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DEFINITION AND MECHANISM

- A CORROSIVE IS A SUBSTANCE THAT FIXES, DESTROYS AND ERODES THE SURFACE WITH WHICH IT COMES INTO CONTACT.

Mechanism of action of corrosives:

Any part of the body + corrosive substance

↓

Extraction of water

↓

Liberation of heat

↓

Coagulation and precipitation of cellular proteins

↓

Conversion of **hemoglobin** to **hematin**

↓

Corrosion and destruction of tissues

Notes

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CLASSIFICATION OF CORROSIVES

1 MINERAL ACIDS	2.ORGANIC ACIDS
SULPHURIC ACID	OXALIC ACID
NITRIC ACID	CARBOLIC ACID
HYDROCHLORIC ACID	ACETIC ACID
	SALICYLIC ACID
3.VEGETABLE ACIDS	4. ALKALIS
HYDROCYANIC ACID	CAUSTIC POTASH AND SODA

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1 CORROSIVES

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HYDROCHLORIC ACID HCl

CORROSIVE POISONS
Sulphuric Acid

NITRIC ACID HNO₃

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CORROSIVE POISONS
Sulphuric Acid



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MINERAL ACIDS AND CAUSTIC ALKALIS

PHYSICAL PROPERTIES

Table 32.1: Comparative aspects of specific characteristics of sulphuric, nitric and hydrochloric acids

Acids	Sulphuric acid (Sulphuric acid)	Nitric acid	Hydrochloric acid
Synonyms	Oil of vitriol	Aqua fortis, spirit of nitre	Spirit of salts, muriatic acid
Physical properties	Heavy	Heavy	Heavy
	Colorless	Colourless	Colourless
	Viscid/oily	Not so	Not so
	Non-fuming	Fumes (yellow) in air	Fumes in air
	Gives heat with water	Not so	Not so
	Charring +ve	Xanthoproteic reaction +ve (refer below)	Not so
Fatal dose	Burning acid taste	Choking odour	Not so
Fatal period	5-10 ml	10-15 ml	15-20 ml
Commercial use	12-24 hr	24-30 hr	15-24 hr
	Textile, arts and industries	In industries	Cleansing agent

Notes

GENERAL SIGNS AND SYMPTOMS

- THE ONSET OF SYMPTOMS IS IMMEDIATE
- BURNING SENSATION IN THE MOUTH, ESOPHAGUS, STOMACH AND ABDOMEN
- INTENSE THIRST, DIFFICULTY IN SWALLOWING AND VOMITING
- CORROSION OF MUCOUS MEMBRANE OF MOUTH, THROAT AND ESOPHAGUS
- EPIGASTRIC PAIN WHICH SPREADS ALL OVER THE ABDOMEN
- PHARYNGEAL PAIN
- WITH INGESTION OF ACIDS- CONSTIPATION AND SCANTY URINE
- WITH INGESTION OF ALKALIS- TENESMUS AND INCREASED STOOLS WITH BLOOD AND MUCUS

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- INFLAMMATORY EDEMA OF GLOTTIS OR LARYNX → DYSPNEA → SUFFOCATION → DEATH
- COLLAPSE WITH COLD CLAMMY SKIN, PALE, DILATED PUPILS, RAPID FEEBLE PULSE
- PERFORATION OF STOMACH → CHEMICAL PERITONITIS

Notes

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

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COMPLICATIONS AND CAUSES OF DEATH

- Circulatory collapse
- Edema of glossitis
- Collapse due to perforation of stomach
- Toxemia
- Delayed death due to hypostatic pneumonia
- Secondary infection
- Renal failure
- Starvation due to stricture of esophagus

