TNPCIAPM Newsletter

TN and Pondy Chapter of Indian Association of Pathologist and microbiologist

Issue: 1

Sep-Dec 2021

Office bearers

President:
Dr.Sandhya Sundaram
Vice President
Dr.R.Padmavathi
Secretary
Dr.Chandramouleeswari.K
Joint Secretary
Dr.A.Saragan
Advisor
Dr.B.H.Srinivas
Treasurer
Dr.TelefloBhoopathy
Joint Treasurer
Dr.G.Veeraraghavan
Advisory Board
Dr.S.Seethalakshmi
Dr.A.V.Shanthi
Dr.EzhilvizhiAlavandar
Dr.S.Rajendiran
Dr.Srinivasa Kannan
Dr.Swaminathan

Zone heads

Dr. Bharathi Vidhya Jayanthi
Dr. Geetha Chacko
Dr. Sujatha J
Dr. Ramesh
Dr. Suresh Durai
Dr. Renu G'Boy Varghese

FROM THE EDITORS DESK

Hi Colleagues,

As we roll out the maiden edition of the newsletter of this season, I appeal to everyone to remember the responsibility of our roles in patient care. All editions of newsletter will be connected by this string of reality. It is time the patient also knows who his Pathologist is!!!

The idea of a newsletter, the coming together of like-minded people, conglomeration of ideas, all the back ground organization and activities are a very positive way forward and an experience to cherish. A pat in the back for all those concerned.

This newsletter is crafted with the postgraduates, practicing pathologist, medical teachers, research scholars in mind and will be like a 'strope' to hone their various skills

Slide viewing is image capture with data processing. As we look into the slide, hundreds of thoughts pertaining to the images we see, flood our mind, new neuron get recruited to analyse the image against the databank of knowledge within us.

To capture the image, it has to be viewed systematically. There are books on interpretation, but where or how does a novice get the orientation for observing the image? Articles in the newsletter will address this issue to help postgraduates become slide friendly. And crack the slide(case)

For the practising pathologists, sources for enriching the databank of knowledge will be included in every article published. CAP Protocols and WHO updates, latest articles, research papers also will be included in subsequent editions.

Medical teachers will find ideas on how to implement the current curriculum.

Interesting cases and the way they have been worked out is going to set a new track in the way we work towards finalizing the diagnosis

Wait! Interesting case, is only a tumour interesting and not a gastritis? Is only a fancy name interesting and not a fibroadenoma? So who is the interesting patient?

No discrimination please..... Every slide/patient shall. be given the due respect. Pathologist have a literary side too – we have poems for Pathologists by Pathologists.

It is our slide viewing acumen processed with our knowledge that is going to help the Physician/surgeon in management decisions.

As Pathologist, let us be the Physician's best PHYSICIAN in giving Patient care. Be the sought after Pathologist not just by the surgeon but the Patient too!!!

Hope you enjoy reading our first edition!!

Dr. Bharathi Vidhya Jayanthi.

APPROACH TO ANAEMIA WITH PANCYTOPENIA – A CASE REPORT

INTRODUCTION:

Pancytopenia is not a disease by itself but a triad of hematological findings that can result from a number of disease processes. It can be due to failure of bone marrow stem cell production, bone marrow infiltration or replacement by malignant and non – malignant causes, and blood cell destruction or sequestration.

The severity of pancytopenia and the underlying pathology determines the management and prognosis.

Identification of the correct cause will help in implementing appropriate therapy.

APPROACH TO PANCYTOPENIA :

- Case history and general examination
- Complete blood count
- Absolute count (reticulocyte, neutrophil, lymphocyte ,eosinophil)
- Reticulocyte indices
- Peripheral blood smear
- Bone marrow examination.

CASE HISTORY:

45 year old female came with chief complaints of

Easy fatiguability for 15 days

No history of fever , bleeding manifestations , loss of weight and loss of appetite .

No history of abortions

No hepatosplenomegaly

No lymphadenopathy

History of blood transfusions with 8 units of packed red cells and 5 units of platelets present.

INVESTIGATIONS:

COMPLETE BLOOD COUNT:

Wbc : 2.9 x 103 / µL

Rbc : 2.15 x 106 / µL

Hb : 6.5 g/dL

Hct : 19.7 %

Mcv : 91 fl

Mch : 30.2 pg

Mchc : 33 g/dl

Plt : 6 x 103 / µL

RDW- CV : 16.5%

RETICULOCYTE INDICES :

RETICULOCYTE COUNT : 0.8 %

ABSOLUTE RETICULOCYTE COUNT : 17200 cells/cu.mm

CORRECTED RETICULOCYTE COUNT: 0.35%

RETICULOCYTE PRODUCTION INDEX : 0.17

Based on CBC , MCV and Absolute Reticulocyte count , the cause of anemia can be evaluated.

PERIPHERAL SMEAR :

RBC : Normocytic normochromic RBCs admixed with microcytic hypochromic RBCs. Anisopoikilocytosis seen with elliptocytes. No nucleated rbcs. No polychromatophils. No hemoparasites.

WBC: count reduced with following differential count

Bandforms -3%

Neutrophils- 12 %

Lymphocytes – 80%

Reactive lymphocytes – 5%

ABSOLUTE NEUTROPHILCOUNT : 435 cells/cu.mm

ABSOLUTE LYMPHOCYTE COUNT : 2320 cells/cu.mm

PLATELETS : reduced . Manual platelet count – 30,000 cells/cu.mm. seen as singles.

