Diagnosis

(% of positivity)

	CD99	CD56	NFP	Myogenin	LCA	Desmin
Neuroblastoma	0 (-)	100 (+)	73 (-)	0 (-)	0 (-)	3 (-)
Ewing's sarcoma	95	25	16	0	0	1
Rhabdomyosarcoma	19	93	27	87	0	96

# Neuroblastoma



- ⌘ Clinical presentation: fever, abd mass
- ⌘ Arise in : adrenal medulla (25-35%), paravertebral region of (P) mediastinum, lower abd, pelvis, neck, brain. Mets to: liver, lung, bone.

# Neuroblastoma (cont'd)



- Test:
  - elevation of urinary catecholamines
  - neurosecretory granules (EM)
- Prognosis:
  - age: < 1y/o: 50-95% 5 year survival,  
>1 y/o: 10% 5 year survival
  - Stage: I-IV
  - Genetics: poor prognosis: 1p del, N-myc amplification;  
good prognosis: DNA hyperploidy

## Case 2: Coagulation Test



- ⌘ Clinical history: 53 y/o male with history of HTN, hyperlipidemia, no prior history of ischemic attacks
- ⌘ Patient had a near syncope event while driving on I-10 in 5/02. Evaluation by cardiology: post stress test, cardiac cath showed 3-vessel disease
- ⌘ Patient was admitted on 5/29/02, underwent 3-vessel CABG

