TEETH MARKS AND FORENSICS

Forensic Science
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What is the hardest substance in the body?
Can health history be determined from your teeth?
SUMMARY

- History
- Body Identification
- Bite Mark Analysis
- Personal Injury
- Dental Malpractice History
BODY IDENTIFICATION AND BITE MARK ANALYSIS

- Roman Emperor Claudius – wife wanted decapitated head of mistress
- Paul Revere - dentures of soldiers
- King William - bite in wax
ANATOMY OF ORAL CAVITY

• Maxilla - upper jaw
• Mandible - lower jaw
• Primary Dentition
  • Baby teeth or milk teeth
  • 20 teeth
ANATOMY OF ORAL CAVITY CONTINUED

- Permanent dentition
  - Start at 6-8 years old
  - 32 teeth
ANATOMY OF TOOTH

- Crown
- Root
- Enamel
  - Contains DNA
- Pulp
A body is identified by comparing teeth and bone structures of the body to the dental records of the suspected individual.
BODY IDENTIFICATION

• Postmortem examination of the body
• Locating the antemortem dental records
• Comparing the body to the dental records
POSTMORTEM EXAMINATION

- May examine teeth while in the body (if body needed for the funeral)
- May remove jaw (using bone saw) and remove soft tissue using hydrogen peroxide
- Record any diseases and the general anatomy

Each tooth or socket is examined individually, and the following is recorded:

- Presence/absence of tooth
- Socket present or healed
- Healed socket = past removal
- Present socket = recent removal
- Erupted vs. Unerupted
- Filling or crown material
POSTMORTEM EXAMINATION & ANTEMORTEM RECORDS

- After examination of teeth, they should be photographed, and X-Rays should be taken.
- If body is known, dental records can usually be recovered from his or her dentist.
- If body is unknown, the examination results are submitted to a missing person registry.
COMPARISON

Postmortem exam compared to antemortem records

A statement is made about each tooth

Consistent

Different with explainable differences

Different with no explanation
IDENTIFICATION IN MASS DISASTERS

• Split into 4 teams
• Run by Chief Forensic Dentist
• 1. Recovery at disaster scene
• 2. Postmortem exams at morgue
• 3. Collect antemortem dental records
• 4. Comparisons with computer software
CHARACTERISTICS
OF BITE MARKS

• Shape of two half moons
  (upper and lower)
• Composed of 6 upper teeth
  and 6 lower teeth
• Antemortem (diffuse bruise)
• Perimortem (defined bruise)
• Postmortem (no bruise)
• Only persists 8 hours on
  living person
COLLECTION OF BITE MARKS

1. Identify as potential bite mark
2. Collect 3 swabs
   - ABO blood test, amylase detection
   - DNA analysis
   - Microorganism analysis
3. Photograph bite mark
4. Make an impression of bite mark
COMPARISON OF BITE MARKS

1. Photographic overlay of suspect’s teeth and bite mark

2. Compare mold of suspects teeth to bite mark or impression of bite mark
THANK YOU FOR YOUR ATTENTION!

QUESTIONS & COMMENTS