IMPRESSION : Dimorphic anaemia with neutropenia with thrombocytopenia

COMMENT : The criteria for pancytopenia given by WHO is met in this case , that is
-Hemoglobin <12g/ dL for non pregnant women and < 13g/ dL for men
-Absolute neutrophil count < 1800/ microL
-Platelet count < 150,000 / microL
The causes for pancytopenia must be evaluated, hence bone marrow biopsy was done.
"BONE MARROW ASPIRATION" Inconclusive.
BONE MARROW BIOPSY: BIOPSY NUMBER : 3403/21
ARTIFACT: Absent
ADEQUACY : Adequate
CELLULARITY : Hypocellular
TRILINEAGE HEMATOPOIESIS : Markedly reduced
ERYTHROID SERIES : Markedly reduced
DYSPOIETIC CHANGE : Absent
MYELOID SERIES : Marked reduced
MATURING MYELOID SERIES : Not present
BLAST : Absent
MEGAKARYOCYTES: Absent
The marrow shows increase in adipocytes, mast cells, plasma cells and lymphocytes.
GRANULOMA/NECROSIS : Absent
RETICULIN : Grade 1 marrow fibrosis
FINAL IMPRESSION : SEVERE APLASTIC ANAEMIA BASED ON INTERNATIONAL APLASTIC ANAEMIA STUDY GROUP CRITERIA.
DISCUSSION :
The evaluation of patient with pancytopenia requires a systematic approach including a careful history and physical examination to rule out congenital causes of pancytopenia and common causes of pancytopenia such as megaloblastic anaemia, aplastic anaemia and hypersplenism.
INVESTIGATIONS : Baseline hematological investigations provide invaluable information in the evaluation of pancytopenia. Baseline investigations includes complete blood count and reticulocyte indices.
As a postgraduate in madras medical college , I find it fascinating to unravel the mystery behind pancytopenia. I enjoy doing it everytime. Hope this helps my colleagues to feel the same after reading this.

ABSOLUTE NEUTROPHIL COUNT : Absolute neutrophil count must be done, because absolute neutrophil count less than 500 cells/ cu.mm, along with reticulocytopenia needs an emergency evaluation.
In our case absolute neutrophil count is 435 cell /cu.mm suspecting severe aplastic anaemia.
ABSOLUTE RETICULOCYTE COUNT : Absolute reticulocyte count is the key to initial evaluation of pancytopenia. It is a marker of red cell production by bone marrow. It plays an important role in establishing the cause of pancytopenia 1 and helps in distinguishing between hypoproliferative and hyperproliferative marrow. Hence it avoids unnecessary bone marrow examination.

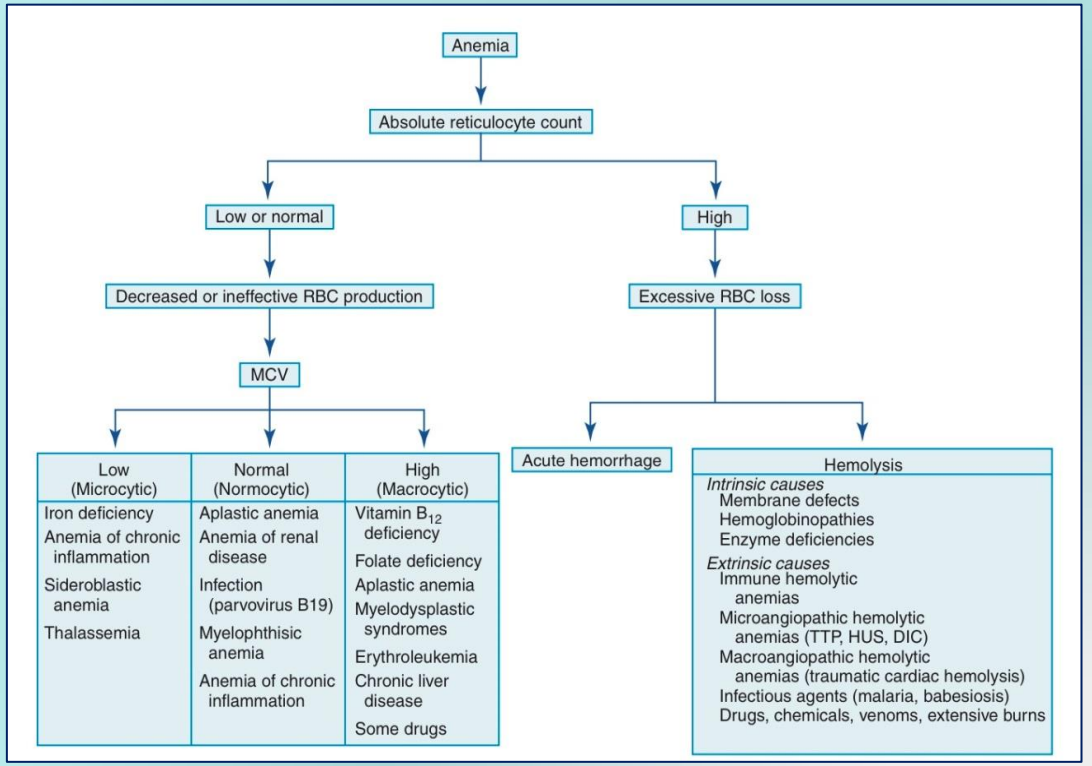


FIG 1. ALGORITHM FOR EVALUATING CAUSES OF ANEMIA BASED ON ABSOLUTE RETICULOCYTE COUNT AND MEAN CELL VOLUME. REF:RODAKS HEMATOLOGY – 6TH EDITION

In our case absolute reticulocyte count was 17200 cells /cu.mm and MCV – 91fl , Aplastic anaemia and myelopthisic anaemia was our differential diagnosis.

PERIPHERAL BLOOD SMEAR : Peripheral blood smear provides important information in pancytopenia. But it should always be done prior to blood transfusion, because transfusion of blood and blood products may affect all the indices.

BONE MARROW EXAMINATION : Bone marrow examination is almost always indicated in cases of pancytopenia unless the cause is otherwise apparent. Causes of pancytopenia with hypocellular and hypercellular marrow must be evaluated.

Table 107–1 Differential Diagnosis of Pancytopenia

Pancytopenia with Hypocellular Bone Marrow	
Acquired aplastic anemia	
Constitutional aplastic anemia (Fanconi's anemia, dyskeratosis congenita)	
Some myelodysplasia	
Rare aleukemic leukemia	
Some acute lymphoid leukemia	
Some lymphomas of bone marrow	
Pancytopenia with Cellular Bone Marrow	
Primary bone marrow diseases	Secondary to systemic diseases
Myelodysplasia	Systemic lupus erythematosus
Paroxysmal nocturnal hemoglobinuria	Hypersplenism
Myelofibrosis	B_{12}, folate deficiency
Some aleukemic leukemia	Overwhelming infection
Myelophthisis	Alcohol
Bone marrow lymphoma	Brucellosis
Hairy cell leukemia	Sarcoidosis
	Tuberculosis
	Leishmaniasis
Hypocellular Bone Marrow ± Cytopenia	
Q fever	
Legionnaires' disease	
Anorexia nervosa, starvation	
Mycobacterium	

FIG 2: DIFFERENTIAL DIAGNOSIS OF PANCYTOPENIA. REF: HARRISON'S TEXTBOOK OF INTERNAL MEDICINE – 20TH EDITION

In our case , from above all the investigations including bone marrow biopsy showing less than 25% cellularity , pancytopenia with hypocellular marrow causing diseases must be evaluated.

