

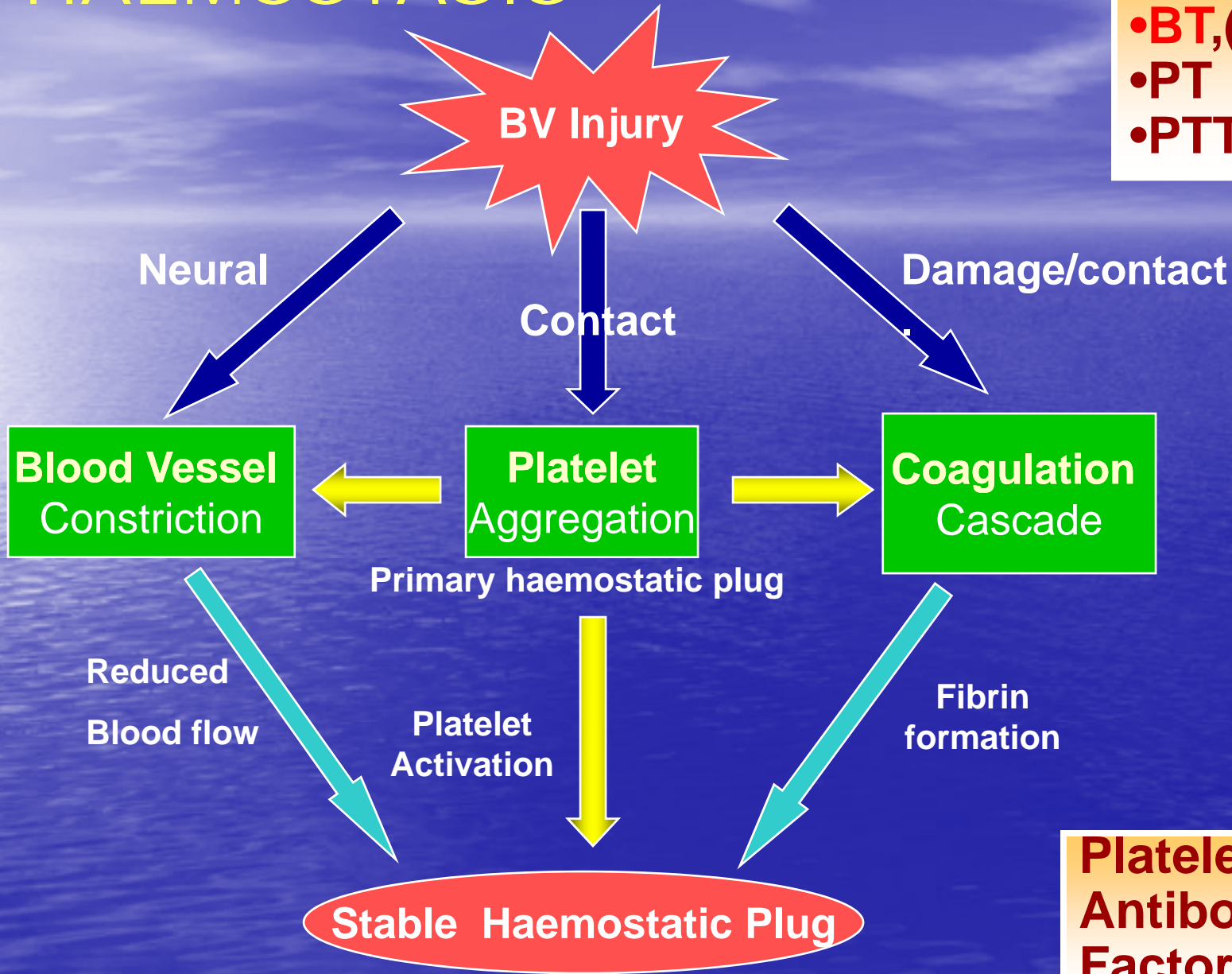
CORRELATION BETWEEN FACTOR LEVELS AND PTTK IN HAEMOPHILIC PATIENTS

ZUFISHAN BATOOL, SUHAIB AHMAD, JALEEL ANWAR

ARMED FORCES INSTITUTE OF PATHOLOGY,
RAWALPINDI.