Notes [Icons] 85%







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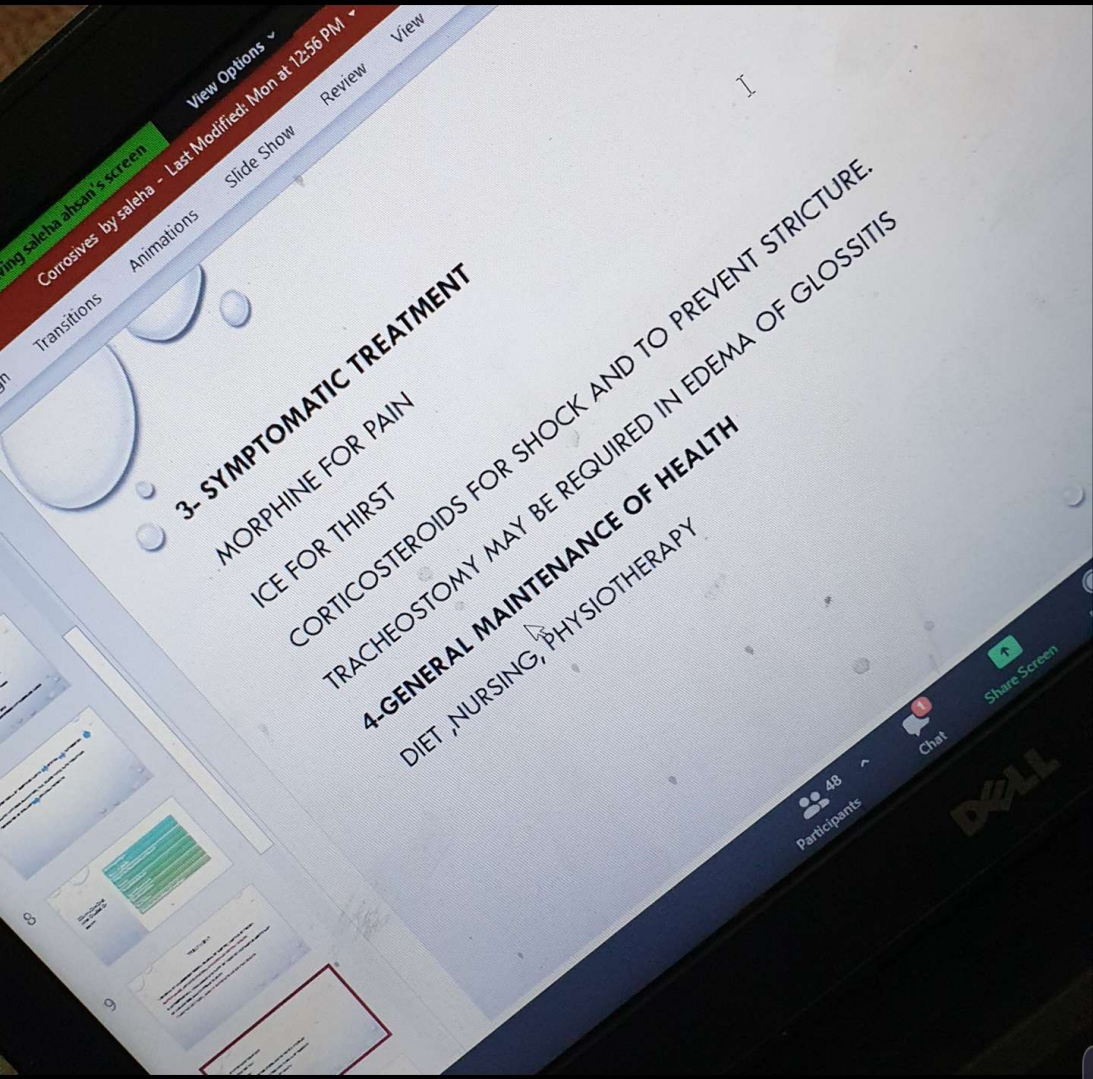
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TREATMENT

1-REMOVAL OF UNABSORBED POISON- REMOVAL OF CLOTHES, WASHING OF POISON.
GASTRIC LAVAGE, ACTIVATED CHARCOAL AND EMESIS ARE CONTRAINDICATED

2- ANTIDOTE GIVEN- WEAK ALKALIS AND PLENTY OF WATER OR NEUTRALIZING AGENTS SUCH AS MILK AND EGG ALBUMIN SHOULD BE GIVEN.
IF ACID HAS BEEN TAKEN, ALKALINE CARBONATES ARE CONTRAINDICATED.