Since the marrow shows no evidence of increase in blasts and clinical history of absence of hepatosplenomegaly and lymphadenopathy , diagnosis of aplastic anaemia is strongly favoured.

Based on international aplastic anaemia study group criteria , it is essential to categorize aplastic anaemia into moderate, severe and very severe aplastic anaemia.

So the final diagnosis was given as severe aplastic anaemia based on international aplastic anaemia study group criteria.

Aplastic anaemia must be catecorized based on international aplastic anaemia study group criteria because severe and very severe aplastic anaemia always require hematopoietic stem cell transplantation. So blood products must be used judiciously in patients with pancytopenia suspecting aplastic anaemia.

TABLE 19.1 Diagnostic Criteria for Aplastic Anemia

	MAA	SAA	VSAA
Bone marrow	Hypocellular bone marrow plus at least two of the following:	Bone marrow cellularity < 25%* plus at least two of the following:	Same as SAA
Neutrophils ($\times 10^9$/L)	0.5–1.5	0.2–0.5	<0.2
Platelets ($\times 10^9$/L)	20–50	<20	Same as SAA
Other	HGB ≤ 10 g/dL plus reticulocytes < 30 × 10^9/L	Reticulocytes < 20 × 10^9/L or < 1% corrected for HCT	Same as SAA

FIG 3. DIAGNOSTIC CRITERIA FOR APLASTIC ANAEMIA.MAA – MODERATE APLASTIC ANAEMIA, SAA – SEVERE APLASTIC ANAEMIA, VSAA – VERY SEVERE APLASTIC ANAEMIA. REF :RODAK'S HEMATOLOGY – 6TH EDITION.

TAKE HOME MESSAGES:

- Absolute reticulocyte count must be done in every case of pancytopenia since it plays an important role in establishing the cause of pancytopenia.
- Absolute neutrophil count should be calculated to assess the severity of pancytopenia.
- Peripheral blood smear examination must always be done prior to blood transfusion.
- Blood products replacement should be given judiciously. Because multiple blood transfusions will make the patients exposing to different HLA antigens resulting in transplantation rejection.
- Simple and systematic examination helps in establishing the cause of pancytopenia and deciding the appropriate treatment.

REFERENCES:

1.Rodak's hematology- 6th edition

2.Harrison's textbook of internal medicine – 20th edition

3.Approach to the diagnosis of aplastic anaemia . blood advances 2021.Doi.Org/10.1182/blood advnces.2021004345

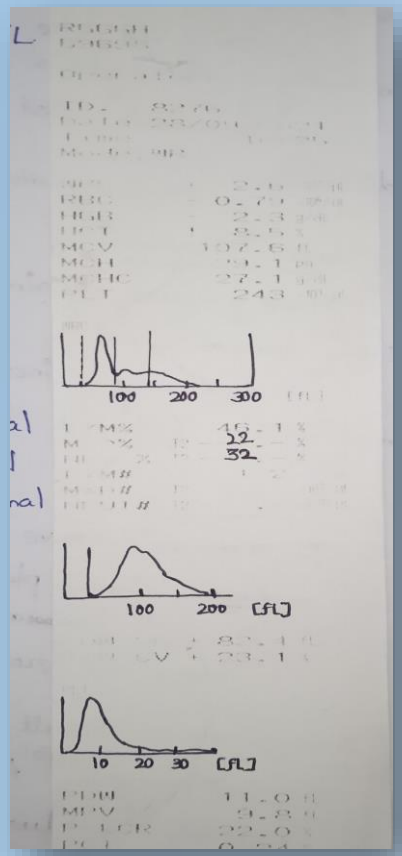
4.Automated reticulocyte counting : state of the art and clinical applications in the evaluation of erythropoiesis. Clin chem lab med .2010;48(10): 1369-80

Dr.S.Hannah Eunice,
Postgraduate,
Institute of pathology,
Madras Medical College, .

INTERPRETATION OF HISTOGRAM

CASE 1 : 59/M with the following CBC values and following Histogram picture.

Dr. Vaishnavi Sudharsan
Postgraduate,
Institute of Pathology,
Madras Medical College



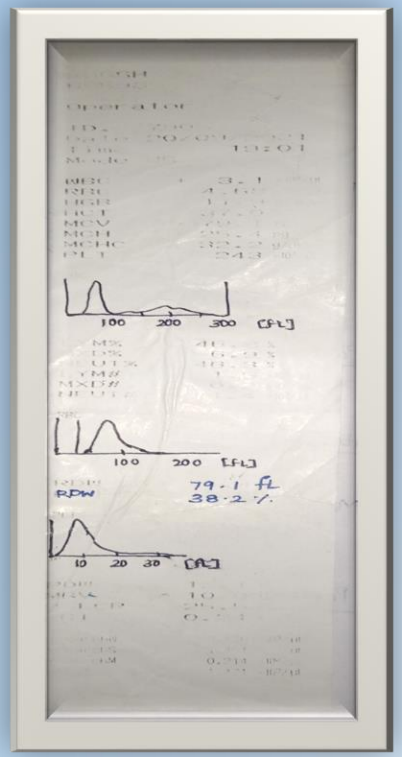
COMPLETE BLOOD COUNT :
WBC : 2600
RBC :0.79 X 10^6 /µL
HB: 2.3 g/dl
HCT : 8.5 %
MCV :107.6 fl
MCH : 29.1 pg
MCHC :27.1 g/dl
PLT : 243 X 10^3 /µL
RDW -23.1%
MPV- 9.8fl
LYM % - 46.1%
MXD %- 22%
NEUT % - 32%

RBC HISTOGRAM: Upper and lower discriminator within normal limits . Peak beyond 100fL - shift to right. RDW increased .
WBC HISTOGRAM : Lymphocyte predominance .
PLATELETS : Normal/unremarkable.

