

CHAPTER 13

1. ANEMIAS
2. SLE (SYSTEMIC LUPUS ERYTHEMATOSUS)
3. GOUT
4. NON- HODGKINS LYMPHOMA
5. ARNOLD-CHIARI MALFORMATION



SIMPLIFYING ANEMIA

Q- WHAT IS ANEMIA?

A- WHEN THE RED BLOOD CELLS (PRODUCED IN THE BONE MARROW) ARE UNABLE TO CARRY ENOUGH OXYGEN TO SUPPLY THE BODY'S NEEDS, ANEMIA RESULTS. HEMOGLOBIN IS THE PROTEIN CONTAINED IN THE RED BLOOD CELLS WHICH IS RICH IN IRON AND HAS OXYGEN-CARRYING CAPACITY. IT ALSO GIVES BLOOD ITS RED COLORING.

ANEMIA MAY BE MILD AND GO UNNOTICED FOR A LONG TIME. SEVERE ANEMIA HAS SYMPTOMS THAT CANNOT BE IGNORED.

SYMPTOMS OF ANEMIA INCLUDE:

- FATIGUE, DIZZINESS, SHORTNESS OF BREATH ON MILD EXERTION
- PALE SKIN AND CONJUNCTIVA
- INCREASED HEART RATE
- TINGLING IN THE HANDS AND FEET
- PICA

CBC - COMPLETE BLOOD COUNT IS ORDERED.

HEMOGLOBIN -NORMAL VALUES: -12-18GM/DL

HIGH HEMOGLOBIN MAY RESULT IN DEHYDRATION.

LOW HEMOGLOBIN MAY CAUSE ABOVE SYMPTOMS.

HEMATOCRIT - IS ALSO MEASURED TO CALCULATE

THE VOLUME OF CIRCULATING RED BLOOD CELLS.

NORMAL DEPENDS ON AGE.

NORMAL HEMOGLOBIN =

12-18GM/DL

ADULT HEMATOCRIT = 35-54%



BLOOD CELLS ARE USED BY THE ENTIRE BODY AND PRODUCED IN THE BONE MARROW.



RED BLOOD CELLS
WHITE BLOOD CELLS
PLATELETS

RED BLOOD CELLS HAVE SPECIAL WORK TO DO, CARRYING OXYGEN TO ALL PARTS OF THE BODY. WHITE BLOOD CELLS WORK TO FIGHT INFECTION. PLATELETS WORK TO CAUSE CLOTTING WHEN THERE IS BLEEDING.

IRON DEFICIENCY ANEMIA

DOCTOR, I AM SO TIRED
LATELY, MY HEART FEELS
FAST AND I JUST WANT TO
EAT PAPER



I WILL RUN SOME
TESTS ON YOU.



LAB VALUES ARE DONE.
SARA'S ANEMIA IS CAUSED
BY IRON DEFICIENCY.

THE DOCTOR ORDERED AN IRON
SUPPLEMENT AND ADVISED A
DIET RICH IN IRON-CONTAINING
FOODS. FOODS SUCH AS FIGS,
RAISINS, PRUNES AND WHOLE
GRAINS WERE SUGGESTED.

SARA IS ABOUT TO FIND OUT SHE HAS IRON
DEFICIENCY ANEMIA. SHE IS BEING EXAMINED BY
HER DOCTOR. HER COMPLAINTS WERE:

- DIZZINESS, SHORTNESS OF BREATH
- TACHYCARDIA, SORENESS OF THE MOUTH
- A STRANGE DESIRE TO EAT PAPER (PICA)

* PICA IS A DISORDER IN WHICH PATIENTS DEVELOP
AN UNUSUAL APPETITE FOR ITEMS SUCH AS CHALK,
TOOTHPASTE, ICE, DIRT, FECES. IT IS SEEN IN ALL
AGE GROUPS AND PREGNANT WOMEN.



A TRAUMATIC EVENT
MAY RESULT IN
MASSIVE BLOOD
LOSS AND A
DECREASE IN
RED BLOOD CELLS.

