



PATHWEL CENTER OF HEMATOLOGY
& BONE MARROW TRANSPLANT
A project of Pakistan Thalassaemia Welfare Society

Plasma Cell Electronmicrograph

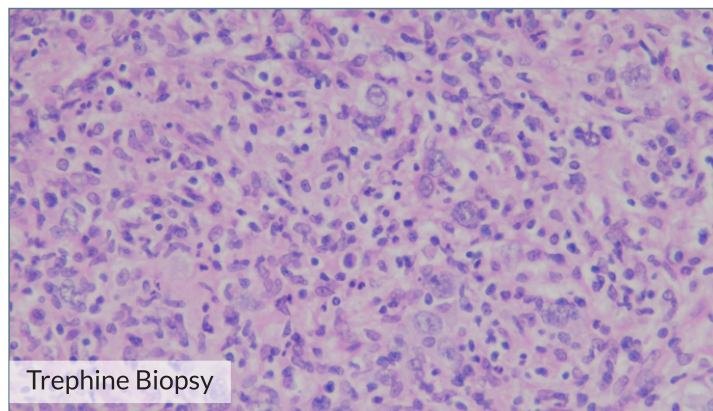
PATHWEL times

BIMONTHLY NEWSLETTER
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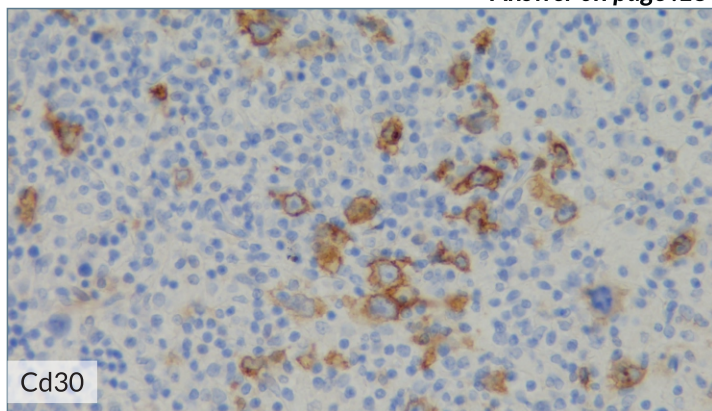
Picture Quiz by Dr Laila Bahadur, Consultant Hematologist PATHWEL

A 35 year old male presented with fever and undocumented weight loss for the last 6 months. On general physical examination, he had pallor and a palpable left axillary lymph node but no hepatosplenomegaly. CBC showed Hb 8.3 g/dl, WBC $2.3 \times 10^9/L$ and platelets $148 \times 10^9/L$. What is the most likely diagnosis?

Answer on page :15



Trephine Biopsy



Cd30

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Editor

Dr Syed Kamran Mahmood
editor@pathwel.org.pk

Publication
Incharge

Mr. Ameen Ullah
info@pathwel.org.pk



BLOOD CANCER
AWARENESS MONTH
SEPTEMBER



Colors of Courage — Artwork by our young thalassemia heroes at PATHWEL.



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From Editor's Desk

Work-Life Balance — A Hematologist's Tightrope

Dr. Sara Khan, a 33-year-old clinical hematologist, spends her days moving from ward rounds to marrow procedures and late-night emergencies. The work that once inspired her now feels heavy; small joys slip by unnoticed. She tells herself she'll rest after the next transplant — but that "next" never comes. Her story, though fictional, mirrors the quiet exhaustion shared by many young doctors in Pakistan — devoted to their patients yet slowly losing connection with their own well-being.

Work-life balance — the harmony between professional demands and personal pursuits — is essential for maintaining mental health, emotional stability, and compassion in care. Yet, in clinical hematology, the workload rarely lightens. Days blend into nights filled with marrow reports, transfusion coordination, chemotherapy supervision, and end-of-life care. Hematologists juggle multiple roles: clinician, diagnostician, counsellor, teacher, administrator, and researcher — moving constantly between OPD, daycare, wards, and laboratories. Amid this constant pressure, rest and self-care are often sidelined.

In Pakistan's medical culture, burnout is too often mistaken for commitment. Fatigue is ignored, emotional strain dismissed, and rest perceived as weakness. The unspoken rule persists: the more exhausted a doctor appears, the more dedicated they seem. This harmful belief silently erodes empathy, focus, and performance, compromising both physician wellness and patient safety.

It is time to change this mindset. A culture that values rest, recovery, and mental health is not one of fragility but of foresight and responsibility. Hospitals and regulatory authorities must prioritize wellness programs, humane call schedules, peer support, and psychological care with the same seriousness as infection control or drug safety.

A rested, supported, and appreciated hematologist is not only more effective but also more human and empathetic. In a field where every decision can mean life or death, physician well-being is not a luxury — it is part of the treatment plan.

[Signature]



In caring for others, let us remember
to keep our own flame alive.

PATHWEL News

Punjab Healthcare Commission Inspection at PATHWEL

A team from the Punjab Healthcare Commission (PHC) conducted a detailed two-day inspection of PATHWEL on September 16 and 17. The visit included a comprehensive review of all clinical and administrative areas, assessing compliance with healthcare quality and safety standards. In preparation for the inspection, Team PATHWEL worked diligently to ensure that every operational aspect met PHC guidelines. The inspection report was highly encouraging, with all patient care indicators fully achieved, reflecting the organization's strong commitment to excellence in clinical service delivery and patient safety.



The PHC team commended the systems and processes in place while suggesting a few administrative improvements to further enhance overall efficiency. As a result of the successful evaluation, PATHWEL was granted provisional registration—a key milestone in its journey toward full regulatory compliance. Full registration is expected soon after implementing the remaining indicators, underscoring PATHWEL's dedication to continuous quality improvement & high healthcare standards.

Rescue 1122 Conducts Emergency Training at PATHWEL

On September 15, the Rescue 1122 team visited PATHWEL Center of Hematology and Bone Marrow Transplant on the center's request to conduct a hands-on training session on firefighting and emergency response. The session began with an informative and engaging presentation by Mr. Hanif, followed by practical demonstrations and mock drills that involved all staff members. The training enhanced awareness and preparedness for handling emergency situations effectively. It was a valuable learning experience for the entire PATHWEL team. We extend our sincere gratitude to Rescue 1122 for their professionalism, expertise, and prompt support in organizing this important safety initiative.



Lecture on TB Case Management

A highly informative session was held at PATHWEL Center, where Prof. Muhammad Ashraf, an esteemed expert in infectious diseases, delivered a lecture on the National Guidelines for Tuberculosis Case Management. The session was organized on behalf of the National TB Control Program (NTP) in collaboration with Green Marketing Initiative Pakistan and the Global Fund to Fight AIDS, TB and Malaria.