HISTOGRAM INTERPRETATION :
MACROCYTIC ANAEMIA WITH LYMPHOCYTIC PREDOMINANCE

C

CASE 2 : 18/M with the following CBC values and Histogram.

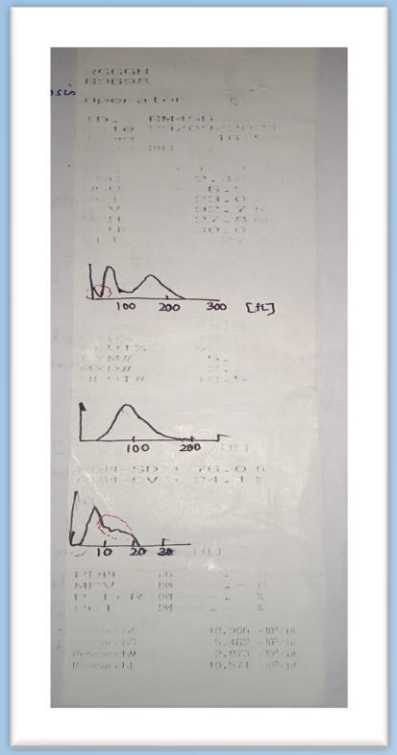


COMPLETE BLOOD COUNT :
WBC : 3100
RBC :4.68 X 10^6 /µL
HB: 11.9 g/dl
HCT : 37.1 %
MCV :79.4 fl
MCH : 25.4 pg
MCHC :32.2 g/dl
PLT : 243 X 10^3 /µL
RDW -38.2%
MPV- 10.0 fl
LYM % - 46.6%
MXD %- 6.9%
NEUT % -46.5%

RBC HISTOGRAM: Not a normal Gaussian curve . Upper and lower discriminator within normal limits. Shift to left present indicating microcytosis.
RDW increased .(Anisocytosis)
WBC HISTOGRAM :Upper and lower discriminator within normal limits. Comparitively increased lymphocytes followed by neutrophils .
PLATELETS : Normal curve. Upper discriminator does not reach baseline - few giant platelets noted.

HISTOGRAM INTERPRETATION :
MICROCYTIC HYPOCHROMIC ANAEMIA WITH FEW GIANT PLATELETS NOTED.

CASE 3 :68/F with the following CBC values and Histogram picture.



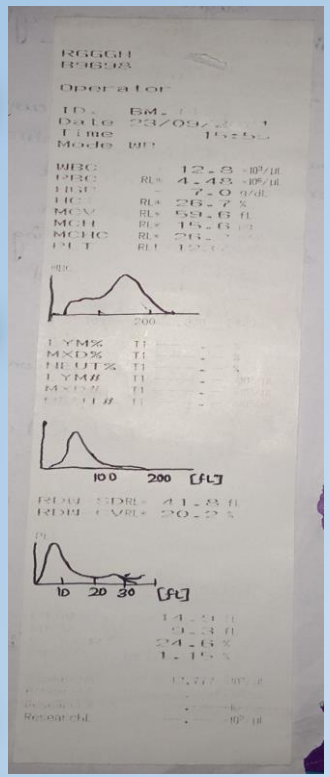
COMPLETE BLOOD COUNT :
WBC : 4750/µL
RBC :2.48 X 106 /µL
HB: 6.9 g/dl
HCT : 23.0 %
MCV :92.7 fl
MCH : 27.7 pg
MCHC :30.0 g/dl
PLT : 7 X 103 /µL
RDW -24.1%
MPV- 16.8 fl
LYM % - 47.9%
MXD %- 2.3%
NEUT % -50.6%

RBC HISTOGRAM: shift to left present indicating microcytosis.
RDW increased .(Anisocytosis)
WBC HISTOGRAM : A small down curve before the lower discriminator value indicating the presence of Nucleated RBCs. Peak between T 2 and upper discriminator indicate increased neutrophils.
PLATELETS : Low count. Histogram consistent with Platelet clumps, microcytic red cells and fragmented Rbcs.

HISTOGRAM INTERPRETATION :
MICROCYTIC HYPOCHROMIC ANAEMIA WITH THROMBOCYTOPENIA .

C

CASE 4 :59 /F with the following CBC and Histogram picture .



COMPLETE BLOOD COUNT :
WBC : 12800/µL
RBC :4.48 X 106 /µL
HB: 7.0g/dl
HCT : 26.7 %
MCV :59.6 fl
MCH : 15.6 pg
MCHC :26.2 g/dl
PLT : 1237 X 103 /µL
RDW -20.1%
MPV- 9.3fl
LYM % - 7.6%
MXD %- 1.5%
NEUT % -91.5%

RBC HISTOGRAM: Upper and lower discriminator within normal levels. Shift to left present indicating microcytosis.
RDW increased .(Anisocytosis)
WBC HISTOGRAM :Upper and lower discriminator unremarkable. Peak between T 2 and upper discriminator indicate increased neutrophils. Lowered spike between T1and T2 Increased. Basophil/monocyte/eosinophil.
PLATELETS : Low discriminator normal. Curve does not reach upper discriminator - Increased platelets.

HISTOGRAM INTERPRETATION :
MICROCYTIC HYPOCHROMIC ANAEMIA WITH NEUTROPHILIC LEUCOCYTOSIS WITH THROMBOCYTOSIS

Young Clinician Program for II PY Learners
An Educational Innovation for Phase II students based on the CBME Curriculum

The Program :

This Program is a clinical clerkship training module to motivate the learners in the II professional year, to know, show how and perform in terms clinical knowledge, clinical skills, communication skills, and ethical principles, progressing to become a competent physician of first contact. This program is an educational innovation to ensure comprehensive learning in the paraclinical subjects through integration of clinical clerkship training. The learner will undertake learning of Pathology, Pharmacology and Microbiology through

1. Observe: The learner will observe various clinical activities in the hospital ward real-time including minor procedures, minor surgeries, patient interactions, and patient's response.
2. Interact: The learner will observe procedures such as catheterization, pleural fluid tapping, intubation, based on a procedural checklist provided, correlate that with the classroom teaching and interact with the residents and faculty in the wards to understand the principles and clinical importance of such procedures.
3. Supervised Training: The learner will perform a minor clinical task under supervision such as placing an IV cannula, giving intramuscular / subcutaneous injections, cleaning and dressing simple wounds, making sutures of simple wounds etc.
4. Assisting to Learn: The learner will assist the residents and faculty in performing procedures such as catheterizations, minor surgical procedures, FNAC, Bone Marrow Aspirations, Biopsies, Setting of Plasters and Immobilization for Fracture and Wound repair.

