Tarnish and corrosion

OBJECTIVES

- to understand the role of tarnish and corrosion on longevity of restoration
- to learn about different types of tarnish and corrosion

contents

- definition
- introduction
- classification
- different types of corrosion
- clinical significance
- conclusion

Tarnish

Definition

- Surface discoloration on a metal or even a slight loss or alteration of the surface finish or lustre

Tarnish

Causes

- Formation of hard(calculus) and soft(plaque and mucin) deposits composed of micro organisms on restoration
- Formation of thin films of oxides, sulfides and chlorides
- Pigment producing bacteria produce stain

Classification of corrosion

- Chemical or dry corrosion
- Electrolytic or wet corrosion

Chemical or Dry corrosion

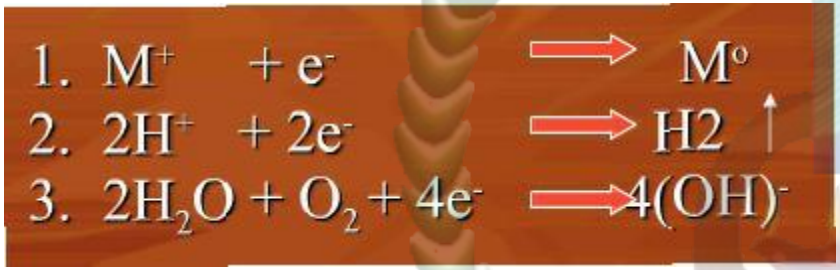
- Metal reacts to form oxides, sulphides in the absence of electrolyte

Eg:

1) Formation of Silver sulphide in dental alloys containing silver
2) Oxidation of alloy particles in dental amalgam

Electrolytic or wet corrosion

- This requires the presence of water or other fluid electrolytes
- Formation of free electrons and the electrolyte provide the pathway for the transport of electrons



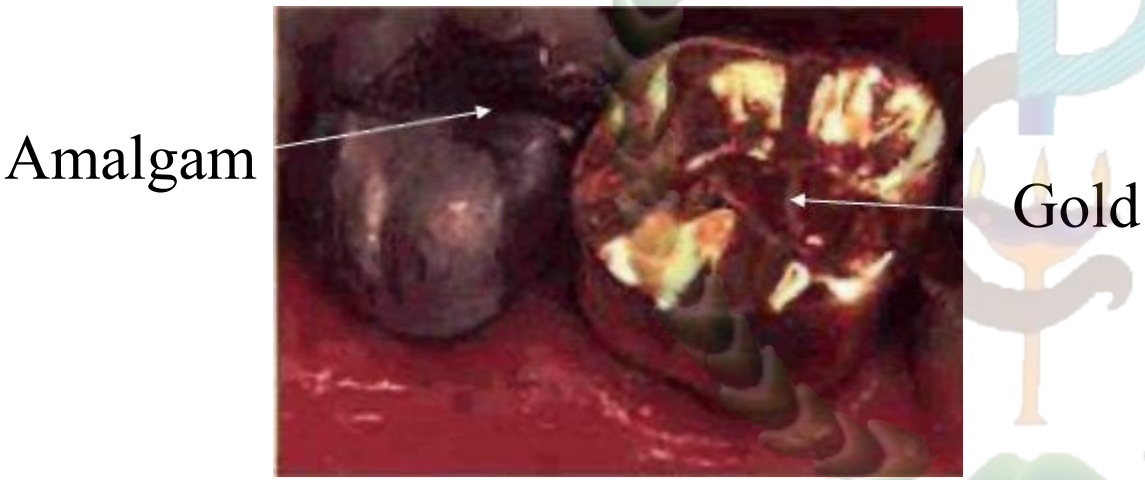
- Anode loses electron and cathode consumes. So anode corrodes

Types of electrolytic corrosion

- 1) Galvanic
- 2) Heterogenous
- 3) Stress
- 4) Concentration cell

Galvanic corrosion

- An important type of electrochemical corrosion occurs when dissimilar metals are in direct physical contact with each other.
- Causes sharp pain called galvanic shock



Heterogenous compostion corrosion

- Difference in the composition within the alloy

Eg: Impurities in any alloy

Concentration cell corrosion

- *An* electrochemical corrosion cell in which the potential difference is associated with the difference in the concentration of oxygen tension or presence of food debris.

Stress corrosion

- Metal which has been stressed by cold working becomes more reactive and will act like a anode of a galvanic cell and will corrode

Protection against corrosion

- Passivation
- Increased noble metal content
- Polishing restoration
- Avoid dissimilar metal restoration

CONCLUSION

- tarnish and corrosion is very important to understand the longevity of restoration and understanding different types helps its prevention and protection of restoration

Take home message

- tarnish and corrosion in terms of amalgam makes it self sealing property

QUESTIONS

- tarnish and corosion short note
- what are different types of corosion
- define and classify tarnish and corrosion