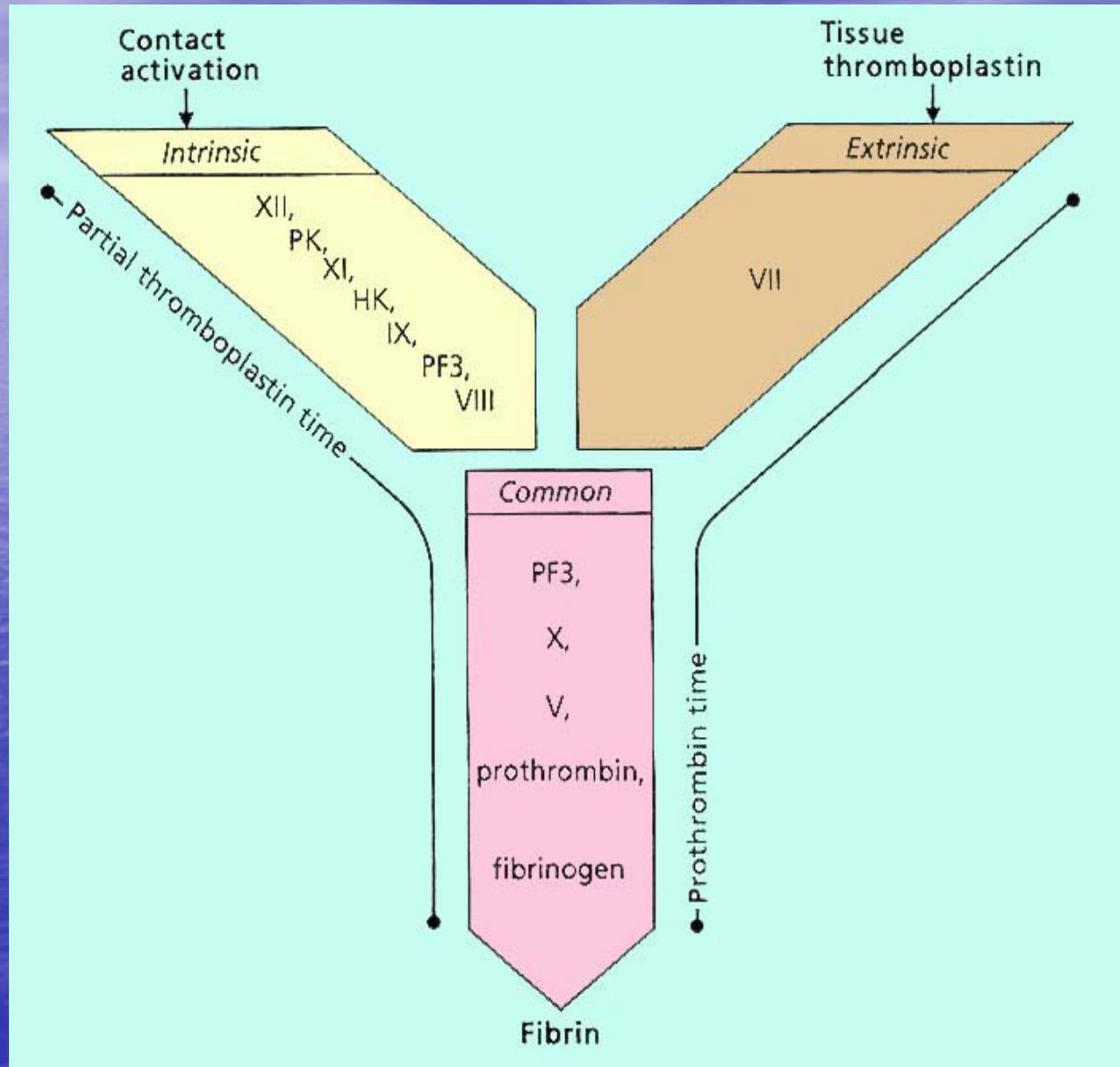
HAEMOSTASIS

- CBC-Plt
- BT,(CT)
- PT
- PTT



- Platelet study
- Antibody tests
- Factor Assay

BLOOD COAGULATION & TESTS



HAEMOPHILIA A

- Commonest severe inherited bleeding disorder
- Bleeding due to deficiency of FVIII coagulant activity
- Severity of bleeding is related to F VIII conc in blood
- Low levels of FVIII (<1iu/dl)
- Frequent bleeding
- Spontaneous bleeding joints or muscles