Prof. Ashraf, discussed the latest national protocols for diagnosis, treatment, and follow-up of TB patients, emphasizing the importance of early detection and adherence to therapy to prevent drug resistance. He highlighted the integrated role of clinicians, laboratory professionals, and public health officials in achieving Pakistan's goal of TB elimination. The lecture also shed light on patient-centered approaches, reporting standards, and coordination with national surveillance systems. The event concluded with an engaging question-and-answer session.

Welcome "Welcome to the team! We're thrilled to have you with us!"
We are delighted to welcome **Ms. Kashaf Zulfqar** to the Pathwel team as our new Nutritionist. With her strong background in nutrition and commitment to promoting health and wellness, she will play a key role in supporting our patients and staff toward healthier lifestyles. Welcome aboard, Kashaf!



Blood Camps' Diary

By Ms Nigar Shah
PRO & Camp Coordinator, PTWS



Organizing blood donation camps in the sweltering July heat of Rawalpindi is no easy feat. Volunteers and staff brave the scorching sun, power outages, and stifling humidity — yet the spirit never falters. Every pint collected is a quiet triumph of compassion over discomfort, a reminder that generosity thrives even when the temperature soars. Behind each successful camp stands a team whose perseverance keeps hope flowing — drop by drop, life by life.

Islamabad Bar Association | 1 July 2025

A blood donation camp in Islamabad Bar Association with the approval of President bar association Advocate Chaudhary Naeem Ali Gujjar. Not unexpectedly, the response not as hot as the peak hot weather of July.



Safa Gold Mall, Sector F-7 Islamabad | 12 July 2025

This was another blood donation camp which could not draw many volunteers due to hot weather. However, we are thankful to the entire management of Safa Gold Mall for their cooperation.



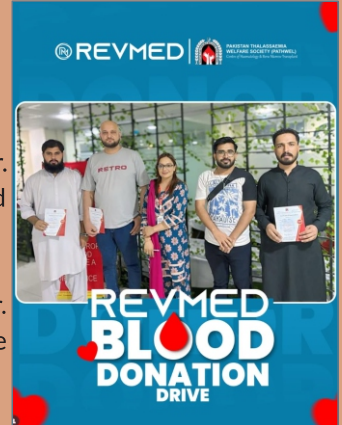
Evacuee Trust Complex, Sector Islamabad | 31 July 2025



PATHWEL organized a blood donation drive second time in Evacuee Trust Complex with approval of Deputy Administrator Mr. Imran Arif Janjua. PATHWEL is looking forward for the continuous support of Evacuee Trust in future as well.

Revolutions Medicines (RevMed), Rawalpindi | 9 July 2025

PATHWEL organized a successful evening blood donation camp at Revolutions Medicine. The camp was approved by CEO Mr. Muzaffar Hussain & coordinated by Senior Manager Operations Mr. Omar Farooq Rathore who led by example as the first donor. PATHWEL extends its gratitude to the entire team for their participation after hours.



FUMC Mini camp in PATHWEL | 19 July 2025



President of Blood Donation Society of Foundation University Medical College (FUMC) Dr Saad Zahid organized and coordinated a mini camp in PATHWEL by escorting large number students from FUMC to PATHWEL. We always welcome and appreciates the walk-in donors who set the real examples to rest of the donors that anyone can take step forward to help the needy patients.

Green Trust Tower, Blue Area Islamabad | 1 August 2025

This camp was also approved by Mr. Imran Arif Janjua allowed. We highly appreciate the his efforts in helping us collect blood donations at the peak time of summer.



Allama Iqbal Park, Rawalpindi | 14 August 2025

PATHWEL's Independence Day blood donation camp in Allama Iqbal Park creatively engaged families with a free face-painting stall. Staff member Sana Tasneem adorned children's faces with patriotic colors, which encouraged parents to donate blood for thalassemia warriors. The event is successful, merging national spirit with lifesaving support.



Lake View Park, Islamabad | 16 August 2025

We organized a blood camp in Lake view Park, Islamabad with a kind approval of Mr. Fahad Javed (Director Park). Mr. Ibrar Hussain (Park Manager) facilitated us in establishing the camp. Although the park was crowded, the response to blood donations was disappointing.



Allama Iqbal Park, Rawalpindi | 30 August 2025



PATHWEL organized a blood donation camp in Allama Iqbal Park, Rawalpindi on August 30, 2025. We are very thankful to the entire management of Parks and Horticulture Authorities (PHA) especially Director General PHA Mr. Ahmed Hassan Ranjha and Director PHA Mr. Sheikh Tariq for their valuable support.

Lighter Side of the Ward: Iron Overload Meets Iron Syrup

By Dr Zohra J Wazir, Chief Medical Officer Thalassemia Wing, PATHWEL



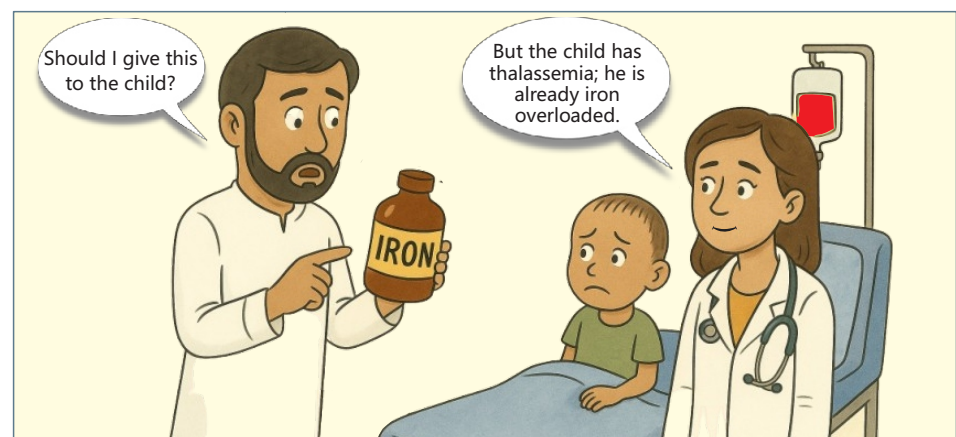
At our thalassemia center, we are used to unusual questions from worried parents, but sometimes a situation comes along that leaves even the doctors chuckling. Recently, the father of one of our young patients arrived carrying a very large bottle of iron supplement syrup. With utmost sincerity, he asked if he should start giving it to his child. Our team gently explained that the child was already iron-overloaded from repeated transfusions, and we were actually giving medicines to remove iron, not add more!

Curious about the origin of this advice, we asked, "Who prescribed this syrup?" The father, without hesitation,

replied, "Maulvi Sahib of our area — he did a dum on it and said it will be good for the child."

The irony was not lost on anyone — here we are fighting every day to take iron out of the body, while Maulvi

Sahib, with all good intentions, was trying to put it right back in! Sometimes in medicine, humor writes itself. Thankfully, the family understood, and the bottle of syrup was retired from duty before it could join the battle on the wrong side.