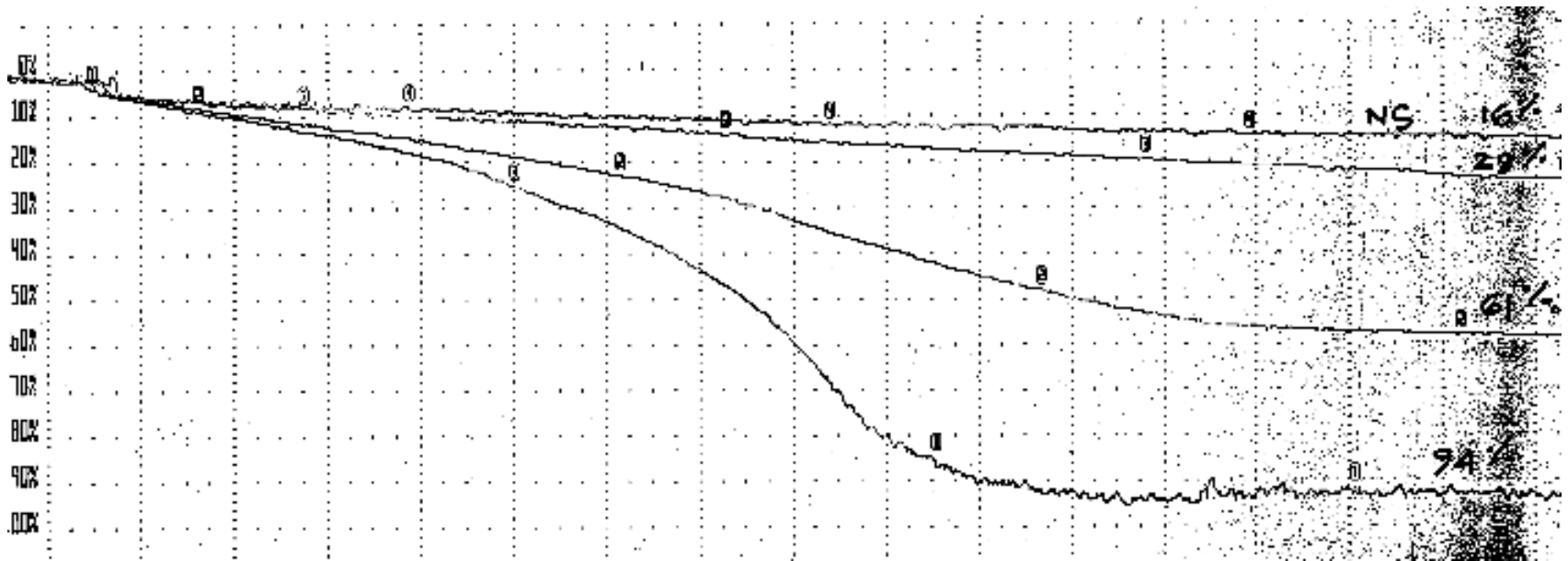


# Laboratory tests

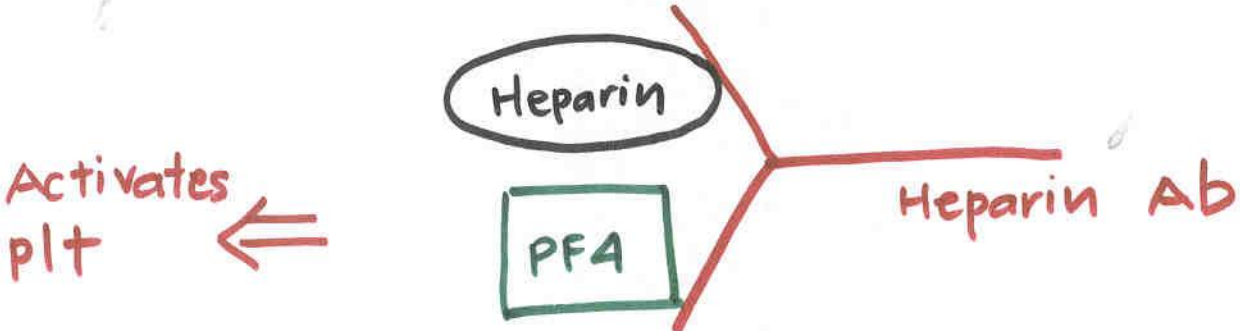


Post-op day #	Platelet count
4	183
5	143
6	90 (DIC panel: normal)

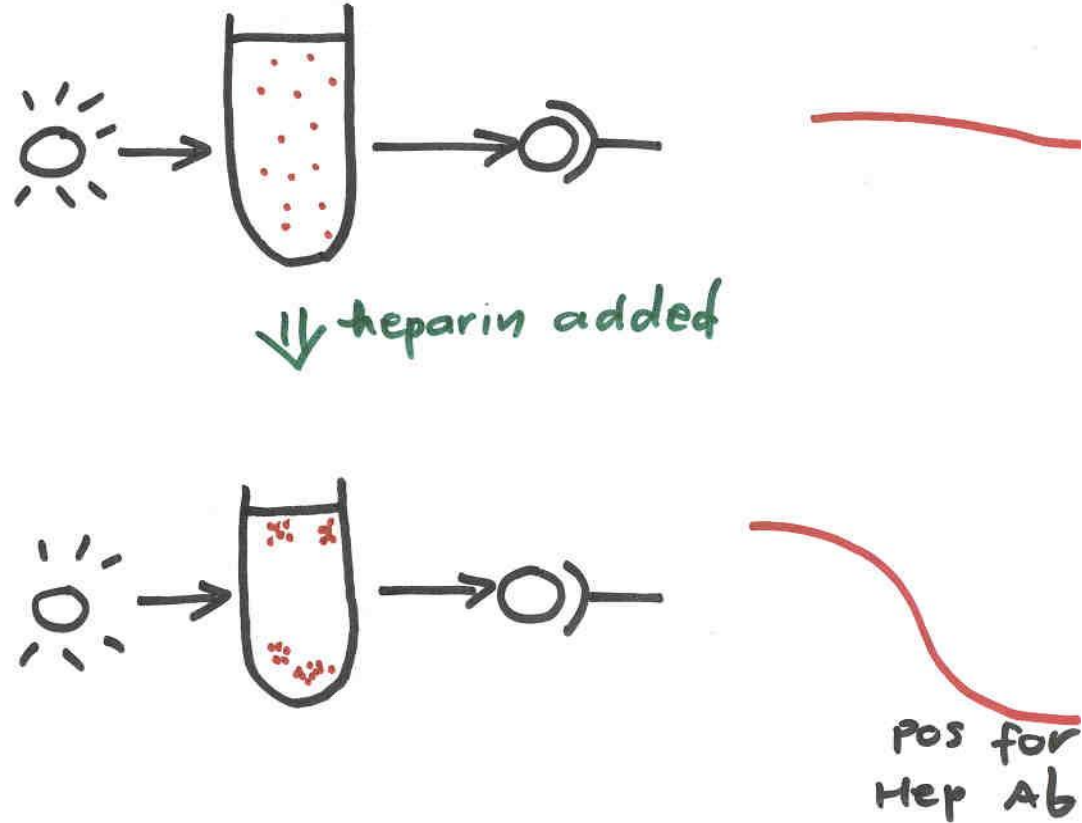
# Heparin-induced platelet aggregation (POD#6): Strong-positive



# Heparin Antibody



# Heparin Antibody Testing by Heparin-induced platelet aggregation





# Platelet count follow-up

Post-op day #	Platelet count
4	183
5	143
6	90 (Pos HIT, Heparin stopped)
7	73
8	82
9	93
10	146
11	155

# Testing for Heparin Antibody



- ⌘ Heparin-induced platelet aggregation: sensitivity 70%, specificity 85%
- ⌘ Serotonin release assay: sensitivity 80%, specificity 85%, limited use due to radioisotope ( $^{14}\text{C}$ )
- ⌘ Heparin-PF4 antibody (ELISA): sensitivity 82%, specificity 70%
- ⌘ Flow cytometry (investigative): HIT serum generates micro-particles from normal platelets