PREVALENCE

Rely on diagnostic figures from UK, Europe, USA

Haemophilia A - 90 per million of population

20 per 100,000 males

1 per 5,000 male births

1 per 10,000 population

FVIII deficiency 80-85 % of cases of haemophilia

FVIII deficiency 40 % severe

FVIII < 1 % of normal

Twice as many mild as severe

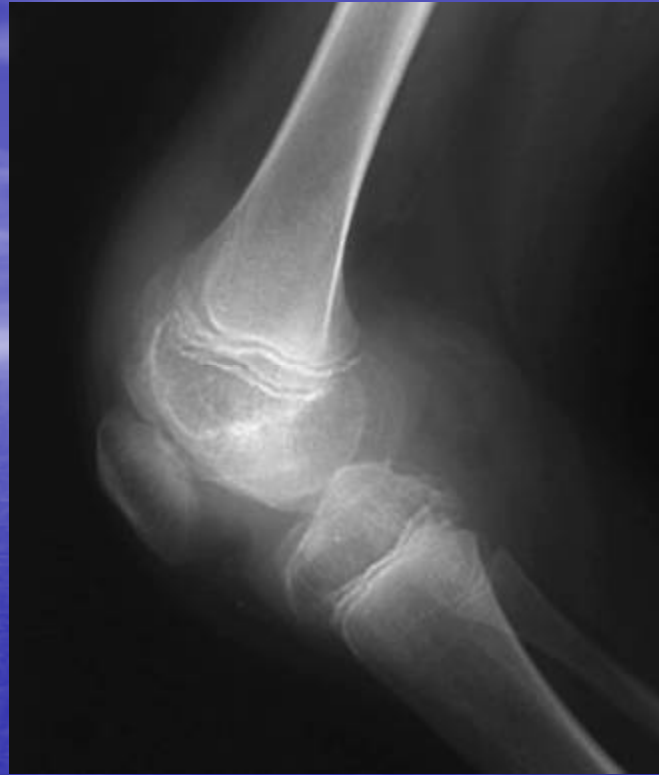
CLINICAL FEATURES

- Bleeding as a baby rare
- No circumcision if family history
- First bleeding in childhood
 - Dental eruption
 - Trauma with walking
- Acute Haemarthrosis
- Chronic haemophilic arthropathy
- Bleeding into muscles
- Haemophilic pseudo tumour - cysts
- Haematuria
- Gastrointestinal bleeding
- Intracranial bleeding

CLINICAL FEATRUES

Severity of Haemophilia relates to Factor level

Severity	Factor Level (%)	Type of Presentation
Severe	0 - 1	Spontaneous bleeds
		Severe bleeding
Moderate	2 - 5	Few bleeds
		Haemarthroses
		Mainly traumatic
Mild	5 - 30	Post traumatic
		Post Surgical
		Post dental extraction
		Few episodes





Source: Lichtman MA, Shafer MS, Felgar RE, Wang N:
Lichtman's Atlas of Hematology: <http://www.accessmedicine.com>
Copyright © The McGraw-Hill Companies, Inc. All rights reserved.

