An Interesting Case of Hepatosplenomegaly with Bicytopenia

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Case

- 35 years/Female.
- Chief Complaints:
  - Abdominal distension x 1.5 month, with nausea.
  - Breathlessness x 1.5 month.
  - Weakness.
- No significant past history.
- No co-morbidities.

On Examination

- Vitals: Normal
- Pallor: Present
- No obvious lymphadenopathy.
- P/A examination:
    - Distended
    - Massive hepatomegaly
    - Gross splenomegaly

- Ultrasonography and CECT abdomen:
  - Hepatomegaly.
  - Splenomegaly.

Laboratory Investigations

- CBC:

➢ Haemoglobin: 6.2 g/dL. (11.6 – 15 g/dL)

➢ TLC: 3,500 cells/µL, with mild shift to left. (4,000 – 10,000/µL)

➢ Platelets: 153,000 cells/µL. (150,000 – 450,000/µL)

LFT:

- Total Bilirubin: 1.15mg/dL (0.22 – 1.20 mg/dL)
- Conjugated Bilirubin: 0.46mg/dL (upto 0.5mg/dL)
- Unconjugated Bilirubin: 0.69mg/dL (0.1 – 1mg/dL)
- SGOT: 49 U/L (8 – 43 U/L)
- SGPT: 33 U/L (7 – 45 U/L)
- Alkaline Phosphatase: 123 U/L (35 – 104 U/L)

- RFT: Within Normal Limits.
- Iron: 21 µg/dL. (35 – 145 µg/dL)
- TIBC: 208 µg/dL. (250 – 450 µg/dL)
- Ferritin: 9,941.15 ng/ml. (4.63 – 204 ng/ml)
- Vitamin B12: 970 pg/ml. (148 – 883 pg/ml)
- CRP: 137 mg/L. (>10 mg/L)
- ESR: 69 mm/hr. (upto 20 mm/hr)
- Serum lactate dehydrogenase: 458 U/L. (81 – 234 U/L)