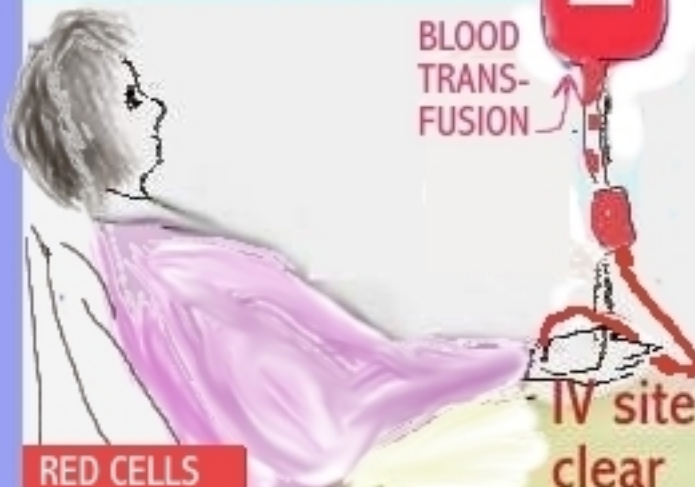


INTERNAL
BLEEDING
FOLLOWING
TRAUMA.

APLASTIC ANEMIA

JIM HAS BEEN DIAGNOSED WITH APLASTIC ANEMIA. HE RECEIVED RADIATION THERAPY IN THE PAST FOR CANCER. HE WAS ADMITTED TO THE HOSPITAL FOR FATIGUE, DIZZINESS AND TACHYCARDIA.

BONE MARROW TRANSPLANT IS A FORM OF TREATMENT USED FOR APLASTIC ANEMIA.



NORMAL SALINE

BLOOD TRANSFUSION

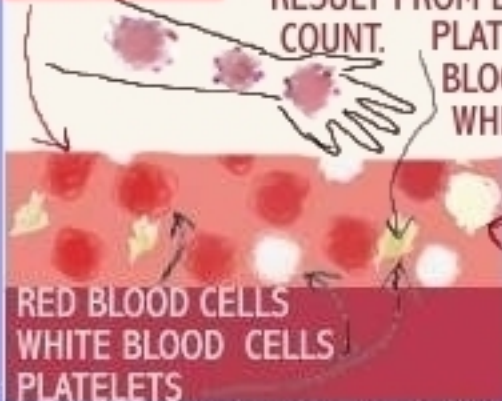
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APLASTIC ANEMIA MAY BE IDIOPATHIC OR ACQUIRED. IDIOPATHIC- CAUSE UNKNOWN ACQUIRED-RADIATION THERAPY, ANTICONVULSANTS AND AUTO-IMMUNE DISEASES ARE SOME OF THE KNOWN CAUSES.

RED CELLS CARRY OXYGEN.

BLEEDING UNDER THE SKIN MAY RESULT FROM LOW PLATELET COUNT. PLATELETS CAUSE BLOOD TO CLOT, WHEN THERE IS BLEEDING.

IMMUNOSUPPRESSIVE THERAPY MAY BE USED IN THE TREATMENT OF THIS CONDITION. BE SURE TO DO HANDWASHING AND WEAR GLOVES.

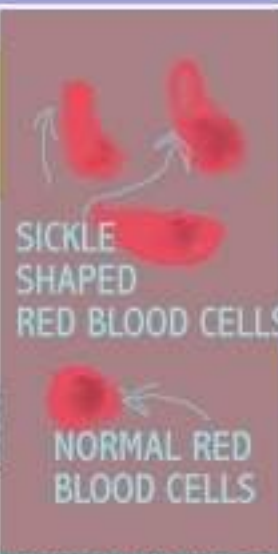


RED BLOOD CELLS
WHITE BLOOD CELLS
PLATELETS

WHITE BLOOD CELLS FIGHT INFECTION.



HAND WASHING IS THE KEY TO PREVENTING THE SPREAD OF INFECTION.