The Learning Objectives

The learner will be provided a set of learning objectives in the departments of Pathology, Pharmacology and Microbiology pertaining to the core course competencies. The learner shall observe, interact and train and make appropriate records in the hand book. The learner will be awarded a maximum of 5 marks for each posting and proportionate marks will be included in the internal assessment for the concerned 3 core course subjects. The 3 best observations in each department will be invited to make a podium presentation, while the next 7 best will be invited to make a poster-presentations during a conference
organized during the ensuing months.

For example : Posting in Emergency Medicine

LEARNING ACTIVITY /OBJECTIVE	LEARNING AREA	RECORD OF LEARNING	MODE OFASSESSMENT	ASSESSEMENT CREDITS
Observe and Report on the emergency management of an unconscious patient requiring establishment of airway, breathing and circulation	Arrival & Red Zone	Academic Handbook (Pharmacology)	Reflective Writing	5 marks
Observe and Report on the emergency management of trauma patient in shock /hypovolemic shock	Arrival & Red Zone	Academic Handbook(Pharmacology)	MCQ test 10 questions	5 marks
Observe and Report on the emergency management of patient with acute coronary event / cardiogenic shock	Arrival & Red Zone	Academic Handbook (Pharmacology)	MCQ test 10 questions	5 marks
Observe and Report on the emergency management of patient with acute cerebrovascular event	Arrival & Red Zone	Academic Handbook (Pharmacology)	MCQ test 10 questions	5 marks
Observe and Report on the emergency management of patient with poison ingestion	Arrival & Red Zone	Academic Handbook (Pharmacology)	MCQ test 10 questions	5 marks

1. Learners shall be placed in teams, each having a mentor.
2. Learners shall report to the EMO / Faculty in-charge of the concerned area
3. Learners shall mark the attendance with initials of EMO / Faculty of the concerned area
4. Learners shall submit the attendance to the concerned mentor every Saturday.
5. Learners posting shall be from Monday to Friday (5 days) – 5.00pm to 8.00pm.
6. Learners shall observe and write a report of activities in the area
7. Learners shall make entries in the Academic Handbook as mentioned against the activity.
8. Learners shall meet their concerned mentor during the ensuing Saturday and discuss the learning
9. Learners shall take an assessment as mentioned against the activity and as deemed necessary
10. The scores of the assessment shall be proportionately integrated in the internal assessment marks
Learners shall not request for bed side teaching during the posting period.
11. Learners are instructed not to copy or plagiarize the report. Photographs shall not be taken
12. Learners are requested not to enter into unwarranted conversation with patients or bystanders

Dr. Swaminathan K, Professor of Pathology and MEU, Tirunelveli Medical College

Key changes in thyroid carcinoma in AJCC / TNM 8th edition

The American Joint Committee on Cancer/Union for International Cancer Control (AJCC/UICC) The American Joint Committee on Cancer/Union for International Cancer Control (AJCC/UICC) updated in 2017 the tumor node metastasis (TNM) staging system and came up with its 8th edition, introducing significant changes. Appropriate staging according to the 8th edition requires integration of a wide variety of information based on patient history, physical examination, imaging, intraoperative findings and pathologic data. In the current AJCC 8th edition, there are seven major changes in the differentiated and two major changes in anaplastic thyroid cancers.

The eighth edition downstages a significant number of patients by

a. raising the age cutoff used for staging from 45 to 55 years of age at diagnosis.

b. removing regional lymph node metastases and microscopic extrathyroidal extension from the definition of T3 disease.

The eighth edition also re-emphasizes the critical importance of gross extrathyroidal extension as an unfavorable prognostic factor while minimizing the significance of minor extension through the thyroid capsule, which is identified only on histological examination. The major changes are highlighted in bold letters.

DIFFERENTIATED THYROID CANCER: KEY FEATURES

1.AGE CUTOFF USED FOR STAGING WAS INCREASED FROM 45 TO 55 YEARS AT DIAGNOSIS.

Differentiated thyroid cancers is the only human malignancy for which age is considered an independent prognostic factor of cancer-specific survival (CSS) by the American Joint Committee on Cancer (AJCC) staging system. Modifications from the 7th edition decrease the stage for patients between 45 and 55 years, whereby all patients under the age of 55 years are now stage I when local and/or regional disease is present, and stage II if distant metastases are detected.

2.MINIMAL EXTRATHYROIDAL EXTENSION DETECTED ONLY ON HISTOLOGIC EXAMINATION WAS REMOVED FROM THE DEFINITION OF T3 DISEASE AND THEREFORE HAS NO IMPACT ON EITHER T CATEGORY OR OVERALL STAGE

Extrathyroidal extension refers to involvement of the perithyroidal tissues by a primary thyroid cancer. Since the thyroid gland does not have a well-defined capsule, the definition of extrathyroidal extension is problematic and subjective. Extrathyroidal extension is subdivided into minimal/microscopic extrathyroidal extension and Extensive/gross extrathyroidal extension based on the current developments. The eighth edition made a significant change by removing microscopic extrathyroidal extension from the definition of T3 disease. The eighth edition also re-emphasizes the critical importance of gross extrathyroidal extension as an unfavorable prognostic factor while minimizing the significance of minor extension through the thyroid capsule, which is identified only on histological examination. However minimal extrathyroidal extension should be included in the pathology report since 2015 ATA (American thyroid association) risk stratification system for thyroid tumors takes into account minimal ETE, as intermediate risk factor.

Diagnostic findings for minimal extrathyroidal extension include:

- infiltration of skeletal muscle
- infiltration around sizable vascular structures
- infiltration of nerves
- infiltration into adipose tissue:
  - Extension into adipose tissue is a problematic criterion if used alone, given the fact that adipose tissue can be found within the thyroid gland proper under normal conditions and also may be a component of a variety of thyroid lesions including carcinomas. Given this state of variability, microscopic extrathyroidal extension that is not grossly evident is no longer a criterion for upstaging. A desmoplastic response may be a helpful finding in the determination of extrathyroidal extension.