Provisional Diagnosis

- Myelofibrosis
- Storage Disorder

Bone Marrow Aspiration

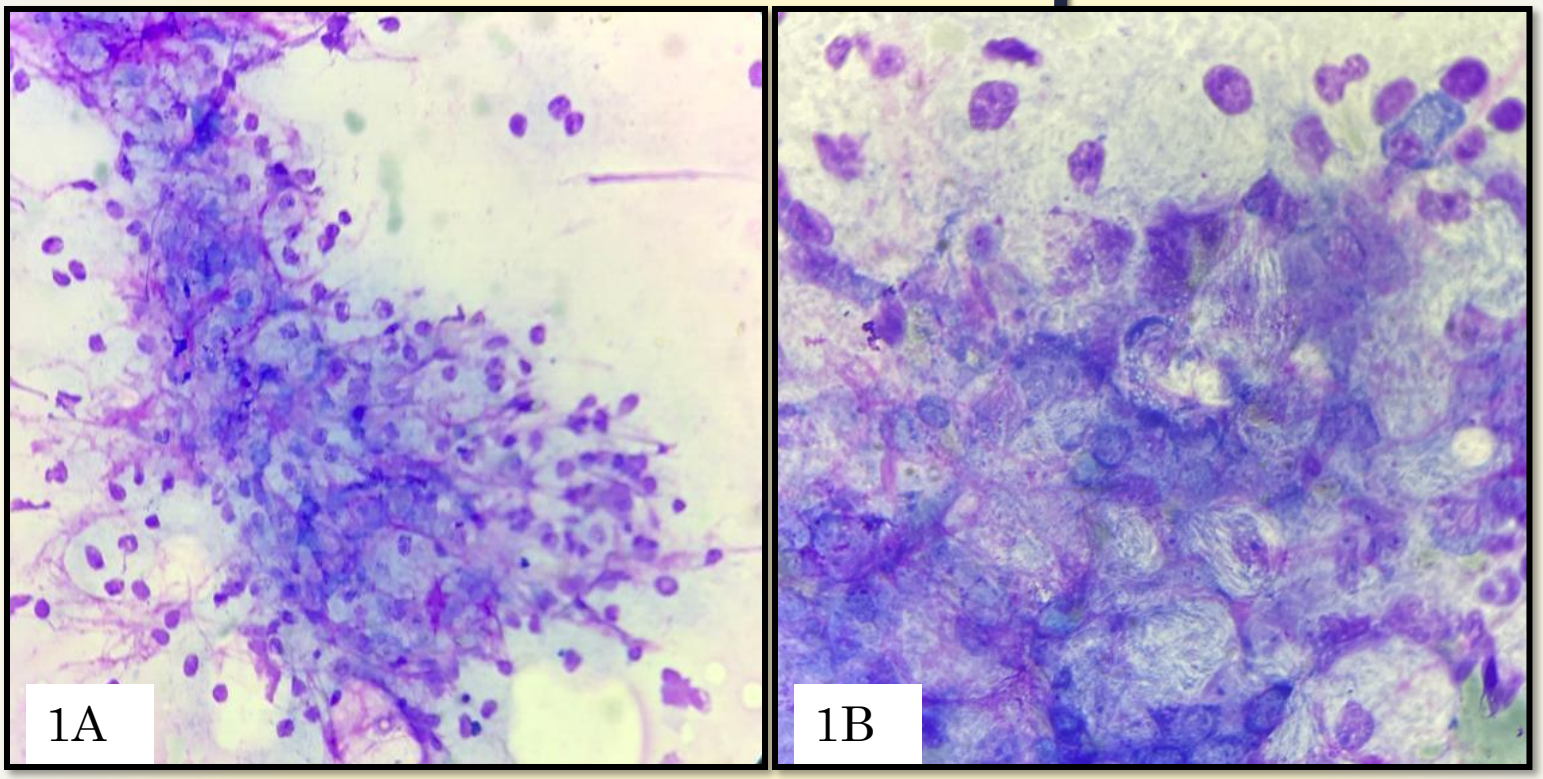


Fig. 1A: Photomicrograph showing cluster of cells at x100
Fig. 1B: Photomicrograph showing cells with wrinkled tissue paper appearance at x400.