Dental Care For Thalassemia Children

By Dr Zohra J Wazir, Chief Medical Officer Thalassemia Wing, PATHWEL



Writer is a graduate of Fatima Jinnah Medical College. At Pakistan Thalassemia Welfare Society, she has been closely associated with caring for children with thalassemia major since 2013. This article is based on her first-hand experiences with these children and their families.

Dental care for children with thalassemia requires special attention due to unique complications associated with the disease. Thalassemia is a group of inherited blood disorders which results in abnormal hemoglobin production, leading to anemia which requires regular blood transfusions or other medical treatments. The disease and its treatments can have several effects on oral health and craniofacial development.

Overview

1. Common oral and dental issues in thalassemia.

- Orofacial changes:**
 - Maxillary overgrowth due to bone marrow expansion.
 - Prominent cheekbones.
 - Malocclusion (misalignment of teeth).
 - Delayed eruption or impaction of teeth.
- Dental conditions:**
 - Pale oral mucosa (from anemia).
 - Increased risk of dental caries.
 - Gingivitis and periodontal disease.
 - Enamel hypoplasia (thin or defective enamel).
 - Bone fragility affecting jaw bones.
 - Altered tooth morphology.
 - Discolored teeth with short crowns and roots.

2. Risk factors in thalassemia affecting oral health.

- Regular blood transfusions – iron



- overload – potential for tissue damage.
- b. Iron chelation therapy – can affect bone and soft tissue health.
- c. Nutritional deficiencies (e.g. calcium, vitamin D) – poor bone and dental development
- d. Changes in saliva leading to increased oral bacteria.

How to manage

- Regular dental visits.
 - Dental checkups every three to six months.
 - Early orthodontic evaluation (as early as age 7 – 8).
- Preventive care.
 - Fluoride toothpaste twice daily.
 - Pit and fissure sealants to prevent caries.
 - Dietary counseling to reduce sugar intake.

3. Restorative and orthodontic care.

- Early identification and management of malocclusion.
- Careful planning for orthodontic treatment due to bone fragility.
- Conservative approach to restorative work to preserve tooth structure.

4. Medical considerations.

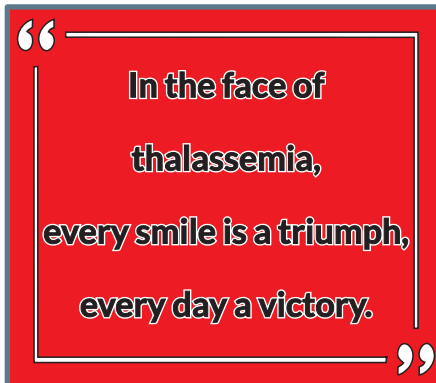
- Medical history review before treatment.
- Consultation with hematologist before invasive procedures.
- Antibiotic prophylaxes may be needed (if splenectomy has been done or immune status is compromised).
- Avoid long procedures if child is anemic or fatigued.
- Monitor bleeding risk due to potential liver issues.

5. Patient and parent education.

- Tell patients importance of oral hygiene.
- Stress importance of nutritional support for bone and dental health.
- Instruct on managing dry mouth (if present due to medications).

References

- NIH (National Institute of Health),
- TIF (Thalassemia International Federation)



PATHWEL Stars

Muhammad Wisal's Journey to a Cure from Thalassemia

by Dr. Khalil ur Rehman, Clinical Hematologist and BMT specialist, PATHWEL



Muhammad Wisal, a bright and resilient 7-year-old boy from Malakand, KPK, was diagnosed with Beta Thalassemia Major at just nine months of age. From infancy, his life revolved around frequent hospital visits and blood transfusions. Despite regular ferritin monitoring and intermittent iron chelation, the burden of lifelong transfusions continued to weigh heavily on him and his family.

In April 2022, Wisal underwent his first bone marrow transplant (BMT) with his sister as the donor, at another hospital. Unfortunately, the graft failed to take, even after a PBSC boost. Yet, his family refused to lose hope and brought him to Pathwel Hospital. With renewed determination and a second fully HLA matched donor found in his younger brother, Muhammad Talal, Wisal was prepared for a second BMT.

On 3rd October 2023, Wisal underwent second allogeneic bone marrow transplant using a modified long conditioning protocol (Fludarabine, Busulfan, Cyclophosphamide, and Thymoglobulin). His brother Muhammad Talal (2 year old and



weighting 11 kg at that time) courageously donated bone marrow, and the procedure went smoothly with no major complications.

Post-transplant, Wisal faced minor challenges including transient fevers & cyclosporine-induced hypertension, which were effectively managed. His neutrophil engraftment occurred on day +12 and platelets engraftment on day +16. Over the following days, he showed progressive improvement—his counts stabilized, transfusion requirements ceased, and his energy levels returned. Remarkably, he

remained free of graft-versus-host disease (GVHD) & other complications.

Today, Wisal is more than 2 years post-transplant, thriving, and completely off treatment, living a healthy, transfusion-free life. His journey stands as a testament to the power of modern medicine and love, care, & unwavering perseverance from his family. The successful outcome of his second BMT not only cured his thalassemia but also restored hope to many other families fighting the same battle.

Team PATHWEL proudly celebrates Muhammad Wisal's recovery—a story of courage, compassion, and cure. However, Wisal's story also reminds us of an important truth: while bone marrow transplant offers a cure to many, it is a complex, costly, and high-risk procedure—not feasible for many families.

The true victory lies in preventing thalassemia altogether. Simple preventive measures—such as premarital screening, genetic counseling, and public awareness—can spare countless children and families from this lifelong struggle.

PATHWEL Galaxy

Contributed by Dr Zohra J Wazir, Chief Medical Officer Thalassemia Wing



Subhan Ali



Abeha Umair



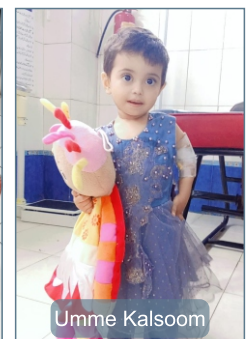
Ghulam Mustafa



Rimsha Waqas



Saad



Umme Kalsoom

Grand Round

By Dr. Syeda Aliah Asif

From Anemia to Aggressive Leukemia

Resident Clinical Hematology PATHWEL Center of Hematology & Bone Marrow Transplant



Case Presentation

A 45-year-old woman from Fateh Jung presented with pain and swelling over her left lower ribs, which began eight months ago. She had a history of chronic arthritis and had been taking NSAIDs for three years. Initial investigations revealed acute kidney injury due to NSAID-induced acute interstitial nephritis. She was treated with methylprednisolone, erythropoietin, and supportive medications, which improved her kidney function.