Notes       85%



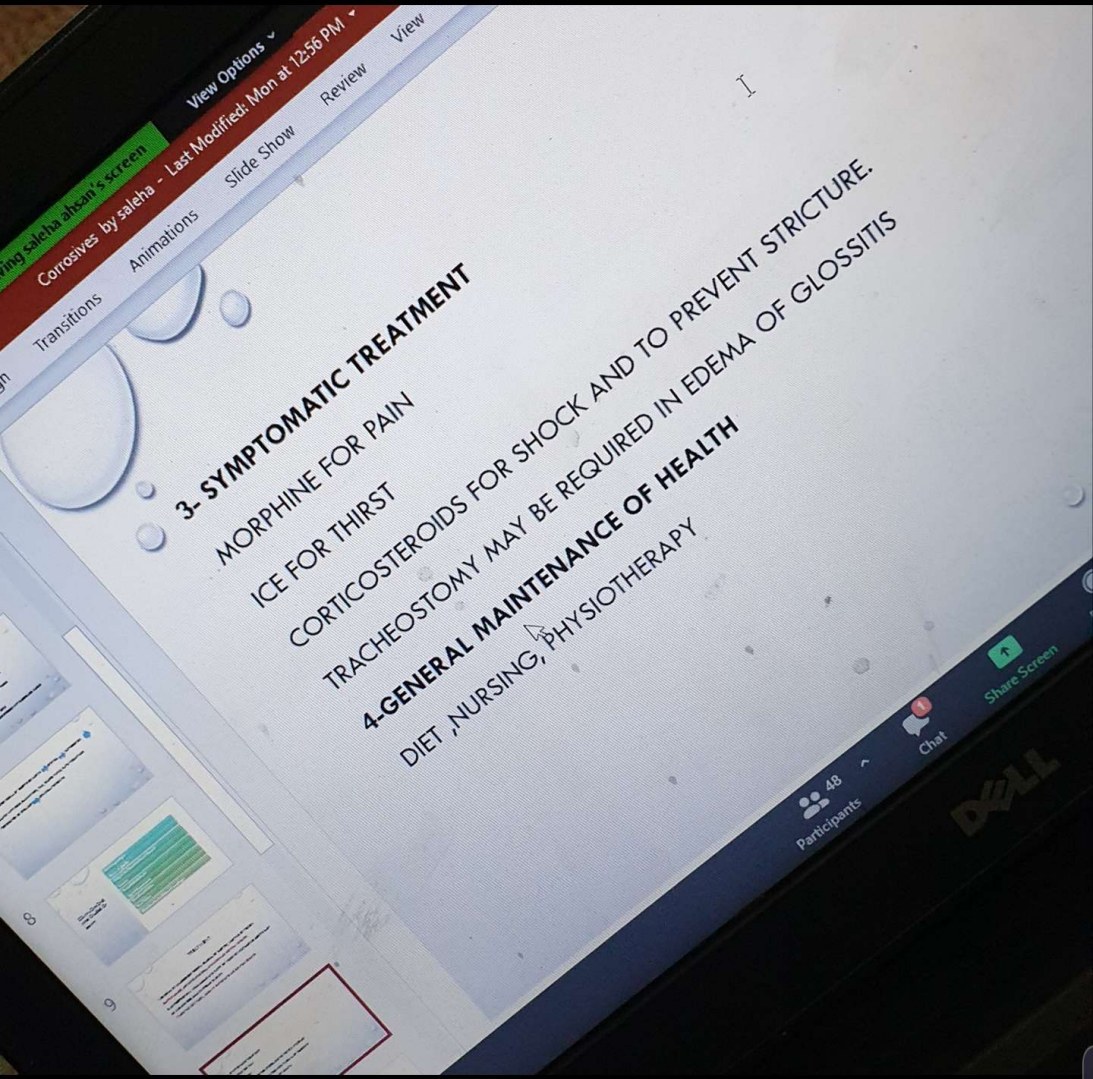
3- SYMPTOMATIC TREATMENT

MORPHINE FOR PAIN
ICE FOR THIRST

CORTICOSTEROIDS FOR SHOCK AND TO PREVENT STRICTURE.

4-GENERAL MAINTENANCE OF HEALTH

DIET ,NURSING, PHYSIOTHERAPY



TREATMENT

TO DO:

- ▶ IMM. DILUTION WITH PLAIN WATER 5ml/kg.
- ▶ SECURE AIRWAY
- ▶ I.V.FLUID
- ▶ PROPHYLACTIC AB'S
- ▶ H₂ BLOCKERS
- ▶ SUCRALFATE 1gm/6hrs.
- ▶ MONITOR ACID BASE & ELECTROLYTES STATUS.

NOT TO DO:

- ❖ GASTRIC LAVAGE
- ❖ EMESIS
- ❖ NEUTRALIZATION
- ❖ ACTIVATED CHARCOAL
- ❖ CARBONATED DRINKS

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Participants

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Reactions

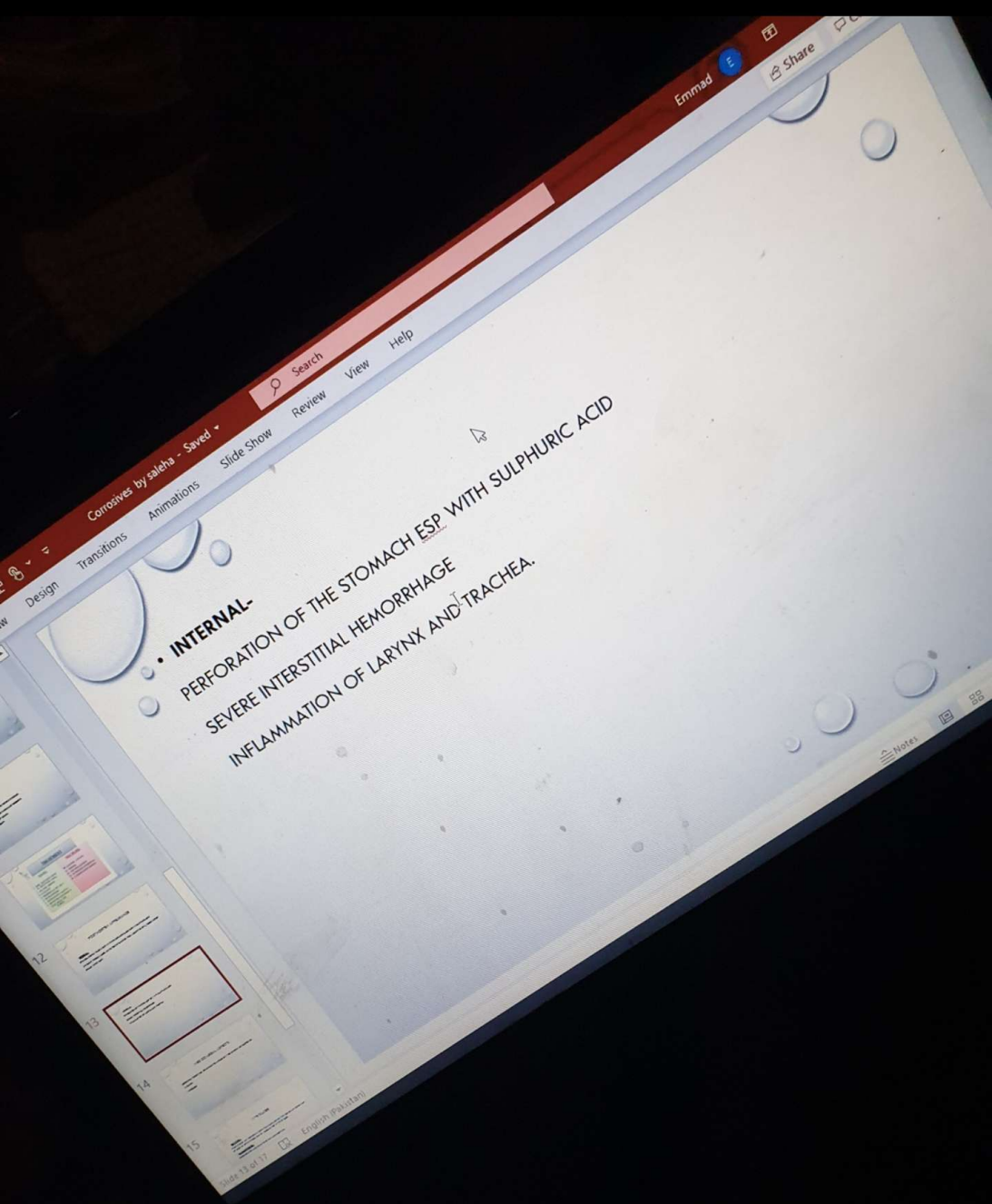
DELL

F8 F9

POSTMORTEM APPEARANCE

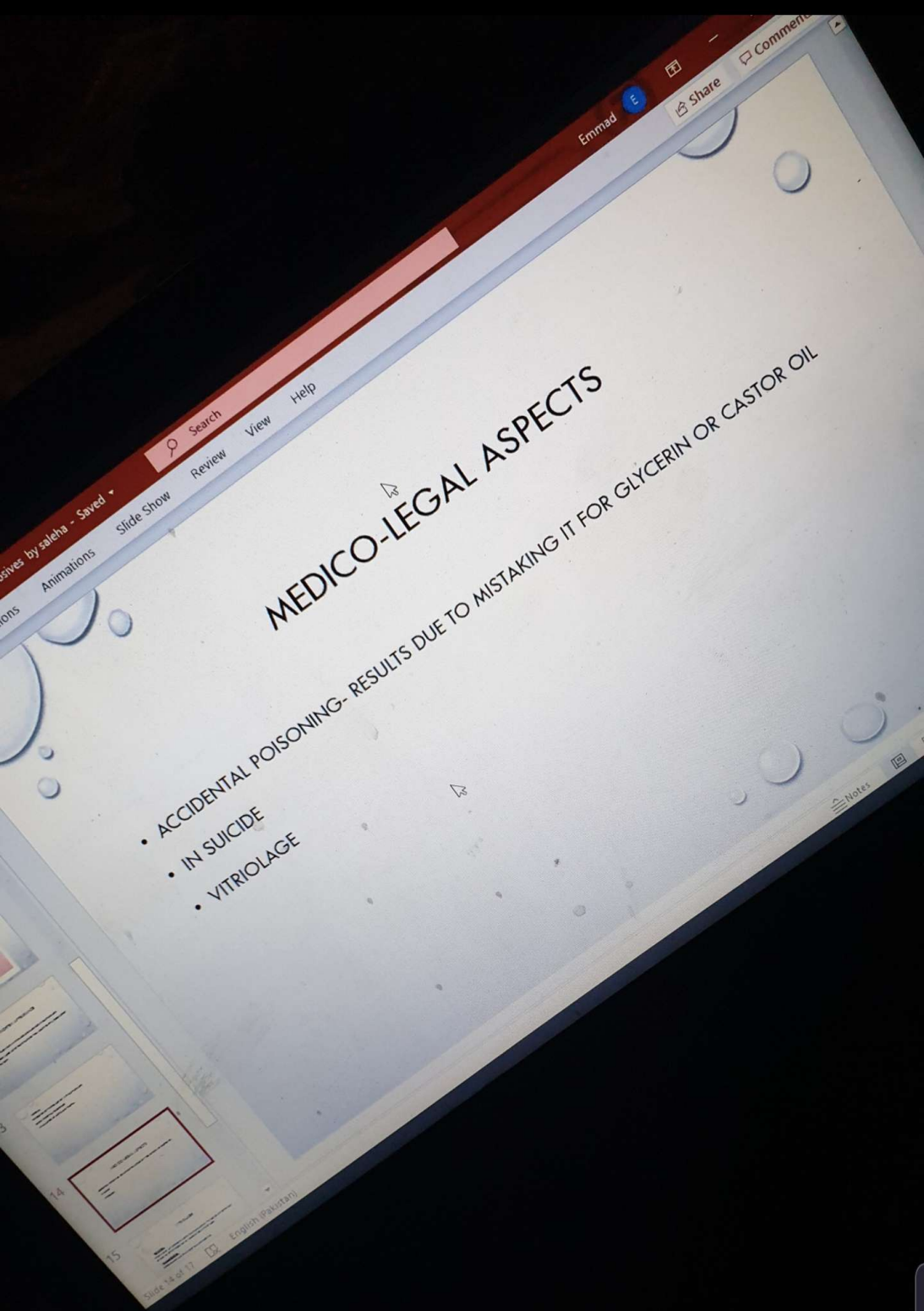
- **EXTERNAL:**

CHEMICAL BURNS- YELLOW BURN IN NITRIC ACID AND BLACK BURN IN SULPHURIC ACID
LIPS BURNT, TRICKLE MARKS MAY BE FOUND RUNNING FROM MOUTH TO CHIN, NECK N CHEST
CHALKY WHITE TEETH



• **INTERNAL-**
PERFORATION OF THE STOMACH ESP WITH SULPHURIC ACID
SEVERE INTERSTITIAL HEMORRHAGE
INFLAMMATION OF LARYNX AND TRACHEA.

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- 13
- 14
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MEDICO-LEGAL ASPECTS