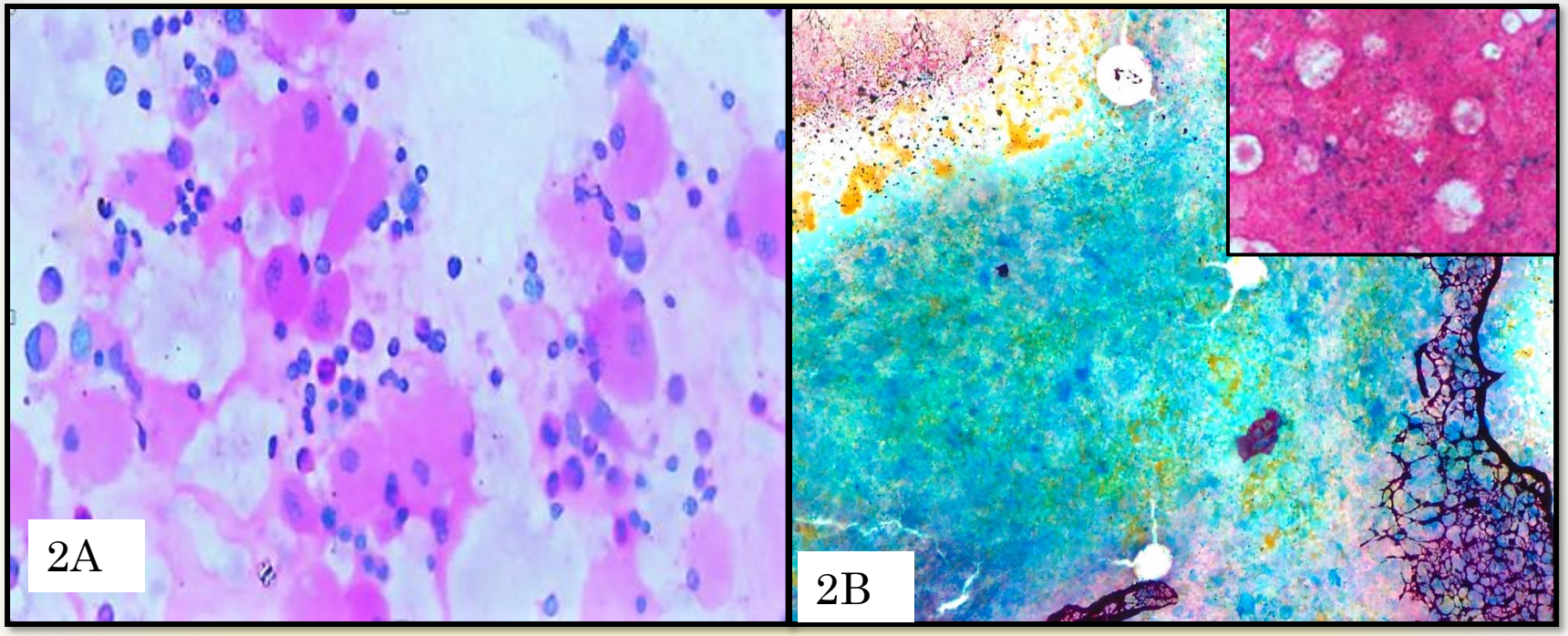


Fig. 2A: PAS stain

Fig. 2B: Perls' stain

Bone marrow Biopsy

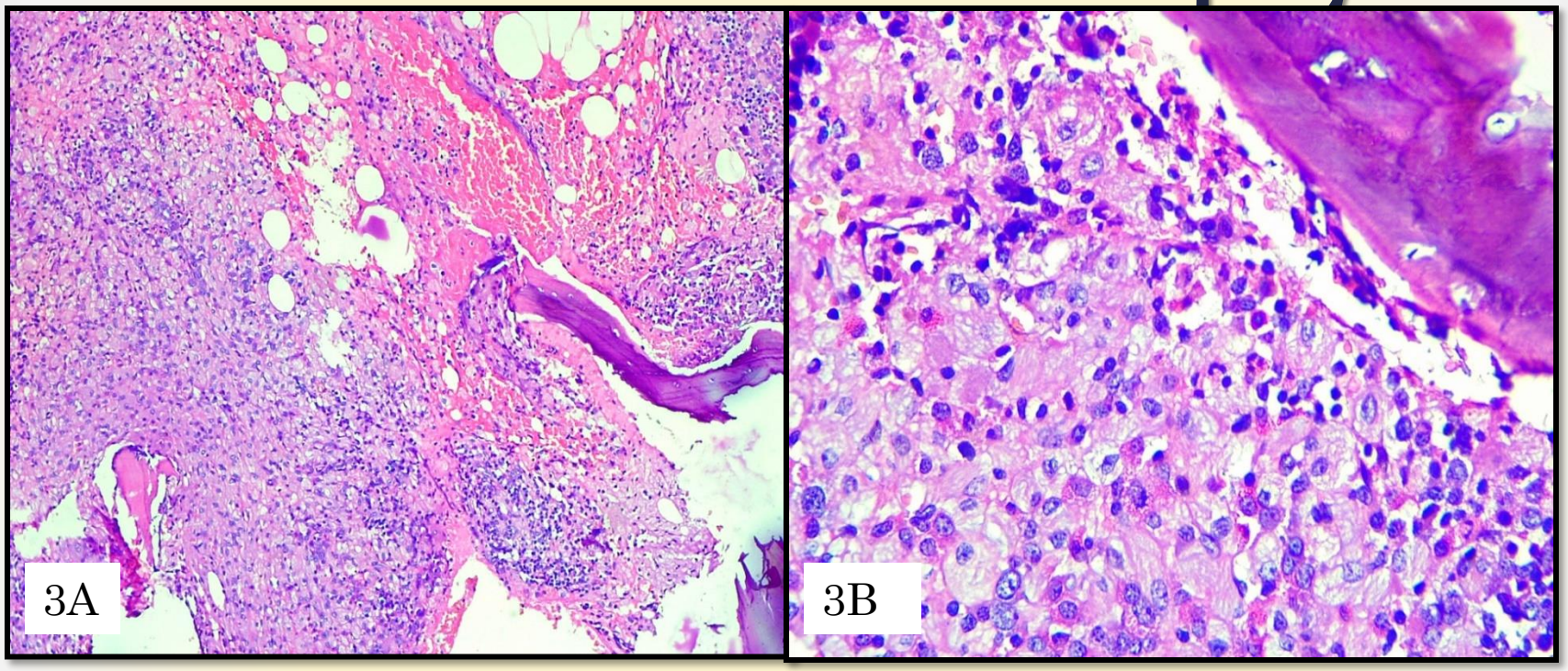


Fig. 3A: Photomicrograph showing bone marrow packed with cells x100 (H&E stain).