Two months before her current presentation, her symptoms recurred with increased swelling, pain, low backache, bruises, and shortness of breath. Laboratory tests showed pancytopenia and worsening renal function (Hb: 7 g/dl, WBC: $4.64 \times 10^3/\text{ul}$, Platelets: $65 \times 10^3/\text{ul}$, Urea: 51.8 mg/dl, Creatinine: 2.96 mg/dl). She received a blood transfusion and was prescribed folic acid and vitamin B12. One month later, her hemoglobin dropped further to 5.6 g/dl. She declined a bone marrow biopsy at that time. Two weeks later,

she developed high-grade fever, burning micturition, nausea, and vomiting. CBC confirmed pancytopenia and plasmacytoid lymphocytes on peripheral film. She was admitted, treated with IV fluids, antibiotics, and another blood transfusion. After stabilization, she was referred to PATHWEL for further management.

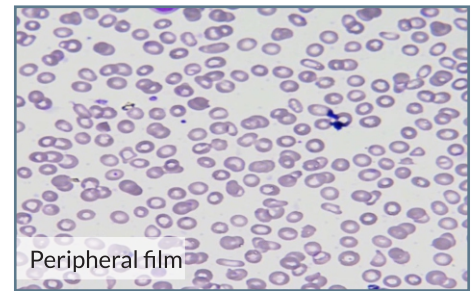
At PATHWEL, she reported undocumented weight loss but denied bleeding, jaundice, or sweats. She had received three units of blood so far. Examination revealed marked pallor, diffuse spinal and sternal tenderness, and a firm swelling over the left 9th & 10th ribs. There was no lymphadenopathy or hepatosplenomegaly. Laboratory findings included pancytopenia and 31% plasmacytoid cells on peripheral blood film. Bone marrow aspirate showed 95% mature plasma cells, with diffuse infiltration on trephine biopsy, positive for CD38, CD138, and CD56. FNAC of the rib swelling confirmed plasma cell infiltration. Imaging revealed metastatic lesions in the spine, lytic rib lesion (plasmacytoma), and permeative lesions in the sternum and humeri.

Diagnosis

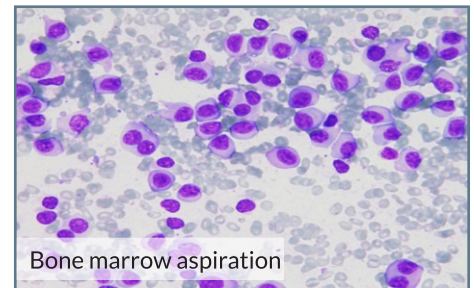
Kappa light chain plasma cell leukemia, ISS stage III.

Management

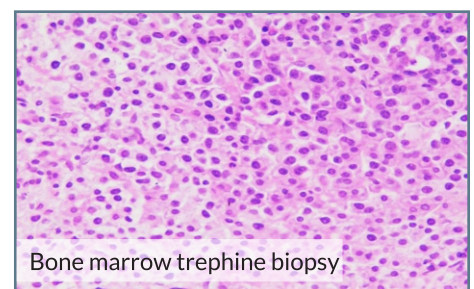
She was admitted and managed with continuous saline infusion, furosemide, dexamethasone, meropenem, blood transfusions, bortezomib, febusostat, and denosumab. Her condition improved, and she was discharged with advice for radiotherapy and enrollment



Peripheral film



Bone marrow aspiration



Bone marrow trephine biopsy

in a daratumumab-based regimen.

Literature Review

Plasma Cell Leukemia (PCL) is a rare, aggressive form of multiple myeloma with circulating plasma cells in peripheral blood. It is classified as primary (de novo) or secondary (from multiple myeloma). Clinical features include anemia, thrombocytopenia, renal dysfunction, hypercalcemia, bone pain, and lesions. Diagnosis requires $\geq 5\%$ plasma cells in peripheral blood and monoclonal cytoplasmic light chain expression. Immunophenotyping shows CD38 and CD138 positivity, with additional markers like CD20, Cd23, CD28, CD44, CD45, and CD56 more frequent in PCL. Treatment depends on eligibility for hematopoietic cell transplantation, with multi-drug induction regimens and maintenance therapy as standard approaches.

Table - 1

	A	B	C
Hb (g/dL)	9.6	5.0	5.9
WBC ($\times 10^9/\text{L}$)	7.3	3.6	6.1
Plt ($\times 10^9/\text{L}$)	262	14	61
Urea (mg/dL)	135	141	120
Creatinine (mg/dL)	4.04	10.4	5.6
LFTs	N	N	
Ca (8.5-10.5 mg/dL)	9.54	11.9	13.3
Uric acid (mg/dL)			9.9
LDH (125-220 U/L)			506
PT/APTT/INR			N
Albumin (g/L)			4.4
CRP			16
B2M (0.9-2.7 mg/L)			10
24 hr urine protein (g)			7.6
Serum FLC kappa (mg/L)			17,800
Serum FLC lambda (mg/L)			11.4
Serum FLC ratio			1561.4

A: 8 months ago; B: 1 month ago; C: in PATHWEL
B2M: beta 2 microglobulin; FLC: free light chain

Morphology Updates

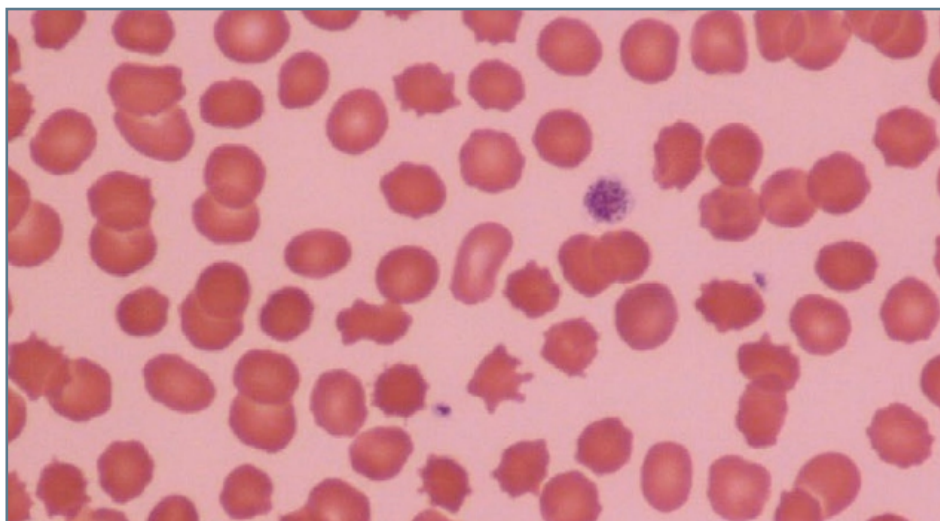
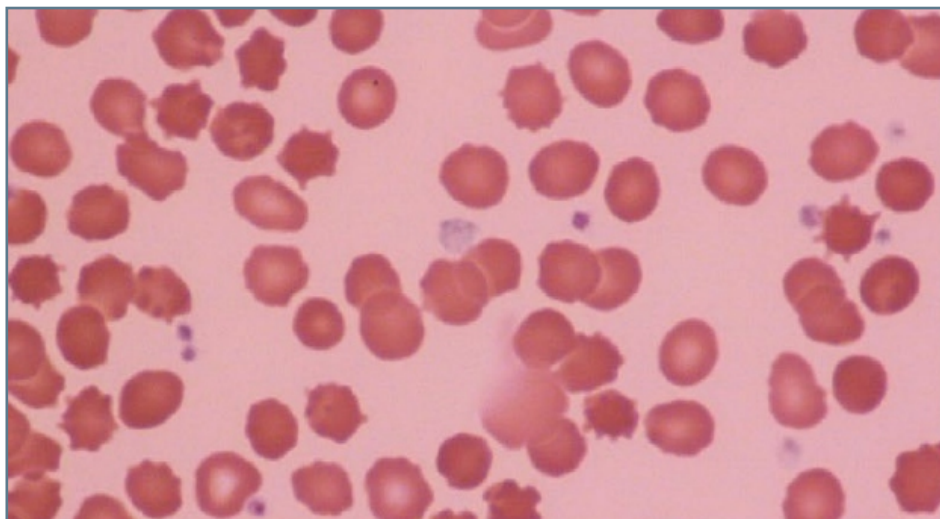
Acanthocytosis Contributes to the Diagnosis of the McLeod Syndrome