- ACCIDENTAL POISONING- RESULTS DUE TO MISTAKING IT FOR GLYCERIN OR CASTOR OIL
- IN SUICIDE
- VITRIOLAGE

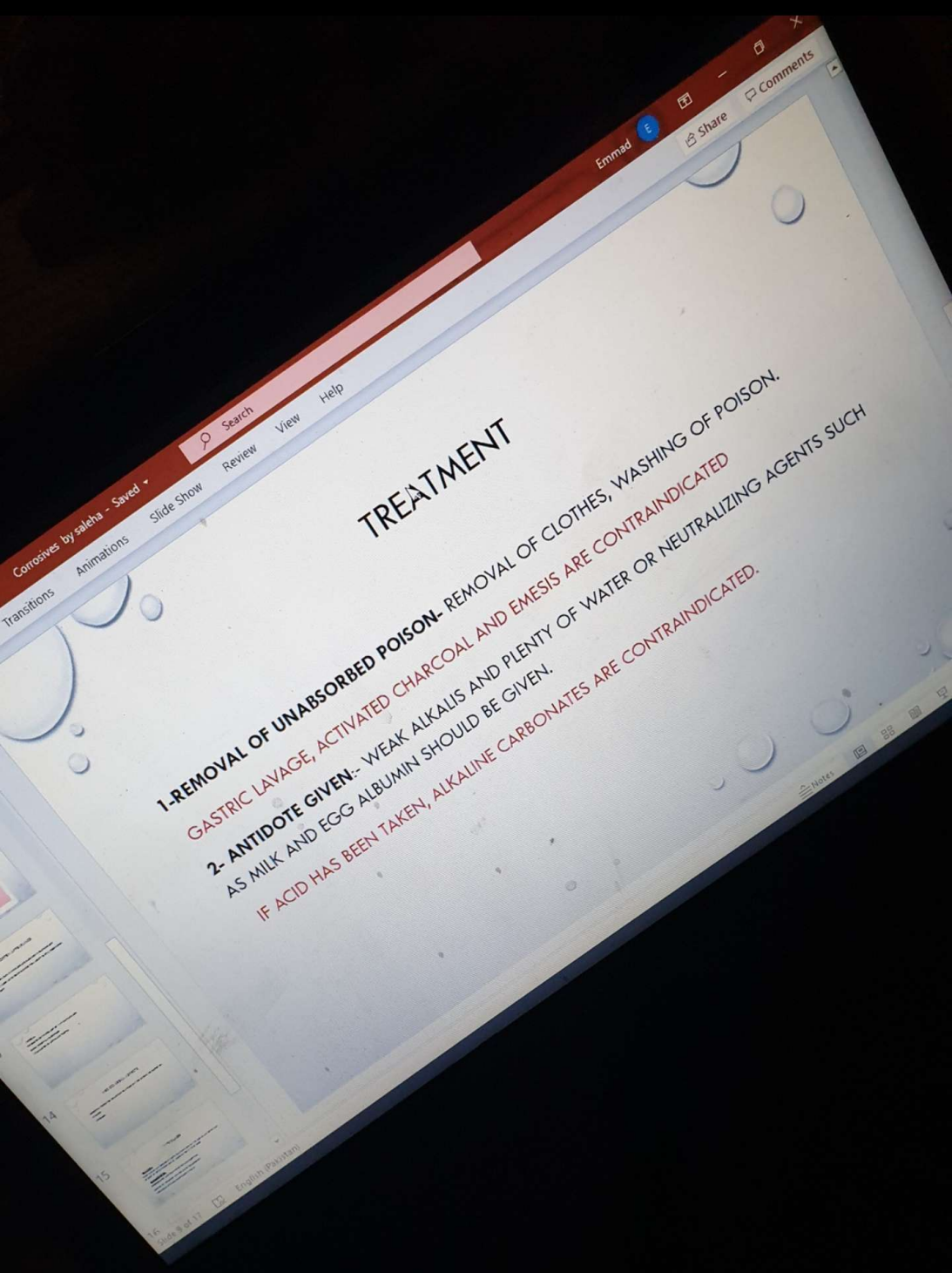
VITRIOLAGE

- **DEFINITION:**

THROWING OF ANY CORROSIVE MOSTLY SULPHURIC ACID ON THE FACE OR ANY OTHER PART OF BODY OF OTHER PERSON OUT OF JEALOUSLY OR IN FITS OF RAGE.

