



H134 Body Coloration Artifacts in Forensic Autopsy

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Learning Overview: After attending this presentation, attendees will understand the various body color artifacts that are introduced to the body before or after death.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by enabling attendees to differentiate color artifacts from genuine antemortem or postmortem color changes occurring in the body.

Skin and mucosal discoloration are common in various diseases and poisonings. Jaundice, hemochromatosis, cyanosis, polycythemia, pancreatitis, retroperitoneal hemorrhage, carbon monoxide, and cyanide poisoning, etc. impart characteristic discoloration to the skin and mucosa, directing the autopsy surgeon for particular pathology, injury, or poison. It is thus highly important to be aware of coloration artifacts introduced to the external body surface leading to the wrong interpretation of various antemortem and postmortem findings.

Cases of the past 12 years from South Delhi, India, in which color was applied over the body surface before or after death formed the study group. The data were retrospectively collected from the archive of the center, including postmortem reports, inquest papers, and photographs of the cases.

One of the major scenarios of skin coloration in the present study was Holi, a color festivity of Hindus. These colors, when freshly applied, can be differentiated from skin changes; however, attempts to wash the body leaves a tinge of the color and may cause misinterpretation of deep facial congestion with red colors; of early bodily decomposition with green colors; of postmortem lividity over limbs or trunk with purple colors; and of cyanotic changes with blue colors. However, differences can be made by further fading of the color with washing, unusual appearance, or site of the color, and having no correlation with the bodily appearance, condition, injury, or disease.

Another major source of dead body coloration was the after-death ritual of applying turmeric paste. Its color is faded away when scrubbed thoroughly with hot water, leaving a yellow tinge, and may cause misinterpretation with signs of jaundice but can be distinguished by being unusual in site and distribution, no icterus, and no medical or surgical pathology known to cause jaundice.

Beauty products used by the deceased, such as vermilion and black eyeliner, was another source of discoloration. These beauty products always leave traces when cleaned or washed. Traces of eyeliner around eyes lead to misinterpretation, such as a black eye seen in head injury. However, proper history about the application of the product, regarding head injury and anatomical dissection, rules out the black eye phenomenon. Traces of smudged vermilion over the forehead causes confusion with facial congestion. However, it has an unusual distribution and fades away when washed.

Worn clothing stained the body surface as the clothing color was not fast enough. Likewise, ligature material used for hanging stained the ligature mark. These clothing-related colorations of the body or ligature mark are helpful in determining worn clothes or ligature material in doubtful cases. These colors are usually faded in appearance and distribution of the color is over the body regions covered by the cloth. Their colors are washed away with thorough hot water scrubbing. However, being faded in appearance, no one suspects it as an external coloration and, if not thoroughly washed, leads to various misinterpretations, depending on the color.

Finger and palm printing with blue pad ink was another source of body coloration, which is a standard procedure for identification. The ink leaves traces even after thorough hot water scrubbing. The discoloration of the palm can cause a misinterpretation of cyanosis, more so when fingernails are mistakenly stained during the procedure. However, other sites will not show any cyanotic change.

The medicinal dyes povidone iodine and methylene blue have discolored parts of the limbs. These were used for a wound which stained the skin, reddish-brown and greenish blue, respectively. These stains fade with hot water wash and can be misinterpreted as contusion and gangrenous lesions, but regional dissection at autopsy will clear the picture.

If the autopsy surgeon sees the body before washing of the color or takes the history about external coloration whenever there is unusual body coloration, the misinterpretation can be avoided. Touching these types of external coloration, if the color is not completely dried, with a gloved hand or a cotton swab will automatically stain the glove or swab. Examination of clothing will show the discoloration too.

Postmortem Change, Postmortem Artifact, Misinterpretation