JD. Mark Layton¹ | Barbara J. Bain²

1. Centre for Haematology, Hammersmith Hospital Campus of Imperial College London, UK

2. Centre for Haematology, St Mary's Hospital Campus of Imperial College London, UK

American Journal of Hematology, 2025; 100:1851–1852; <https://doi.org/10.1002/ajh.27755>



A 47-year-old man was referred to the hematology clinic after being found to have a low hemoglobin A1c level on routine screening. His fasting blood glucose was normal. He had a previous history of focal (temporal lobe) epilepsy first manifest in childhood with recent onset of generalized tonic clonic seizures and depression for which he had received treatment with

carbamazepine, sodium valproate, zonisamide, clobazam, and citalopram. He reported mild cognitive impairment with memory loss and “brain fog.” Physical examination was unremarkable.

A blood count showed hemoglobin concentration 141 g/L, mean cell volume 94.1 fL, mean cell hemoglobin 34.1pg, mean cell hemoglobin

concentration 362 g/L, & reticulocyte count of 152×10^9 /L. Bilirubin was normal but haptoglobin was reduced at 0.16 g/L (normal range 0.5–2.0) and lactate dehydrogenase raised at 254U/L (125–243). A direct antiglobulin test was negative. On inspection a blood film showed numerous acanthocytes (images). The differential diagnosis thus included the McLeod syndrome & blood group typing showed the absence of Kell antigens. Genotyping identified a pathogenic variant of the XK gene c.268delT; p.(Tyr90fs) previously reported in two members of a family with neuroacanthocytosis due to the McLeod syndrome [1]. Further assessment following the diagnosis of McLeod syndrome revealed no evidence of a movement disorder or cardiomyopathy. Creatine kinase was raised at 540U/L (40–320).

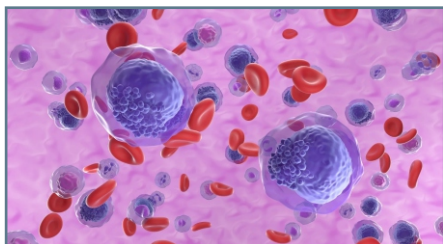
The McLeod syndrome results from mutation of the KX gene at Xp21.1. This gene encodes the KX protein to which, in the red cell membrane, Kell glycoprotein is bound. In addition to the typical red cell abnormality, the syndrome is characterized by late onset muscular and neurological defects including muscular wasting, cardiomyopathy, choreiform movements, epileptiform convulsions, psychiatric manifestations and cognitive impairment. There may also be mild anemia or compensated hemolysis. Observation of acanthocytosis can point to this diagnosis

Conflicts of Interest: The authors declare no conflicts of interest.

Reference

1. M. F. Ho, R. M. Chalmers, M. B. Davis, A. E. Harding, and A. P. M. D. Monaco, “A Novel Point Mutation in the McLeod Syndrome Gene in Neuroacanthocytosis,” *Annals of Neurology* 39 (1996): 672–675.

Tidbits Tidbits Tidbits Tidbits Tidbits Tidbits Tidbits

Treatment of High-Risk Acute Promyelocytic Leukemia: Results from the APOLLO TrialUwe Platzbecker, Lionel Adès, Pau Montesinos et al; <https://doi.org/10.1200/JCO-25-00535>

The phase III APOLLO trial prospectively compared the efficacy of ATO in combination with ATRA regimen (ATRA-ATO) plus low-dose idarubicin versus standard ATRA plus anthracycline-based chemotherapy (ATRA-CHT) regimen in patients with high-risk acute promyelocytic leukemia.

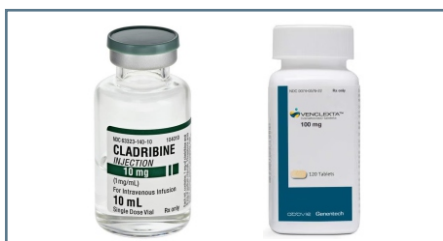
Adult patients with newly diagnosed high-risk APL in the ATRA-ATO arm received ATO 0.15 mg/kg once daily

and ATRA 45 mg/m² twice daily until complete remission (CR), with two doses of idarubicin 12 mg/m² on days 1 and 3, followed by consolidation therapy (four ATRA-ATO cycles). Patients in the ATRA-CHT arm received induction with ATRA 45 mg/m² twice daily and idarubicin 12 mg/m² once daily on days 1, 3, 5, and 7, followed by three cycles of chemotherapy-based consolidation and 2 years of maintenance therapy. The primary study end point was event-free survival (EFS) at 2 years.

As of July 2022, 133 eligible patients had received either ATRA-ATO (n = 68) or ATRA-CHT (n = 65). The study was discontinued prematurely because of slow accrual during the

COVID-19 pandemic. After a median follow-up of 37 months (range, 1.7-88.6 months), 2-year EFS was 88% in the ATRA-ATO arm and 71% in the ATRA-CHT arm (HR, 0.4 [95% CI, 0.17 to 0.92]; P = .02). At a median of 7.8 and 12.1 months from achievement of CR, molecular relapse occurred in one (1.5%) ATRA-ATO patient versus eight (12.3%) ATRA-CHT patients (P = .014). Overall, 32% and 68% of patients receiving ATRA-ATO and ATRA-CHT, respectively, reported serious treatment-emergent adverse events (P < .01).

The results of the APOLLO trial support the use of ATO and ATRA for the treatment of newly diagnosed patients with high-risk APL.