3. N1 DISEASE NO LONGER UPSTAGES A PATIENT TO STAGE III; IF THE PATIENT'S AGE IS < 55 YEARS AT DIAGNOSIS, N1 DISEASE IS STAGE I; IF AGE IS ≥ 55 YEARS, N1 DISEASE IS STAGE II

4. T3a IS A NEW CATEGORY FOR TUMORS > 4 CM CONFINED TO THE THYROID GLAND

5. T3b IS A NEW CATEGORY FOR TUMORS OF ANY SIZE DEMONSTRATING GROSS EXTRATHYROIDAL EXTENSION INTO STRAP MUSCLES (STERNOHYOID, STERNOTHYROID, THYROHYOID OR OMOHYOID MUSCLES)

Extensive/Gross extrathyroidal extension: the histologic diagnosis of extensive extrathyroidal extension is rather straightforward and is usually established clinically by documentation of carcinoma well beyond the thyroid gland with direct invasion (ie, not metastasis) into one or more of the following structures: -

- Subcutaneous soft tissues
- Adjacent viscera, including the larynx, trachea, and/or esophagus
- The recurrent laryngeal nerve, carotid artery, or mediastinal blood vessels.

The eighth edition makes it clear that gross extrathyroidal extension (ETE) is a clinical finding based on radiologic and/or clinical evidence of macroscopic tumor extending outside the thyroid gland. Consistent with previous editions, all data that are accumulated preoperatively, intraoperatively, and during the first four months of follow-up after thyroid surgery should be used to define the initial N and M status. Started back in 2018, tumors with minimal extrathyroidal extension would no longer be considered T3 disease. Gross extrathyroidal extension (as assessed intraoperatively) will be required to upstage to T3b disease if invading only strap muscles(pT3b). Both microscopic evidence of extrathyroidal extension and a report of gross extension documented in the operative report (or by radiology) is required to indicate that there is gross extrathyroidal extension and stage as T3b. If extrathyroidal invasion into subcutaneous soft tissues, larynx, trachea, esophagus or recurrent laryngeal nerve are documented then it is pT4a. If extrathyroidal invasion into prevertebral fascia or encasing the carotid artery or mediastinal vessels are documented it is pT4b lesion.

6.LEVEL VII LYMPH NODES, PREVIOUSLY CLASSIFIED AS LATERAL NECK LYMPH NODES (N1b), WERE RECLASSIFIED AS CENTRAL NECK LYMPH NODES (N1a) TO BE MORE ANATOMICALLY CONSISTENT AND BECAUSE LEVEL VII PRESENTED SIGNIFICANT CODING DIFFICULTIES FOR TUMOR REGISTRARS, CLINICIANS AND RESEARCHERS.

7.IN DIFFERENTIATED THYROID CANCER, THE PRESENCE OF DISTANT METASTASES IN OLDER PATIENTS IS CLASSIFIED AS STAGE IVB DISEASE RATHER THAN STAGE IVC DISEASE; DISTANT METASTASIS IN ANAPLASTIC THYROID CANCER CONTINUES TO BE CLASSIFIED AS STAGE IVC DISEASE

ANAPLASTIC THYROID CARCINOMA

1. UNLIKE PREVIOUS EDITIONS WHERE ALL ANAPLASTIC THYROID CANCERS WERE CLASSIFIED AS T4 DISEASE, ANAPLASTIC CANCERS WILL NOW USE THE SAME T DEFINITIONS AS DIFFERENTIATED THYROID CANCER.

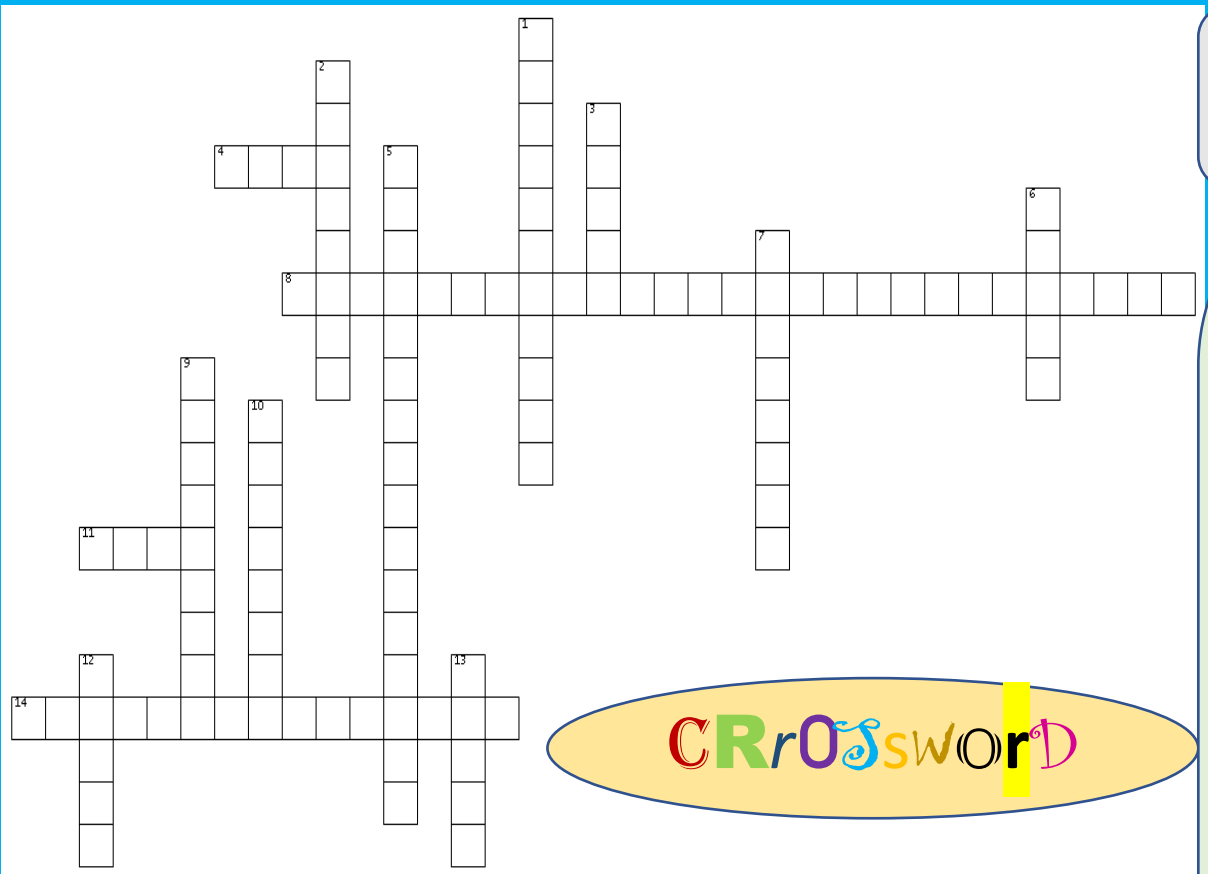
Patients with intrathyroidal anaplastic thyroid carcinoma have been shown to have a better prognosis than those with extrathyroidal tumor and metastatic disease (Kebebew, Cancer, 2005).