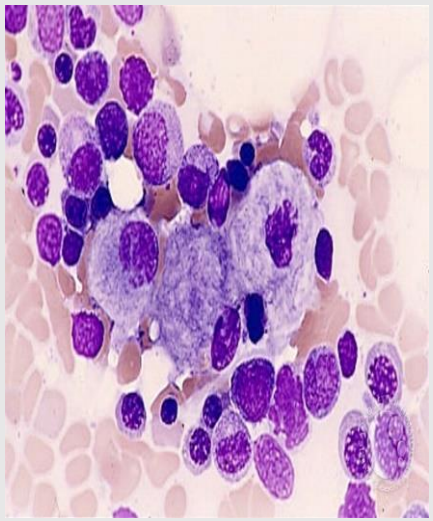
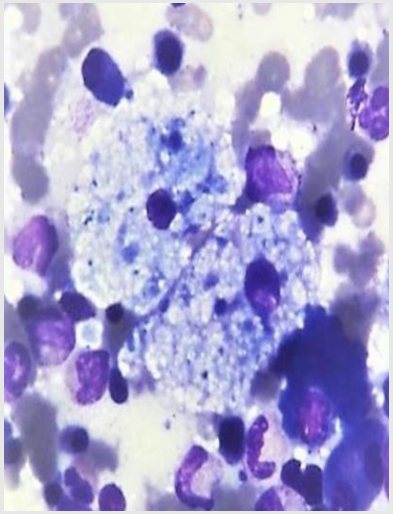
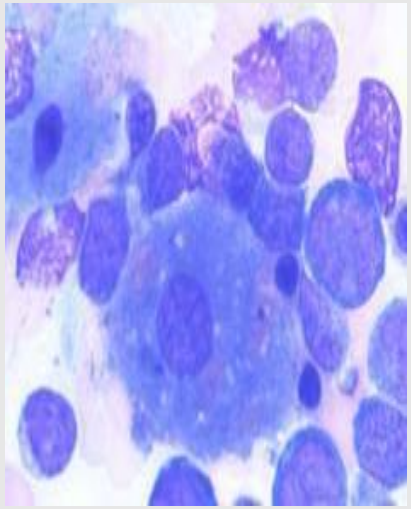
Fig. 3B: Photomicrograph showing cells with wrinkled tissue paper appearance at x400 (H&E stain).