Phase II Study of Venetoclax Added to Cladribine Plus Low-Dose Cytarabine Alternating With 5-Azacitidine in Older Patients With Newly Diagnosed Acute Myeloid LeukemiaTapan M. Kadia, MD, et al; *Journal of Clinical Oncology*; <https://doi.org/10.1200/JCO.21.02823>

This is a phase II study investigating the combination of venetoclax and cladribine (CLAD) low-dose cytarabine (lowLDAC) alternating with venetoclax and 5-azacitidine (5-AZA) in older (≥ 60 years) or unfit patients with newly diagnosed AML. The primary objective was composite complete response (CR) rate (CR plus CR with incomplete blood count

recovery); secondary end points were overall survival, disease-free survival (DFS), overall response rate, and toxicity.

A total of 60 patients were treated; median age was 68 years (range, 57-84 years). By European LeukemiaNet, 23%, 33%, and 43% were favorable, intermediate, and adverse risk, respectively. Fifty-six of 60 evaluable patients responded (composite CR: 93%) and 84% were negative for measurable residual disease. There was one death (2%) within 4 weeks. With a median follow-up of 22.1 months, the median OS and DFS have not yet been reached. The most

frequent grade 3/4 nonhematologic adverse events were febrile neutropenia (n = 33) and pneumonia (n = 14). One patient developed grade 4 tumor lysis syndrome.

Venetoclax and CLAD/LDAC alternating with venetoclax and 5-AZA is an effective regimen among older or unfit patients with newly diagnosed AML. The rates of overall survival and DFS are encouraging. Our study suggests an association between exposure to radiation from medical imaging and a small but significantly increased risk of hematologic cancer among children and adolescents.

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Medical Imaging and Pediatric and Adolescent Hematologic Cancer Risk*Rebecca Smith-Bindman, M.D., et al; N Engl J Med 2025;393:1269-1278; DOI: 10.1056/NEJMoa2502098*

We followed a retrospective cohort of 3,724,623 children born between 1996 & 2016 until the earliest of cancer or benign-tumor diagnosis, death, end of health care coverage, an age of 21 yrs, or December 31, 2017. Radiation doses to active bone marrow from medical imaging were quantified. Associations between hematologic cancers and cumulative radiation exposure, with a lag of 6 months, were estimated with the use of continuous-time hazards models.

During 35,715,325 person-years of follow-up (mean, 10.1 years per person), 2961 hematologic cancers were diagnosed, primarily lymphoid cancers (2349 [79.3%]), myeloid cancers or acute leukemia (460



[15.5%]), and histiocytic- or dendritic-cell cancers (129 [4.4%]). The mean ($\pm$ SD) exposure among children exposed to at least 1 mGy was 14.0 ± 23.1 mGy overall (for comparison, 13.7 mGy was exposure from one CT scan of head) & 24.5 ± 36.4 mGy among children with hematologic cancer.

Cancer risk increased with cumulative dose, with a relative risk (vs. no exposure) of 1.41 for 1 to less than 5 mGy, 1.82 for 15 to less than 20 mGy, and 3.59 for 50 to less than 100 mGy. The cumulative radiation dose to bone marrow was associated with an increased risk of all hematologic

cancers (excess relative risk per 100 mGy, 2.54 [$P < 0.001$]; relative risk for 30 vs. 0 mGy, 1.76 and most tumor subtypes. The excess cumulative incidence of hematologic cancers by 21 years of age among children exposed to at least 30 mGy (mean, 57 mGy) was 25.6 per 10,000. We estimated that, in our cohort, 10.1% of hematologic cancers may have been attributable to radiation exposure from medical imaging, with higher risks from the higher-dose medical-imaging tests such as CT.

Our study suggests an association between exposure to radiation from medical imaging & a small but significantly increased risk of hematologic cancer among children & adolescents.

Arsenic Trioxide and All-Trans Retinoic Acid Combination Therapy for the Treatment of High-Risk Acute Promyelocytic Leukemia: Results From the APOLLO Trial*U Platzbecker et al; <https://doi.org/10.1200/JCO-25-00535>*

The phase III APOLLO trial prospectively compared the efficacy of ATO in combination with ATRA regimen (ATRA-ATO) plus low-dose idarubicin versus standard ATRA plus anthracycline-based chemotherapy (ATRA-CHT) regimen in patients with high-risk acute promyelocytic leukemia. Adult patients with newly diagnosed high-risk APL in the ATRA-ATO arm received ATO 0.15 mg/kg OD and ATRA 45 mg/m² twice daily until complete remission (CR), with 2 doses of idarubicin 12 mg/m² on days 1 and 3, followed by consolidation therapy (4 ATRA-ATO cycles). Patients

in the ATRA-CHT arm received induction with ATRA 45 mg/m² twice daily and idarubicin 12 mg/m² OD on days 1, 3, 5, and 7, followed by three cycles of chemotherapy-based consolidation & 2 years of maintenance therapy. The primary study end point was event-free survival (EFS) at 2 years.

As of July 2022, 133 eligible patients had received either ATRA-ATO ($n = 68$) or ATRA-CHT ($n = 65$). The study was discontinued prematurely because of slow accrual during the COVID-19 pandemic. After a median follow-up of 37 months (range, 1.7-88.6 months), 2-year EFS was 88% in

the ATRA-ATO arm and 71% in the ATRA-CHT arm (HR, 0.4 [95% CI, 0.17 to 0.92]; $P = .02$). At a median of 7.8 and 12.1 months from achievement of CR, molecular relapse occurred in one (1.5%) ATRA-ATO patient versus eight (12.3%) ATRA-CHT patients ($P = .014$). Overall, 32% and 68% of patients receiving ATRA-ATO and ATRA-CHT, respectively, reported serious treatment-emergent adverse events ($P < .01$).

The results of the APOLLO trial support the use of ATO and ATRA for the treatment of newly diagnosed patients with high-risk APL.

Transplant Tidings Transplant Tidings Transplant Tidings

BEAM/ATG or cyclophosphamide/ATG as conditioning regimen in autologous haemopoietic stem cell transplantation (HSCT) for multiple sclerosis: a retrospective analysis of the EBMT autoimmune diseases working party Raffaella Greco et al; BMT; <https://doi.org/10.1038/s41409-025-02715-x>



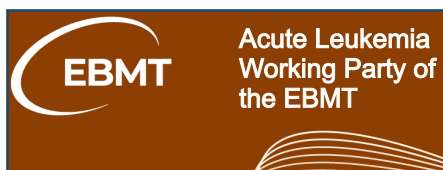
Multiple Sclerosis (MS) is the most frequent autoimmune disease (AD) treated with autologous HSCT. There are no prospective trials comparing the most used conditioning regimens, BEAM/Anti-thymocyte globulin (ATG) and cyclophosphamide (CYC)/ATG.

Herein, we report a retrospective analysis of the EBMT database aimed to assess their risk/benefit ratio. We included 1114 MS patients who were conditioned with either BEAM/ATG or CYC/ATG. Neutrophil engraftment in BEAM/ATG- and CYC/ATG-treated patients occurred at a median time of 11 and 10 days after HSCT ($p = 0.079$). Overall, 2.0% of patients conditioned with BEAM/ATG and 1.0% with CYC/ATG died within 100 days from HSCT ($p = 0.19$).