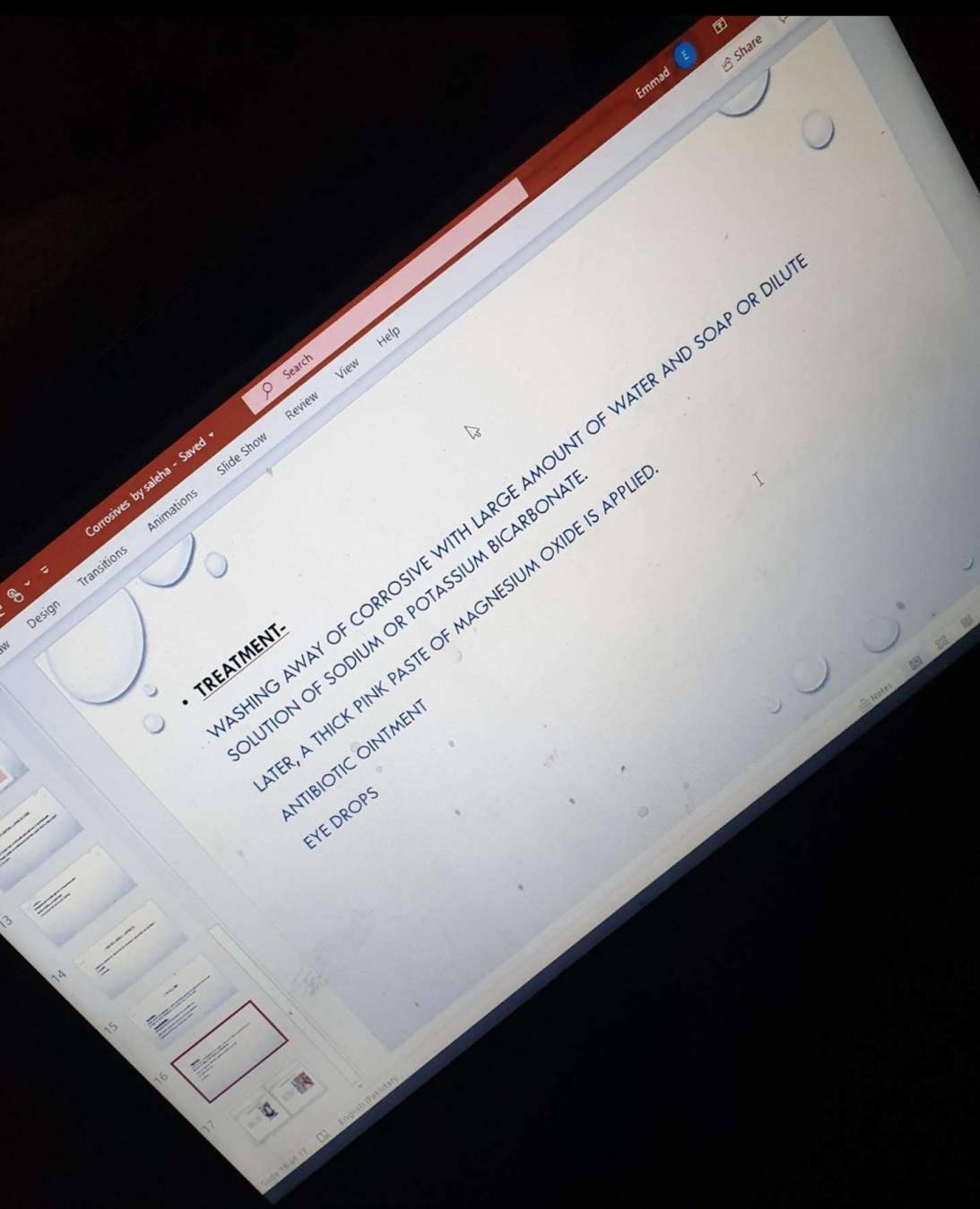
- **CHARACTERISTICS:**

DISCOLORATION AND STAINING OF SKIN AND CLOTHING.
ABSENCE OF VESICATION AND RED LINE OF DEMARCATION
PRESENCE OF CHEMICAL SUBSTANCES IN STAINS.



TREATMENT

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IF ACID HAS BEEN TAKEN, ALKALINE CARBONATES ARE CONTRAINDICATED.



• **TREATMENT-**

WASHING AWAY OF CORROSIVE WITH LARGE AMOUNT OF WATER AND SOAP OR DILUTE SOLUTION OF SODIUM OR POTASSIUM BICARBONATE.
LATER, A THICK PINK PASTE OF MAGNESIUM OXIDE IS APPLIED.
ANTIBIOTIC OINTMENT
EYE DROPS

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poison	moa	Sign n symptoms	treatment	Additional topics to read
corrosives	Cocagulation and precipitation of cellular proteins Conversion of Hb to hematin	Intense thirst Acid ingestion Alkali ingestion Resp involvement Cys involvement Chemical perforation		Classification Complications Vitrology Charring Xanthoproteic reaction
	Oxalic acid			
	Carbolic acid			

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