SICKLE CELL ANEMIA

SICKLE CELL ANEMIA IS CONSIDERED TO BE GENETIC AND COMMON TO PEOPLE IN PARTS OF THE WORLD LIKE AFRICA, CARIBBEAN, MEDITERRANEAN AND SOUTH AMERICA.

THE BLOOD CELLS ARE NOT ROUNDED, BUT INSTEAD SHAPED LIKE A SICKLE. THIS ABNORMAL SHAPE CAUSES THE RED BLOOD CELLS TO HAVE DIFFICULTY FLOWING THROUGH THE BLOOD VESSELS. THIS RESULTS IN POOR OXYGENATION OF VITAL ORGANS AND MAY EVEN LEAD TO DEATH.

SICKLE CELL ANEMIA IS A FORM OF ANEMIA IN WHICH THE RED BLOOD CELLS ARE SHAPED LIKE A SICKLE.

PATIENTS WITH SICKLE CELL ANEMIA MAY EXPERIENCE SYMPTOMS LIKE :

- DIFFICULTY BREATHING ,ANXIETY
- CHEST AND ABDOMINAL PAIN
- PAIN TO ARMS AND LEGS.

SICKLE CELL CRISIS - A SICKLE CELL PATIENT MAY NEVER EXPERIENCE A CRISIS. PATIENTS WHO HAVE BEEN DIAGNOSED WITH THIS CONDITION SHOULD AVOID OVER-EXHAUSTION, OR SEVERE WEATHER THAT MAY LEAD TO DEHYDRATION. AN INFECTION SUCH AS A COLD OR FLU MAY ALSO TRIGGER A CRISIS. PATIENTS SHOULD BE ADVISED HOW TO MANAGE AND AVOID CONDITIONS THAT MAY BE FATAL.

TREATMENT INCLUDES:

- PAIN MANAGEMENT
- OXYGEN,
- MONITORING VITAL SIGNS, AND O₂ SATURATION
- ANTIBIOTIC THERAPY

PERNICIOUS ANEMIA

DOCTOR, I AM SO TIRED
LATELY, MY HEART FEELS
FAST AND MY GUMS
BLEED

I WILL RUN SOME
TESTS ON YOU.



LAB VALUES ARE DONE.

BONE MARROW
BIOPSY, CBC AND
SERUM VITAMIN
B12 ARE SOME OF
THE TESTS DONE.

RED BLOOD CELLS BECOME
ABNORMALLY LARGE.

NORMAL HEMOGLOBIN =

12-18 GM/DL

ADULT HEMATOCRIT = 35-54%

PERNICIOUS ANEMIA

INTRINSIC FACTOR IS PRODUCED IN
THE STOMACH. IT IS A PROTEIN THAT
IS FOUND TO BE ABSENT IN THIS TYPE
OF ANEMIA. VITAMIN B12 CANNOT BE
ABSORBED. PATIENTS FEEL VERY TIRED
BLOOD TESTS WILL CONFIRM THIS.



BONE
MARROW



BLOOD
CELLS

BLOOD CELLS ARE USED BY THE
ENTIRE BODY AND PRODUCED IN
THE BONE MARROW.

CBC - COMPLETE BLOOD COUNT IS ORDERED.
HEMOGLOBIN - NORMAL VALUES: 12-18 GM/DL
HIGH HEMOGLOBIN MAY RESULT IN DEHYDRATION.
LOW HEMOGLOBIN MAY CAUSE ABOVE SYMPTOMS.
HEMATOCRIT - IS ALSO MEASURED TO CALCULATE
THE VOLUME OF CIRCULATING RED BLOOD CELLS.
NORMAL DEPENDS ON AGE.

CAUSES OF PERNICIOUS ANEMIA INCLUDE: INFECTION
OF THE GI TRACT, TB TREATMENT, CELIAC DISEASE,
CERTAIN MEDICATIONS AND DIET.

PERNICIOUS ANEMIA IS
TREATED WITH VITAMIN
B12 INJECTIONS FOR THE
REST OF THE PATIENT'S
LIFE. THE DOCTOR WILL
ORDER THESE.