2. INTRATHYROIDAL DISEASE IS STAGE IVA, GROSS EXTRATHYROIDAL EXTENSION OR CERVICAL LYMPH NODE METASTASES ARE STAGE IVB AND DISTANT METASTASES ARE STAGE IVC.

References:

1. Tuttle RM, Morris LF, Haugen BR, et al. Thyroid- differentiated and anaplastic carcinoma. In: Amin MB, ed. AJCC Cancer Staging Manual. 8th ed. New York, NY: Springer; 2017.
2. Amin MB, Edge S, Greene F, Byrd DR, Brookland RK, Washington MK, et al. AJCC Cancer Staging Manual. 8th edn. New York, NY: Springer (2017).
3. Mete O, Rotstein L, Asa SL. Controversies in thyroid pathology: thyroid capsule invasion and extrathyroidal extension. Ann Surg Oncol. 2010;17 (2):386-391.
4. Komorowski RA, Hanson GA. Occult thyroid pathology in the young adult: an autopsy study of 138 patients without clinical thyroid disease. Hum Pathol. 1988;19(6):689-696.
5. Standring S. Thyroid gland. In: Standring S, ed. Gray's Anatomy: The Anatomical Basis of Clinical Practice. Edinburgh: Elsevieer Churchill Livingstone; 2005:560-564.
6. Gnepp DR, Ogorzalek JM, Heffess CS. Fat-containing lesions of the thyroid gland. Am J Surg Pathol. 1989;13(7):605-612.
7. Perrier ND, Brierley JD, Tuttle RM. Differentiated and anaplastic thyroid carcinoma: major changes in the American Joint Committee on Cancer eighth edition cancer staging manual. CA Cancer J Clin. (2018) 68:55–63. doi: 10.3322/caac.21439.

Dr.K.S.Sunil Kumar,
Senior Consultant Histopathologist,
Apollo Main Hospitals, Greams road,
Chennai-600095.



ACROSS

4. Frequent mutation in tall cell variant papillary carcinoma thyroid
8. Zebra bodies are seen in
11. All cribriform patterns irrespective of size are graded as Gleason pattern
14. A rare complication of measles

DOWN

1. A negative acute phase reactant
2. Syndrome associated with sarcoidosis.
3. Marker for spermatocytic seminoma
5. Melanoma of the soft tissue
6. Criteria for poorly differentiated thyroid carcinoma
7. The most common solid tumour that metastasize to breast
9. Arbiskov cells are seen in
10. Salivary duct carcinoma is positive for which receptor
12. According to WHO 2016 update, Precursor lesion of Testicular Germ cell tumor (TGCT) is now called as
13. Number Of Cells That Qualify For C Cell Hyperplasia

The Life and Death of a B cell

I'm so happy and carefree,
In the naivety of my youth.
I'm adorable and dainty,
Damn right, I'm cute!

I drive by Capillary lane,
To visit my Dear old Carer.
'Your visit will not be in vain,
You have much to accomplish, my dear!'

My Dear Carer is delusional and old,
But I love him so!
'Lil B, come quick and behold!'
He steps aside and I go 'woah!'

A feeling so antediluvian,
Arises from within.
'I'm Ant T. Gen. Call me Gen.'
He says with a cocky grin.

With our hands intertwined,
To the Germinal Chapel we hurry,
I'm his and he is mine,
It is quintessential we marry!

With a 20 carat diamond and
midnight blue gown,
I step into the fray with nary a frown.
I stand in the Centre like a Queen!
Partygoers have a Blast and I preen!

As the party winds down, we leave,
Dressed in Lighter clothing I weave.

A sight so gruesome makes me heave,
As Tingible cannibals swallow people alive!

The 2 Baklava gangs lie in wait,
Watching the chaos and endless carnage.
My Gen saves me from a terrible fate,
His Memory will be on my Mantle till I age.

Undercover, I go to Medullary bay,
Using Plasma guns to blast scavengers away!
My 20 carat diamond is no longer in my possession!
My Kappa and Lambda babies now give me protection.