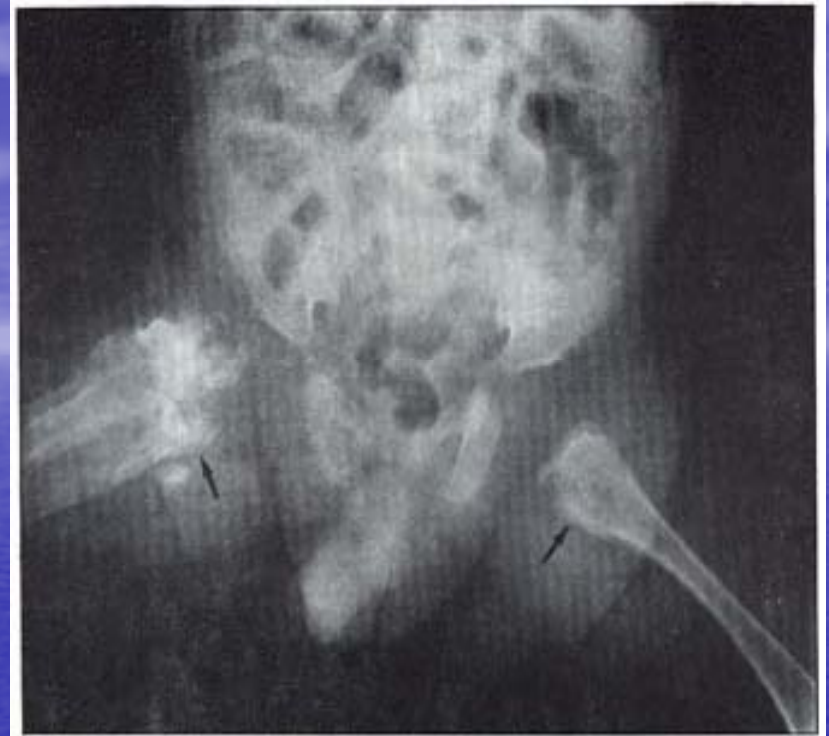


Fig 4. Osseous lesions which were thought to be from inflicted injury until the diagnosis of Menkes syndrome was made.

TESTS OF HAEMOSTASIS

SCREENING TESTS:

- Bleeding time
- Prothrombin time
- Partial thromboplastin time with kaolin
- Thrombin time
- Mixing studies

SPECIFIC TESTS:

- Factor deficient plasma
- Factor assays
- Platelet function studies:
 - Adhesion, Aggregation, Release tests

SPECIFIC TESTS TO MONITOR HAEMOPHILIC PATIENTS

- PTTK BASED FACTOR ASSAYS.
- CHROMOGENIC FACTOR ASSAYS.

PTTK BASED FACTOR ASSAYS

- Use dilutions of patients plasma to “correct” the lack of factor being measured in factor deficient plasma.
- Run tests in mixtures of patient’s plasma and factor deficient plasma.
- Compare the clotting time of each dilution with a standard curve to calculate the activity of the factor in the patient’s plasma.

PARTIAL THROMBOPLASTIN TIME

- Partial thromboplastin time measures the deficiencies of the factors of the intrinsic system as well as common pathway and the presence of inhibitors.

THE STUDY

A study was carried out at AFIP Rawalpindi to find out some correlation between factor levels and prolongation of PTTK.

OBJECTIVE

To find out a correlation between factor VIII levels and the prolongation of activated partial thromboplastin time.

MATERIAL AND METHODS

- STUDY DESIGN:
Cross sectional Observational
- SETTINGS:
Department of Haematology AFIP, Rawalpindi
- SAMPLE SIZE:
61 patients diagnosed as Haemophilia A on coagulation testing at AFIP , Rawalpindi.

SAMPLE SELECTION

INCLUSION CRITERIA:

- ⑩ Already diagnosed patients of haemophilia A
- ⑩ Patients not taking any sort of treatment.

EXCLUSION CRITERIA

- ⑩ Patients taking treatment in the form of Factor VIII concentrates.
- ⑩ Patients diagnosed as Haemophilia B or any other bleeding disorder.

METHODOLOGY

- Blood was collected in tri sodium citrate
- Coagulation studies were done
- Patients diagnosed as Haemophilia A were then subjected to factor VIII assays based on PTTK.
- Factor levels for each patient were calculated.
- Based on factor levels patients were then classified as mild, moderate and severe disease.
- Results of activated partial thromboplastin time were then compared with the factor VIII levels

DATA ANALYSIS

Percentages of patients with mild, moderate and severe disease were calculated.

Mean PTTK of the patients classified as mild, moderate and severe disease were then compared with mean PTTK of the control

RESULTS

TYPE OF PATIENTS	NUMBER OF PATIENTS	MEAN PTTK
Mild disease 5-30 % factor level	9 (14.7%)	42.5 seconds
Moderate disease 1-5 % factor level	26 (42.6%)	62.5 seconds
Severe disease <1% factor level	26 (42.6%)	97.5 seconds

CONCLUSION

Factor VIII levels in haemophilia A is inversely proportional to the partial thromboplastin time of the patient as compared to the control's partial thromboplastin time.