DOCTOR, I HAVE BEEN TRYING TO FIGHT THIS TIRED FEELING AND ACHY JOINTS . MY CHEST HURTS WHEN I TRY TO RUN, NOW MY NOSE HAS A RASH.



A "BUTTERFLY" RASH MAY APPEAR ON THE NOSE OF THE PATIENT WITH LUPUS.

TESTS ARE ORDERED :

- ESR (WILL SHOW AN INCREASE)
- ANA, BUN, CREATININE
- SERUM ALBUMIN,
- LIVER FUNCTION TESTS AND MANY MORE.

TIM HAS FINALLY DECIDED TO SEE HIS DOCTOR. HE HAS BEEN FEELING VERY FATIGUED, WITH ACHING IN THE JOINTS, PAIN IN THE CHEST ON EXERTION AND A "FEVERISH" FEELING. THIS HAS GONE ON FOR ABOUT TWO WEEKS. THIS MORNING HE WOKE UP WITH A RASH OVER THE NOSE AND ULCERS IN THE MOUTH.

SIGNS AND SYMPTOMS INCLUDE:

- FEVER, RASH
- FATIGUE, ACHY JOINTS
- PLEURITIC CHEST PAIN
- PHOTSENSITIVITY (SENSITIVITY TO LIGHT)
- ULCERS IN IN THE MOUTH AND NOSE

SYSTEMIC LUPUS ERYTHEMATOSUS (SLE) IS CATEGORIZED AS AN AUTOIMMUNE DISEASE. IT MAY AFFECT MORE THAN ONE ORGAN IN THE BODY.

IN THIS CONDITION THE IMMUNE SYSTEM, SEEMS TO ATTACK ITS OWN BODY CELLS, INSTEAD OF OUTSIDE INVADERS.

AS A RESULT, THERE IS A GENERAL INFLAMMATION OF THE TISSUES IN THE BODY.

ACHY JOINTS



SYSTEMIC LUPUS ERYTHEMATOSUS

TIM, WE WILL RUN SOME TESTS AND I WILL EXAMINE YOU NOW.



A "BUTTERFLY" RASH MAY APPEAR ON THE NOSE OF THE PATIENT WITH LUPUS.

DIAGNOSIS

- HISTORY AND PHYSICAL
- SIGNS AND SYMPTOMS
- BLOOD TESTS ARE ALL PART OF THE WORK-UP FOR A DIAGNOSIS.

TREATMENT OF SLE

PATIENTS WITH SLE WILL REQUIRE EMOTIONAL SUPPORT AND PATIENT EDUCATION.

AVOIDING STRESSFUL SITUATIONS, ADEQUATE REST, EXERCISE AND EVEN DIET CAN BE HELPFUL IN THE MANAGEMENT OF SLE. DRUGS SUCH AS NSAIDS, ANTI-MALARIA AND CORTICOSTEROIDS ARE USED IN THE TREATMENT OF THIS CONDITION.

CAUSES

THE CAUSE OF SYSTEMIC LUPUS ERYTHEMATOSUS (SLE) IS STILL UNCLEAR, BUT IT SEEMS TO RUN IN FAMILIES AND RACES SUCH AS ASIANS, AFRICAN AMERICANS AND NATIVE INDIANS.

DRUG-INDUCED LUPUS MAY OCCUR IN SOME PATIENTS AND USUALLY HAPPENS FOLLOWING THE USE OF DRUGS TO TREAT CONDITIONS SUCH AS HEART DISEASE, HYPERTENSION, INFLAMMATORY DISEASES AND INFECTION (ANTIBIOTICS).

THIS TYPE OF LUPUS RESOLVES AFTER THE MEDICATION RESPONSIBLE IS DISCONTINUED.



ORGANS LIKE THE HEART, KIDNEYS OR LIVER MAY BE ALSO BE AFFECTED. DRUGS WILL BE ORDERED BY THE DOCTOR IN THE MANAGEMENT OF THE SPECIFIC ORGAN INVOLVED.

GOUT



TIM IS ABOUT TO FIND OUT THAT HE HAS GOUT. HE DISCUSSES WITH HIS DOCTOR, HIS DIFFICULTY WALKING AND SLEEPING AT NIGHT.