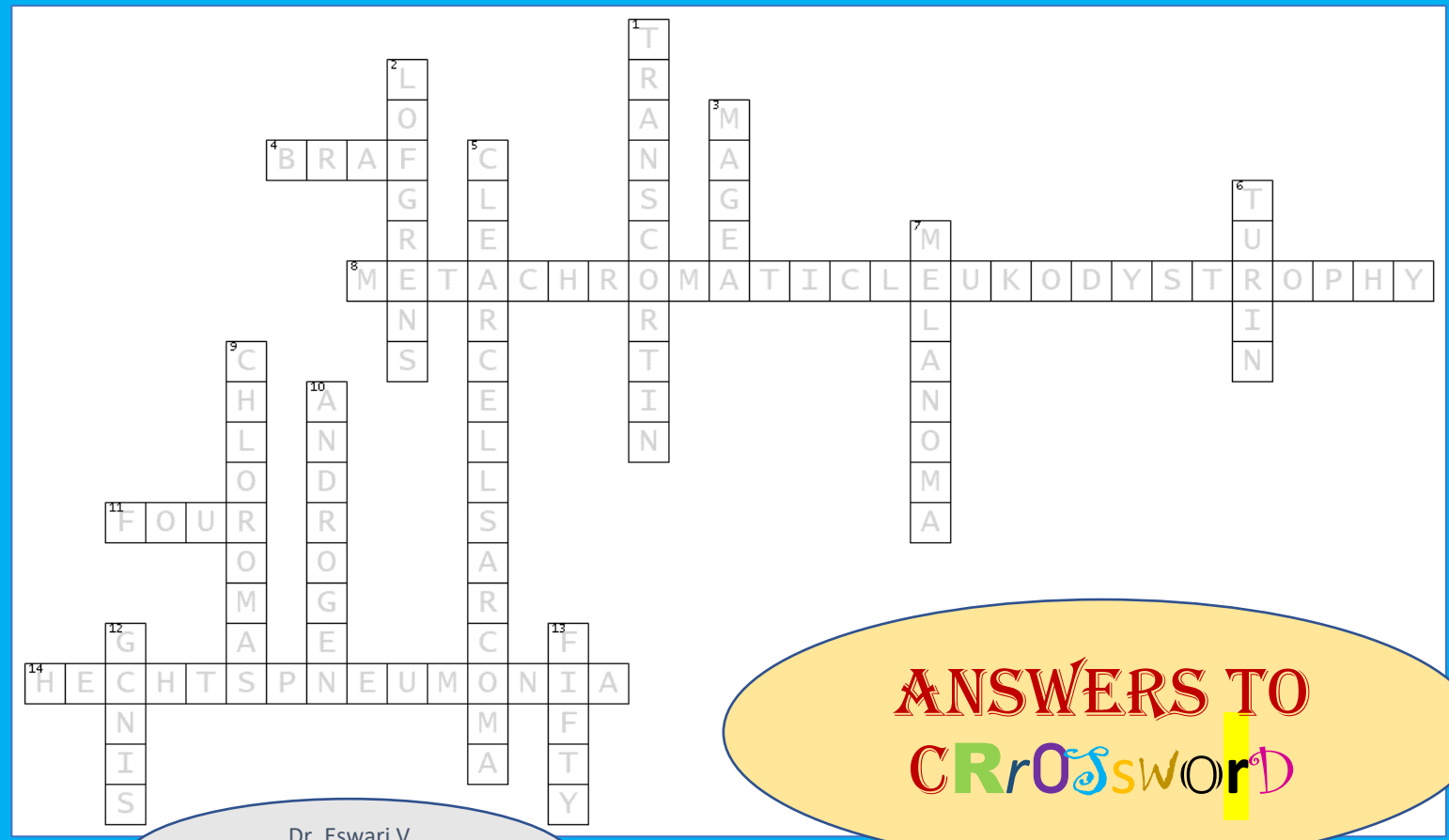
Restless and unhappy, I roam the nation,
Playing the vigilante gives little satisfaction,
I grow old and weary,
In a world so dark and dreary.

'Tis time for my Cartwheel soul to rest,
I place my Halo within a chest,
Goodbye Kappa and Lambda, my dears!
Live courageously and face your fears!

Dr. B. Khaviya
Postgraduate student,
Department of Pathology,
K.A.P.V Govt. Medical College,
Tiruchirappalli.

Explanation for the poem

"In the naivety of my youth.
I'm adorable and dainty."
A naive B cell is small with a cute round nucleus.
"I drive by Capillary lane"
Blood enters the lymph node via the post capillary venules.
Dear Carer - Dendritic reticulum cell is the antigen presenting cell in the lymph node.
Germinal Chapel - Germinal center.
20 carat diamond - CD20
"With a 20 carat diamond and midnight blue gown,
I step into the fray with nary a frown.
I stand in the Centre like a Queen!
Partygoers have a Blast and I preen!"
The germinal center has a dark blue zone (midnight blue gown) and the B cell changes into a Centroblast.
"Dressed in Lighter clothing I weave."
"As Tingible cannibals swallow people alive!"
The lighter zone in the germinal has centrocytes and tingible body macrophages.
"The 2 Baklava gangs lie in wait."
Bcl-2 (2 Baklava gangs) is inactive in the germinal center.
"His Memory will be on my Mantle till I age."
Memory B cells are found in the Mantle zone.
"Undercover, I go to Medullary bay,
Using Plasma guns to blast scavengers away!"
Plasma cells are found in the medullary sinuses.
"My 20 carat diamond is no longer in my possession!"
Plasma cells do not possess CD 20.
"My Kappa and Lambda babies now give me protection."
Plasma cells produce Kappa and Lambda light chains.
"Restless and unhappy, I roam the nation."
Plasma cells are then released into the circulation.
"'Tis time for my Cartwheel soul to rest,
I place my Halo within a chest."
Plasma cells are described to have a cartwheel nucleus with a peri nuclear halo or hoff.



ANSWERS TO CROSSWORD

Dr. Eswari V
Prof and Head
Meenakshi Medical College

Dr. Dhanalakshmi

Dr. Niraimathi

WHO AM I

Sitting behind the ducts and glands,
Doing my work and appearing bland.
Never take me for granted,
Cause, when I disappear, for an explanation you will be wanted.
I can surprise you in the Salivary glands,
By swimming in the matrix (my contribution) bland,
Puzzle you with my patterns and appearances grand.
You can see me spindled, clear, oncocytic, epithelioid, plasmacytoid,
Hold on! this is the grey zone, and you must bridge the Void.
In the Breast, don't ever take me lightly,
Do stain me with P63 brightly.
In the prostrate, I can be a challenge ,
I play a role when dercision is on the hinge.
So, Adorn me with various clothes, CD10, Calponin, S100, CK14 or P63
Then you can set your mind free!!
I sit quietly in my native places
When provoked, see my different faces.
Behind the scenes I always SIT
Rotate the eyepiece and find me in my PIT!!

WHO AM I?

Dr. Bharathi Vidya Jayanthi

Wishes every one a Happy New Year 2022!!

Newsletter team

Dr. Bharathi Vidhya Jayanthi
Dr. Renu G'Boy Varghese
Dr. Swaminathan K
Dr. V. Eswari
Dr. Dhanalakshmi
Dr. Sunil Kumar
Dr. Niraimathi Manickam
Dr. Prabhavati J