Overall, the incidence of NEDA (No Evidence of Disease Activity) failure

in BEAM/ATG and CYC/ATG at 5 years was 42.3% (95% CI: 36.3–48.8%) and 44.1% (95% CI: 30.8–60.1%), respectively ($p = 0.081$). No statistically significant differences between the two treatments [HR = 0.90 (95% CI = 0.61; 1.34), $p = 0.60$] were confirmed, when adjusting for disease type, disability at baseline and year of transplant. A clear difference between the regimens is lacking, both in terms of toxicity and efficacy, in this large population. Type of disease (relapsing/remitting vs progressive) is still the major determinant of neurological outcome.

Similar Outcome with Haploidentical, Matched Sibling, or Matched Unrelated Donor Hematopoietic Cell Transplantation (HCT) for Adult Patients with Adverse-Risk *Tp53*-Mutated AML in First Remission: A Comparative Study from the Global Committee and the Acute Leukemia Working Party of the EBMT Yuhua Ru et al; AJH, 2025; 0:1–10; <https://doi.org/10.1002/ajh.70069>



Given the dismal prognosis for patients with TP53-mutated AML, the optimal donor for those undergoing allogeneic HCT (allo-HCT) remains unclear. We retrospectively analyzed adult patients with TP53-mutated AML who underwent first allo-HCT in CR1 between 2010 and 2021. Outcomes were compared among using a haploidentical donor (Haplo), a matched sibling donor (MSD), and a 10/10 matched unrelated donor (MUD). The analysis comprised 451

patients, including 86 Haplo, 117 MSD, and 248 MUD.

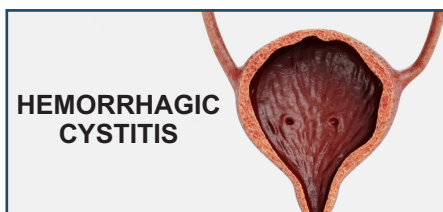
Patients in the three groups were transplanted during a similar period. Haplo, MSD, and MUD groups experienced similar incidences of Day 180 Grades II–IV aGVHD (30.9% vs. 23.6% vs. 28.3%), Grades III–IV aGVHD (13.6% vs. 10.1% vs. 9.1%), 2-year cGVHD (28.9% vs. 30.9% vs. 25.6%) and extensive cGVHD (10.9% vs. 16.1% vs. 13.3%). By multivariate analysis, the outcomes were similar in the three groups. The MSD group was associated with a similar 2-year overall survival (OS: 33.9%; $p = 0.799$), leukemia-free survival (LFS: 30.5%; $p = 0.956$), relapse incidence (RI:

54.2%; $p = 0.497$), non-relapse mortality (NRM: 15.3%; $p = 0.368$), and GVHD-free, relapse-free survival (GRFS: 21.8%, $p = 0.957$) when compared with the Haplo group (2-year OS: 46.7%, LFS: 37.4%, RI: 40.8%, NRM: 21.7%, GRFS: 25.7%). The MUD group also experienced a similar 2-year OS (36.9%; $p = 0.892$), LFS (31%; $p = 0.904$), RI (50.8%; $p = 0.521$), NRM (18.2%; $p = 0.368$) and GRFS (21.9%; $p = 0.383$) when compared with the Haplo group.

In conclusion, outcomes of patients with TP53-mutated AML undergoing allo-HCT from a haploidentical donor were comparable to those from an MSD or 10/10 MUD HCT.

Transplant Tidings Transplant Tidings Transplant Tidings

A survey on the practices and the management of hemorrhagic cystitis in patients who undergo allogeneic hematopoietic stem cell transplantation (HCT), on behalf of the Infectious Diseases Working Party of EBMT Cesaro S., et al; *Bone Marrow Transplant* (2025). <https://doi.org/10.1038/s41409-025-02703-1>



This survey reports on current practice and management of hemorrhagic cystitis (HC) among the EBMT centers. The survey response rate was 27%. The diagnostic search of BK polyomavirus (BKPyV) was available in 93% of centers & performed in urine (100%), blood/plasma (51%), and serum (12%).

Screening for BKPyV infection was

performed in 14% of centers before HCT. In comparison, surveillance for BKPyV infection was performed after HCT in 39% of centers, mainly with a frequency of 1–2 times/week. Preventative measures are based mainly on hyperhydration and sodium 2-mercaptoethanesulphonate (Mesna), while the use of bladder catheter is limited; moreover, 23% of centers used quinolones prophylaxis.

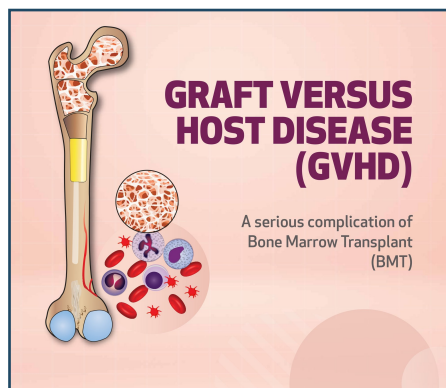
The primary therapeutic interventions are hyperhydration, Mesna, analgesics, and sustained platelet transfusions; bladder irrigation by urinary catheter is

adopted by 47–50% of centers. In the case of BKPyV infection, 85% of centers use IV or intra-bladder administration of cidofovir at a dosage ranging from 1 to 5mg/kg. Centers report a miscellaneous range of alternative therapeutic measures (adoptive immunotherapy, hyperbaric oxygen therapy, fibrin glue/platelet-rich plasma, leflunomide, sodium hyaluronate) and the need for invasive procedures.

This survey confirms that the management of HC needs further education, clinical research, and innovation.

Improved GVHD-free relapse-free survival when rATG/ATLG is used in allo-HCT from matched sibling donors - an EBMT registry study by the Transplant Complications Working Party

Piekarska, A., Abouqateb, M., Boreland, W. et al. *Bone Marrow Transplant* (2025). <https://doi.org/10.1038/s41409025-02692-1>



The EBMT recommends rabbit anti-thymocyte or anti-T-lymphocyte globulin (rATG/ATLG) as GVHD prophylaxis in matched sibling donor (MSD) allogeneic hematopoietic cell transplantation (allo-HCT). However, discrepancies between recommendations and clinical

practice were reflected in the EBMT survey. Therefore, we performed retrospective EBMT registry analysis from 2014 to 2021 to reinforce the real-world evidence context of rATG/ATLG impact on post-transplantation outcomes.