URIC ACID CRYSTALS FORM IN THE JOINTS



"FIRE FEET" IS WHAT GOUT RESEMBLES. INTENSE HEAT AND BURNING AROUND THE JOINTS, CAUSED BY AN ACCUMULATION OF URIC ACID IN THE JOINTS.

CAUSES

GOUT IS ASSOCIATED WITH RICH EATING (FOODS RICH IN FATS AND PROTEIN, ORGAN MEATS), OVER-INGESTION OF ALCOHOL, CRASH DIETS AND CHEMO-THERAPY OR DIURETICS.

DIAGNOSIS AND TREATMENT

A DIAGNOSIS IS MADE BY TESTING BLOOD AND JOINT FLUID. TREATMENT IS DIRECTED AT DIETARY CHANGES, TO REDUCE URIC ACID IN THE BLOOD.

MEDICATIONS SUCH AS COLCHICINE, CORTICOSTEROIDS, NSAIDS AND PROBENECID MAY BE ORDERED BY THE DOCTOR.

NON-HODGKIN'S LYMPHOMA



DOCTOR, I FEEL AWFUL
I AM TIRED, FEVERISH,
ITCHY AND I AM
LOSING WEIGHT

I WILL DO
A PHYSICAL
EXAM AND
RUN SOME
TESTS.



RED, ITCHY
PATCHES

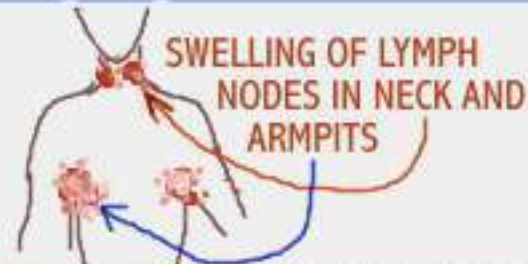
RED, ITCHY PATCHES
ON THE SKIN

SIGNS AND SYMPTOMS INCLUDE:

- HEAVY NIGHT SWEATS, WEIGHT LOSS
- SWELLING OF LYMPH NODES IN NECK AND ARMPITS
- FATIGUE, FEVER
- RED, ITCHY PATCHES ON THE SKIN
- FREQUENT INFECTIONS


CAUSES

THE CAUSE OF NON-HODGKIN'S LYMPHOMA IS NOT FULLY UNDERSTOOD. HOWEVER, IT IS CONSIDERED TO BE A TYPE OF CANCER WHICH AFFECTS THE LYMPHOCYTES (A GROUP OF WHITE BLOOD CELLS USED TO FIGHT INFECTION).



SWELLING OF LYMPH
NODES IN NECK AND
ARMPITS

HEAVY, NIGHT SWEATS



EVERY NIGHT I WAKE UP
FEELING LIKE I AM
HAVING A SHOWER!

BLOOD AND URINE TESTS



BONE MARROW BIOPSY

LYMPH NODE BIOPSY



CT SCAN

DIAGNOSTIC STUDIES INCLUDE:

- BLOOD AND URINE TESTS
- BONE AND LYMPH NODE BIOPSIES
- CT SCAN

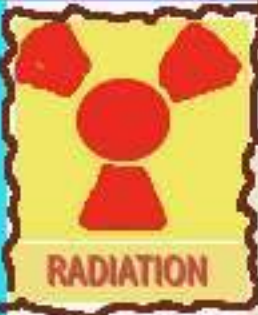
I AM GOING TO DO A PHYSICAL EXAM ON YOU



A PHYSICAL EXAMINATION IS ALSO INCLUDED IN THE DIAGNOSTIC WORKUP



CHEMOTHERAPY



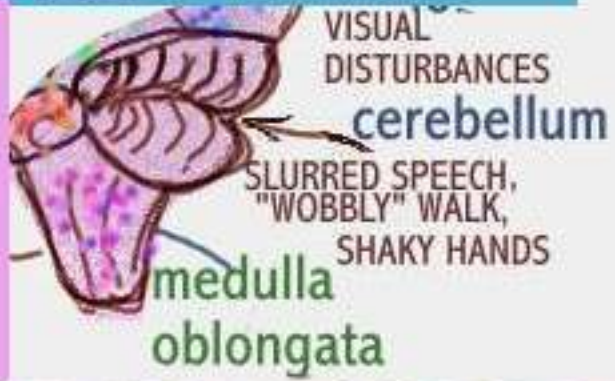
RADIATION

STEM CELL TRANSPLANTATION



TREATMENT OF NON-HODGKIN'S LYMPHOMA INCLUDES: - RADIATION, CHEMOTHERAPY AND STEM CELL TRANSPLANTATION.

THE CEREBELLUM LIES AT THE BASE OF THE SKULL.



SYMPTOMS OF ARNOLD-CHIARI INCLUDE:

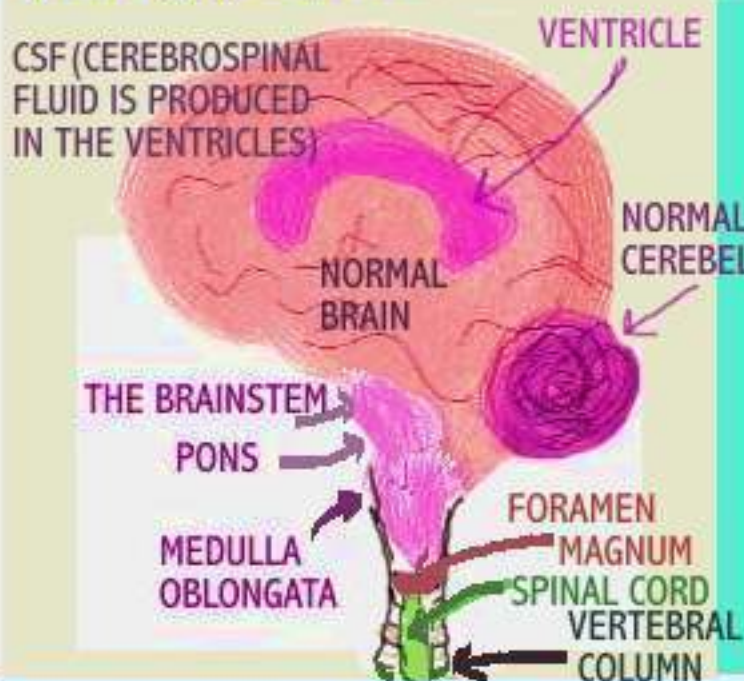
- HEADACHE IN THE BACK OF THE HEAD OR NECK, WHICH MAY BE AGGRAVATED BY COUGHING, SNEEZING OR BENDING
- NUMBNESS, TINGLING OR WEAKNESS IN THE ARM OR HAND, DYSPHAGIA (DIFFICULTY SWALLOWING)



