

Journal section: *Oral Medicine and Pathology*

Publication Types: *Case Report*

## The post-mortem pink teeth phenomenon: A case report

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Soriano EP, Carvalho MVD, Santos FB, Mendoza CC, Araújo MSD, Campello RIC. The post-mortem pink teeth phenomenon: A case report. Med Oral Patol Oral Cir Bucal. 2009 Jul 1;14 (7):E337-9. <http://www.medicinaoral.com/medoralfree01/v14i7/medoralv14i7p337.pdf>

Article Number: 5123658893 <http://www.medicinaoral.com/>  
© Medicina Oral S. L. C.I.F. B 96689336 - pISSN 1698-4447 - eISSN: 1698-6946  
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Received: 17/08/2008

Accepted: 24/01/2009

### Abstract

This study presents the case of the post-mortem pink teeth phenomenon observed during an autopsy procedure performed on the body of a man who was kidnapped and murdered approximately 30 days before the examination. The corpse was in an advanced stage of decomposition and putrefaction. Both maxillary and jaw bones were intact, as well as the permanent teeth which presented the “pink teeth phenomenon”, probably due to a haemorrhage in the pulp chambers. The pink discolouration was most pronounced at the neck of the teeth. The cause of death was asphyxia. Although the examiners stressed that post-mortem pink teeth must not be considered as a reliable odontological parameter for determining the cause of death, the results of other studies have shown that the pink teeth phenomenon is a common finding related to cases of asphyxia such as strangulation, drowning or suffocation. Thus, the pink teeth phenomenon must be studied in order to determine its role as a post-mortem finding. As of now, an exact relationship between the cause of death and this phenomenon remains unknown.

**Key words:** *Forensic pathology, forensic anthropology, forensic dentistry, pink teeth.*

## Introduction

The pink teeth phenomenon was first described by Thomas Bell (1). Nowadays, however, a search on important scientific data bases, such as PubMed and Cochrane Library, for example, shows that unfortunately there is not a number of publications on this issue in forensic literature.

In this phenomenon, the dentine of pink teeth is colored because of an increase of intracranial blood pressure leading to haemorrhage in the pulp chambers, whilst the enamel remains unaffected (2). The red-pink coloration of teeth roots gets particularly deep towards the cemento-enamel junction, fading off, but still visible beneath the enamel (3,4). The purpose of this study was to describe one case in which pink teek was observed during autopsy examinations.

## Case Report

The body of a man who was kidnapped and murdered about 30 days before the autopsy was examined. His decomposed body was found buried in a house, under a humid soil. The corpse was in advanced decomposition and putrefaction. Autopsy findings revealed a wire around his neck. Traqueal muscles showed hemorrhage signs. These findings suggested strangulation as the cause of death.

Both maxillary and jaw bones were present, as well as permanent teeth. Identification process was conducted using dental clinic forms and comparisons between radiographic images taken before (provided by the man's family) and after death.

All teeth presented the 'pink teeth phenomenon'. The pink discoloration was most pronounced at the neck of the teeth (Fig. 1).

## Discussion

Pink teeth phenomenon results from an inhibition of haemoglobin and haemoglobin breakdown products into the dentinal tubules. The haemoglobin could originate from intravasal erythrocytes or from extravasated erythrocytes in congestion bleedings (5).

The postmortem finding of pink teeth is a pathologic sign that remains may have been in a specific environment for a prolonged duration. The presence of humidity in the environment in which the body was found has also been cited as an important contributing factor in the development of the pink teeth phenomenon, especially in shipwrecks (2) and drownings (6). However, other factors have been reported in the development of pink teeth, such as discoloration due to endodontic therapy (7), traumatic dental injuries, reabsortions and sistemic diseases (8).

Almost all authors report a time delay between death and the formation of pink teeth. When cause of death was known, the reports from the forensic literature suggest that subjects with pink teeth have died as a result of important physical trauma such as being shot. In many cases when there is no direct evidence of violence the cause of death is attributed to asphyxia.

Pink teeth have also been reported in subjects who died suddenly and unnaturally, and the incidence of pink teeth in people who died by asphyxia seems to be greater than in other forms of unnatural death, maybe due to the extravasation of blood caused by a rapid rise in venous pressure (9). Two cases of post mortem pink teeth phenomenon were described in Japan. In the firt case, one tooth presented red discoloration and the cause of death was unknown, while in the second case the cause



Fig. 1. The presence of postmortem pink teeth phenomenon.

of death was suffocation by hanging, and all teeth presented discoloration (10).

The authors of the present study found the pink discoloration in all teeth of the corpse. The occurrence of this phenomenon in cases of strangulation and carbon monoxide intoxication was described by Miles et al. in 1953 (1).

Although the results of some studies have shown that post mortem pink teeth phenomenon is a common finding (11) related to cases of asphyxia such as strangulation, drowning or suffocation, other authors stress that there is no obvious connection between the occurrence of pink teeth and the cause of death (2). So, it must not be considered as a specific forensic evidence, once it seems to occur even weeks later (1,6).

Thus, the pink teeth phenomenon must be studied in order to elucidate its role as a postmortem finding, once until now an exact relationship between cause of death and phenomenon is unknown. Nowadays, there is not a number of publications on this issue that provide an unquestionable understanding about the role of this phenomenon in death causes investigations in Forensic Dentistry. Due to this fact, the pink teeth phenomenon has been not much studied recently (8).

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## Acknowledgements:

The authors wish to express their thanks to Forensic Institute Antônio Persivo Cunha-Recife/PE, Brazil.