



Pathology Biology Section – 2003

G62 Pink Teeth in a Series of Bodies Recovered From a Single Shipwreck

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The goals of this presentation are to review the causes and distribution of the phenomenon of pink teeth among a series of bodies.

Pink staining of the teeth is more common in victims where sudden death occurred because the blood can remain liquid due to increased fibrinolytic activity. Hemoglobin is the most likely pigment responsible for this postmortem process that can be considered analogous to postmortem lividity. In fact, there is general agreement that the first requirement for the occurrence of pink teeth is an increase of blood in the pulp. All the reports on pink teeth indicate that the diffusion of the blood in the pulp into the dentinal tubules causes the red discoloration of the teeth; this seems to be favored mainly by blood accumulation in the head either due to congestion (as observed in prefinal insufficiency of the right heart) or a postmortem head-down position (as in cadavers floating with their head in a downward position).

Pink teeth have most often been observed in victims of drowning but have also been reported in subjects who died suddenly and unnaturally by strangulation, hanging, knifing, and carbon monoxide poisoning. Since there is no obvious connection between the occurrence of pink teeth and the cause of death, the condition of the surroundings (especially humidity and temperature) must certainly play an important role in the development of pink teeth. This is supported by the fact that the majority of the cases described in the literature were exposed to a wet or moist environment, most having been recovered directly from the sea. The existence of water or a high concentration of aqueous solution intimately surrounding the teeth is one of the most important requirements for this postmortem phenomenon. Further prerequisites are hemolysis either by autolysis or by osmosis leading to subsequent diffusion of hemoglobin into the dentinal tubules.

Since in some of the retrospective studies not all jaws and/or teeth may have been examined thoroughly, the real frequency and distribution of the phenomenon remains unknown. In fact, forensic pathologists must have observed that the distribution of pink teeth can vary in a mouth and not all teeth are necessarily involved. The purpose of the present investigation is to study the frequency and distribution of postmortem pink coloration of the teeth among a representative sample of 52 cadavers. All bodies were victims of a single shipwreck, which occurred on March 13, 1997 in the middle of the Otranto Canal (Mediterranean Sea). An Albanian ship trying to land clandestinely on the Southern Italian coast sank following a collision with an Italian Navy warship patrolling the border. All the passengers in the four holds died as the ship was engulfed and settled on the bottom of the sea at a depth of 800 meters. The bodies were recovered from the seawater on October 21, 1997 after approximately seven months. All the cadavers shared the same cause of death (drowning), the same storage time in water (7 months) and identical environmental conditions (the temperature of the water at 800 meters depth was 4°C). A team of forensic pathologists carried out the pathological examinations while two forensic odontologists performed all odontological examinations separately and at different times. Sex, age, degree of decomposition, and dental examination were registered for each cadaver. A distinct pink coloration of the teeth was found in only 23 cadavers (17 females and 6 males) of ages ranging between 13 and 60-years. The average age of the deceased was 27 years in accordance with the fact that the phenomenon is more pronounced in younger individuals because the dentinal tubules become narrower or are obliterated with age and are less penetrable by the pigment responsible for postmortem pink staining. It was also possible to confirm another common observation that the pigmentation is more prominent on the anterior teeth with single roots than in the posterior teeth with multiple roots. Using histochemical methods the causative pigment was also identified as hemoglobin and/or its derivatives.

Pink Teeth, Postmortem Staining, Marine Environment