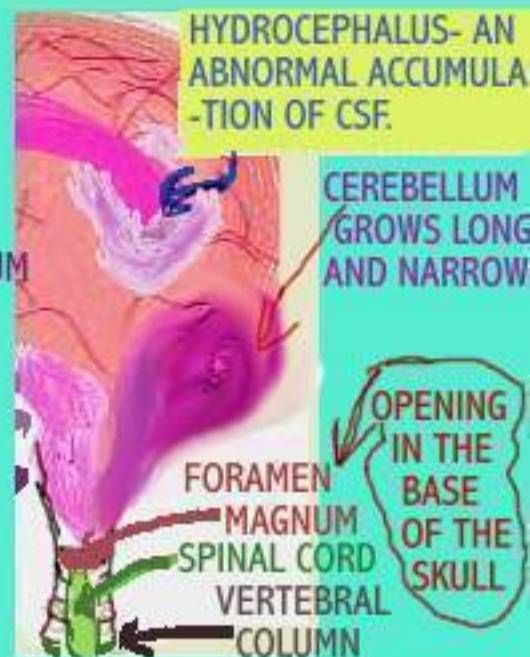
ARNOLD-CHIARI MALFORMATION

SIMPLIFYING ARNOLD-CHIARI MALFORMATION

BRAIN IN CROSS-SECTION



BRAIN WITH MALFORMATION

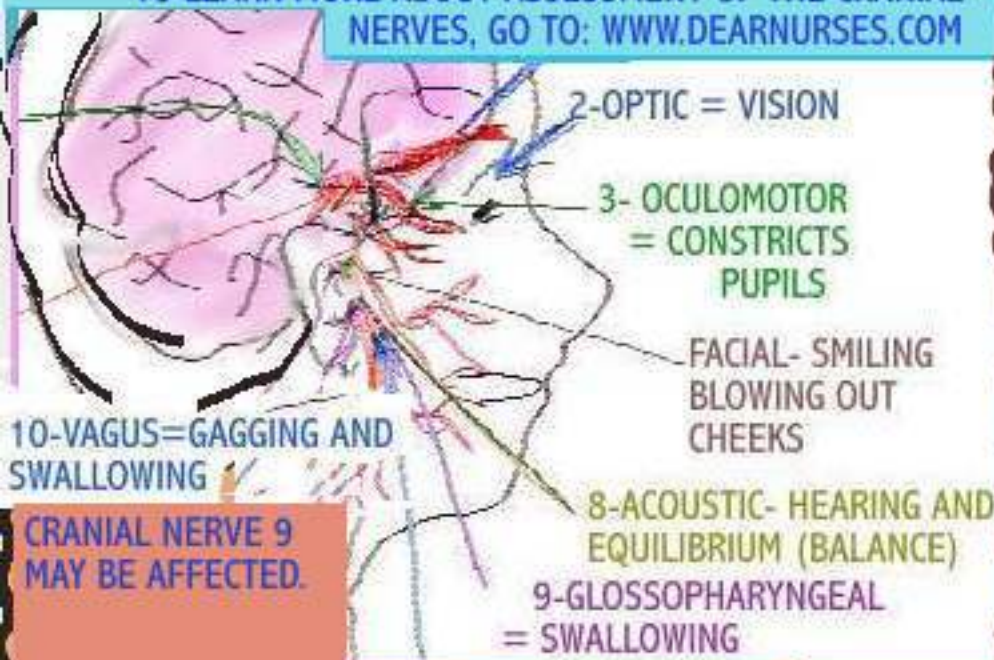


ARNOLD- CHIARI MALFORMATION IS CONSIDERED TO BE A RARE CONDITION AND IS NAMED AFTER THE FIRST PERSON TO DESCRIBE THIS CONDITION. IT IS USUALLY CONGENITAL, BUT HAS BEEN KNOWN TO OCCUR LATER IN LIFE.

THE CEREBELLUM LIES BELOW THE CEREBRUM AND CONTROLS FINE MOTOR MOVEMENT AND COORDINATION. ITS LOCATION MAKES IT CLOSE TO THE FORAMEN MAGNUM, AN OPENING IN THE BASE OF THE SKULL THROUGH WHICH THE SPINAL CORD CONNECTS TO THE BRAINSTEM.

THIS MALFORMATION CAUSES THE CEREBELLUM TO GROW LONG AND NARROW AND INCREASE THE PRESSURE ON THE BRAINSTEM AND SPINAL CORD, RESULTING IN THE SYMPTOMS MENTIONED. A HYDROCEPHALUS MAY ALSO OCCUR.

TO LEARN MORE ABOUT ASSESSMENT OF THE CRANIAL NERVES, GO TO: WWW.DEARNURSES.COM



DIAGNOSIS- MRI, CT SCAN AND MYELOGRAM ARE SOME OF THE TESTS DONE TO DIAGNOSE THE PROBLEM.

SURGICAL INTERVENTION:- POSTERIOR FOSSA DECOMPRESSION IS DONE TO RELIEVE THE PRESSURE. AN OPENING IS MADE AT THE BACK OF THE HEAD AND A PORTION OF BONE IS REMOVED. THIS RELIEVES THE PRESSURE CAUSED BY THE CEREBELLUM.