

## Pink Tooth Phenomenon - A Mystery in Forensic Science

### Haritma Nigam\*

Assistant Professor, Oral Medicine, Diagnosis and Radiology, Pacific Dental College and Research Center, India

\*Corresponding Author: Haritma Nigam, Assistant Professor, Oral Medicine, Diagnosis and Radiology, Pacific Dental College and Research Center, India.

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### Abstract

Forensic odontology is essentially meant about the utilization of teeth and oral cavity for recognizable proof in a legitimate setting as personal identification. In certain situation, tooth discoloration specifically pink tooth can be used in postmortem examination. Pink teeth is a phenomenon of release of hemosiderin in pulp due to the rupture of hemoglobin. The current article gives an insight view of utilizing pink teeth as a mirror image in forensic science.

**Keywords:** Forensic Odontology; Hemoglobin; Hemosiderin; Pink Teeth

### Introduction

Forensic Odontology plays a signified role in medico-legal cases in personal identification. It is an unquestionable understanding about its inclusive role of this phenomenon in death causes for further investigations in Forensic Dentistry.

This phenomenon was firstly noticed by Bell, in 1829 and he described pink teeth in a postmortem victim cases of asphyxia such as strangulation, drowning or suffocation. Nevertheless, in alive patients this phenomenon is significantly allied with infectious diseases such as typhoid fever, in endodontically treated teeth, pulp polyp, traumatic injuries, internal resorption [1]. In a study done by Miles, *et al.* stated that there are two main reasons for the development of pink color. Firstly, due to the presence of a moist environment. It was pragmatic that humidification is essential for the current phenomenon as it keeps the pulp protein solubilized for its easy penetration into the dentin [2,3].

Secondly, considering it as a natural phenomenon caused due to seepage into the dentinal tubules of a fluid containing hemoglobin

or its degradation products derived from decomposition or liquefaction of the tooth pulp [4].

This phenomenon is distinctly observed in younger due to age-related changes of the root canal which is less penetrable by the pigment responsible for the post-mortem pink staining [5]. It is most commonly found in anterior than posterior tooth, and within tooth, the root exhibits more intense discoloration than in the coronal region with more pronounced in cemento-enamel junction.

Histological identification for the causative pigment was performed by Van Wyk who suggested that the dentinal tubules played a vital role in pigmentation formation, larger their diameter greater (erythrocytes average 7.5 microns in diameter whilst dentinal tubules are only 3 microns) were the chances of pigmentation of dentine [6]. The haem group of pigments that relate to the phenomenon of post-mortem pink teeth are hemoglobin, the porphyrins, hemosiderins, bile and its related pigments. He also observed that the time sequence of the coloration with the pattern of hemolysis

of blood and concluded that it takes almost 6 days for the so called obvious discoloration to happen [6].

In another study done by Sainio, *et al.* in 1990 on young and old wistar rats shows histologic changes in the formation of pink tooth [7]. Five groups of animals were studied, totally fifteen rats and intergrouped results were correlated as:

1. Group 1 (Immediately after death)
  - a. Marked vasodilation in pulp, PDL, alveolar bone.
  - b. Hyperemia in radicular pulp than the coronal part.
2. Group 2 (24h after death)
  - a. Dilated blood vessels.
  - b. Autolysis of red blood cells, but no aspiration seen into the dentinal tubules.
  - c. Pulpal edema.
3. Group 3 (36h after death)
  - a. Extravasation of erythrocytes from capillaries.
  - b. Increased odema and vacuolization.
4. Group 4 (42 h after death)
  - a. Widely dilated blood vessels.
  - b. Extravasated erythrocytes predominantly in coronal pulp.
  - c. Emptied blood vessels in PDL and alveolar bone.
5. Group 5 (48 h after death)-
  - a. No evidence of hard tissue formation

## Conclusion

The scientific writing reports that the after death pink tooth wonder has been accounted for in instances of physical trauma, drowning, strangulation, barbiturate poisoning and unexpected or unnatural demise. Because of contrast in the conditions in which pink teeth have been accounted for, it very well might be inferred that they are most certainly not for any particular reason for death however a critical affiliation has been seen among asphyxia and pink teeth than in other unnatural types of death.

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