This study included 11,420 adult patients (non-ATG n=7680 and ATG n=3740) with hematological malignancies after the first allo-HCT from peripheral blood. Use of ATG was associated with a reduced risk of aGVHD II-IV (Day +100: non-ATG vs ATG, 27.6% vs. 21.6%; adjusted HR 0.7, p<0.001) and cGVHD (2-year: non-ATG vs ATG, 48.9% vs 30%; adjusted HR 0.45, p<0.001), improved OS (2-year: 62.9% vs

63.3%; adjusted HR 0.89, p=0.009), reduced NRM (2-year: 16% vs 12.5%; adjusted HR 0.63, p<0.001), and higher GRFS (2-year: 32.2% vs 40.7%; adjusted HR 0.72, p<0.001). While RI was higher in the ATG group (2-year: non-ATG vs ATG, 30.2% vs 34.7%; adjusted HR 1.22, p<0.001) it did not translate into a significantly lower PFS (2-year: 53.9% vs 52.8%; adjusted HR not significant).

Overall, outcomes were favorable for the intermediate rATG/ATLG dose ranges compared to the low and high dose ranges. Administration of rATG/ATLG improved outcomes in MSD allo-HCT recipients, supporting the EBMT recommendation for its use.

Empowering Women with Bleeding Disorders: A Milestone Clinic at PIMS

By Ms. Hina Fatima



Introduction

On August 13, 2025, the Mother & Child Hospital at PIMS, Islamabad, hosted a groundbreaking Women's Clinic dedicated to women and girls with inherited bleeding disorders. This event was a collaborative effort between the Hemophilia Patients Welfare Society, the Department of Gynecology, and the PIMS Blood Bank, aiming to address the unique gynecological challenges these patients face.

Addressing Critical Health Challenges

The clinic focused on vital issues such as heavy menstrual bleeding, postpartum complications, and surgical risks—problems that are often overlooked in women with bleeding disorders. With ten doctors, four support staff, and active participation from patients and their families, the event provided medical consultations, raised awareness, and offered practical solutions.

Expert Insights and Advocacy

Dr. Farwa Sijjel, In-Charge of the PIMS Blood Bank, emphasized the importance of early recognition of symptoms and the need to avoid repeated diagnostic tests for registered patients. Dr. Lubna Zafar, President of the Hemophilia Patients Welfare Society, Rawalpindi, highlighted the clinical challenges in diagnosing bleeding disorders,

including delayed recognition, lack of awareness among healthcare professionals, and the social stigma that prevents women from seeking timely help.

Patient Stories: The Human Impact

Women shared powerful stories about how heavy menstrual bleeding affects their lives, causing physical weakness, emotional distress, and social isolation. Many described missing school, work, or family events due to prolonged periods, and some underwent unnecessary surgeries because of misdiagnosis. These accounts underscored the urgent need for greater awareness and specialized care.

Multidisciplinary Approach to Care

The clinic provided direct access to gynecologists familiar with bleeding disorders, fostering essential collaboration between hematologists and gynecologists. This multidisciplinary model ensures comprehensive care, from managing monthly cycles to preparing for safe childbirth and surgeries.

Key Announcements

Significant developments included the establishment of dedicated checkup rooms at PIMS, the introduction of separate patient ID cards for easier identification, and regular awareness sessions for postgraduate trainees in

gynecology. Chief Guest Dr. Nosheela Javed praised the initiative and reaffirmed her commitment to improving patient care.

Looking Ahead

Organizers announced plans for regular specialized clinics, ongoing training sessions, and strengthened collaboration among gynecologists, hematologists, and patient societies. The Women's Clinic at PIMS stands as a milestone in advocacy and healthcare, paving the way for brighter futures for women living with inherited bleeding disorders.



Case Report By Dr. Farah Hanif

Iliopsoas haematoma with superficial bruising and raised CRP: a rare presentation

Background

Iliopsoas muscle hematoma is a rare but serious complication in patients with hemophilia, often resulting from spontaneous or trauma-induced bleeding into the retroperitoneal psoas and iliacus muscles. Due to the deep anatomical location, early diagnosis is challenging. In hemophilia A or B, reduced clotting factor levels increase the risk of deep muscular and joint bleeds. Iliopsoas bleeds are particularly concerning because of the potential for neurovascular compression, severe pain, and hip dysfunction. The simultaneous occurrence of high-grade fever, elevated inflammatory markers (such as CRP), and superficial bruising is extremely rare and can mimic infectious conditions like abscesses or sepsis, complicating diagnosis and management.

Case Presentation

A 27-year-old male with moderate Hemophilia A (Factor VIII activity 1.3%) presented with spontaneous left-sided lower abdominal and groin pain radiating to the hip and thigh. On examination, he appeared ill, pale, tachycardic, and adopted a hip flexure position due to pain. A large, tender hematoma was observed on the left lower abdomen, with numbness over the thigh and absent knee reflex. Initial management included Factor VIII transfusion (40 IU/kg). Ultrasound revealed a soft tissue lesion/hematoma in the left iliac fossa

(52.7 × 42.8 × 51.2 mm), and Factor VIII replacement therapy was continued.

Clinical Course and Management

The patient's pain worsened, and he developed a high-grade fever. Despite conservative management and antibiotic therapy, he developed a superficial bruise in the same region. Investigations showed markedly elevated CRP (218 mg/L), but urine cultures were negative for infection. He received antibiotics and supportive care, with fever subsiding and hematoma improving over the following days. Final ultrasound showed an organized hematoma with no active bleeding. Throughout the 13-day episode, he received complete Factor VIII coverage, and follow-up visits showed no recurrence of symptoms. Multidisciplinary coordination among hematology, radiology, and internal medicine teams was crucial for his recovery.

Discussion

The coexistence of fever and elevated CRP in hemophilic patients with iliopsoas hematoma is diagnostically challenging, as it can be mistaken for psoas abscess or sepsis, potentially leading to unnecessary procedures or antibiotic use. Similar cases in literature highlight the importance of thorough evaluation before labeling the condition as infectious. Conservative management remains the mainstay unless there is evidence



of active bleeding, neurovascular compromise, or abscess formation. This case underscores the complexity and diagnostic uncertainty of iliopsoas hematoma in hemophilia, especially when accompanied by fever and elevated CRP.

Conclusion

A multidisciplinary, conservative approach with adequate Factor VIII replacement and close monitoring proved effective, emphasizing the need for awareness of such rare presentations to improve patient outcomes

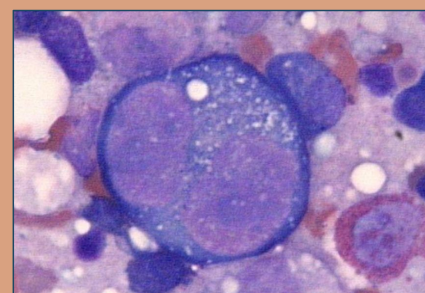
Picture Quiz Answer

by Dr Laila Bahadur, Consultant Hematologist PATHWEL

Answer: Classic Hodgkin Lymphoma (Nodular sclerosis type)

Left axillary lymph node biopsy revealed effacement of architecture by large cells with vesicular nuclei and prominent intranuclear inclusions. Background shows sclerosis & histiocytes, eosinophils and plasma cells.

Immunohistochemistry: CD30 Positive, PAX5 Weak positive, CD15 Positive in some cells, CD20 and CD45 Negative.





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