The above mentioned findings were in favour of lysosomal storage disorder:

Gaucher's Disease – Type 1

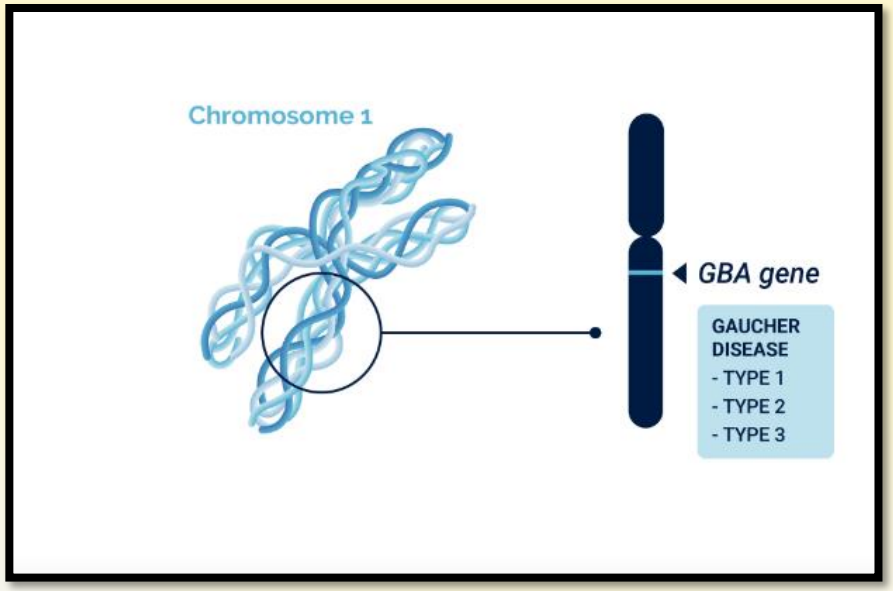
Differential Diagnosis

- Niemann-Pick Disease.
- Gaucher like cells seen in:
  - CML, AML, CLL

	Gaucher's Disease	Niemann-Pick Disease	CML
Cells	Gaucher Cells- wrinkled tissue paper like appearance of cytoplasm	Foamy, vacuolated cytoplasm	Pseudo-Gaucher cells
Special Stain	PAS, Perls' Positive	PAS - Negative	PAS, Perls' Negative
Images			

Gaucher's Disease

- It refers to the inherited autosomal recessive disorders caused due to mutations in the gene encoding glucocerebrosidase.
- Most common lysosomal storage disorder.



Etiology

- Due to the enzyme defect, ß-glucocerebrosidase accumulates principally within the macrophages of liver, spleen and bone marrow.

- Three clinical subtypes have been identified

1. Type I (Chronic Non-neuronopathic form): most common, accounting for 99% of cases. Mononuclear phagocytes are seen throughout the body, without the involvement of brain.
2. Type II (Acute Neuronopathic form): presents as infantile acute cerebral pattern.
3. Type III: intermediate between type I & II. It has a systemic involvement with progressive CNS disease.

Epidemiology

- The **prevalence of Gaucher disease ranges from 0.70 to 1.75 per 100,000 individuals**.
- The prevalence of Gaucher disease Type 1 is higher in individuals with Ashkenazi Jewish ethnicity, with a birth incidence of approximately 1 in 850, and is considered more prevalent in Western countries such as Europe, Israel, the US, and other European-derived Caucasian populations.

- Gaucher disease Types 2 and 3 primarily occur in non-Western countries, including non-Israeli Middle East, Indian subcontinent, China, Japan and Korea.

Clinical Features

- GD1 is characterized by highly variable clinical symptomatology with a spectrum ranging from minimally affected individuals to those with hematologic manifestations, visceral manifestations, and skeletal manifestations.
- Hallmark neurologic manifestations of GD2 and GD3 include abnormal eye movements and myoclonic or generalized seizures.

Diagnosis

- < 15% of mean normal glucocerebrosidase activity in peripheral blood leukocytes is diagnostic.
- Bone marrow aspiration and biopsy.
- Molecular analysis.

References

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