PubMed Search “Criminal Burning” lead to 19 hits

- US:
  - Florida: Domestic Violence
  - Canada and South Carolina: Suicides
  - Michigan: Fire debris analysis
  - Texas: Homophobic

- Trans Atlantic:
  - 16 reports: Germany (5), Japan (2), India, Australia, Jordan, Tanzania, France

PubMed Search “Postmortem Burning+ USA” lead to 5 hits

2. Titanium particles identified by energy-dispersive X-ray microanalysis within the lungs of a painter at autopsy.
4. Positive identification of cremains recovered from an automobile based on presence of an internal fixation device.
5. Arthropod succession patterns onto burnt carrion in two contrasting habitats in the Hawaiian Islands.
Bound And Burnt in Detroit

- Wayne County
  - Population: 1.8 million

- 2017
  - 267 homicides
  - Rate of 40 per 100,000 people
    - Nationwide rate: 5 per 100,000

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Bound And Burnt in Detroit

- Search of WCMEO autopsy database
  - 2007-2018
  - Thermal injuries
  - Bound extremities
  - 176 cases with thermal injuries where the manner of death was ruled a homicide
  - 31 cases had mention of thermal burns/soot inhalation/carbon monoxide poisoning
  - 145 cases represented postmortem burnings
  - 8 of these cases were found have bound extremities

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Bound And Burnt in Detroit

- Postmortem thermal injury
  - Requires absence of vital reaction
  - Carboxyhemoglobin < 10%
Bound And Burnt in Detroit

- Demographics for 145 cases
  - Female: 20%
  - Male: 79%
  - Unknown 1%
  - White: 14%
  - Black: 76%
  - Hispanic: 4%
  - Unknown: 4%
  - Average age: 39 years (Ranged from 1 to 69 years)

Bound And Burnt in Detroit

- Cause of Death for 145 cases
  - Gunshot wounds:
    - Single gunshot wounds (26%)
    - Multiple gunshot wounds (40%)
  - Blunt Trauma (10%)
  - Strangulation/Asphyxia (7%)
  - Sharp force injuries (7%)
  - Unable to be determined (7%) Reported undetermined in literature 5%

Bound And Burnt in Detroit

- Unable to be determined (7%)
- Reported undetermined in literature 5%
<table>
<thead>
<tr>
<th>Case 1: 45 M</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scene findings</strong></td>
</tr>
<tr>
<td>Discovered bound and burned in basement of burning home</td>
</tr>
<tr>
<td>Hands and feet bound behind back</td>
</tr>
<tr>
<td>Markedly decomposed</td>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Case 2: 19 M</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scene findings</strong></td>
</tr>
<tr>
<td>Discovered burned torso on interstate service drive</td>
</tr>
<tr>
<td>Dismemberment of head and upper neck, bilateral forearms, bilateral lower legs not located at the scene</td>
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<table>
<thead>
<tr>
<th>Case 3: F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scene findings</strong></td>
</tr>
<tr>
<td>Discovered bound and burned in a vacant garage; fire contained to the area of the body causing little or no damage to garage</td>
</tr>
</tbody>
</table>
### Case 1: 35 M

<table>
<thead>
<tr>
<th>Scene findings</th>
<th>Evidence of injury on autopsy</th>
<th>Burn details</th>
<th>Bound details</th>
<th>Toxicology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovered bound and burned in a vacant dwelling covered in a plastic bag</td>
<td>Two gunshot wounds - right thigh and left thigh</td>
<td>100% TBSA, head charred no evidence of soot in the airways</td>
<td>Bound by duct tape around knees, ankles, and chin</td>
<td>CO negative</td>
</tr>
</tbody>
</table>

### Case 2: 26 F

<table>
<thead>
<tr>
<th>Scene findings</th>
<th>Evidence of injury on autopsy</th>
<th>Burn details</th>
<th>Bound details</th>
<th>Toxicology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovered bound and burned in an alley</td>
<td>Abrasions around neck; area surrounding these injuries was charred</td>
<td>99% TBSA 1st degree to charring sparing perineum</td>
<td>Hogtie position: Hands and feet fastened together behind back with copper wire</td>
<td>Non-contributory</td>
</tr>
</tbody>
</table>

### Case 3: 35 M

<table>
<thead>
<tr>
<th>Scene findings</th>
<th>Evidence of injury on autopsy</th>
<th>Burn details</th>
<th>Bound details</th>
<th>Toxicology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovered bound and burned between two vacant homes</td>
<td>Two gunshot wounds - right axilla and neck; areas surrounding the gunshot wounds were charred</td>
<td>Extensive burns - charred skin splitting, heat fracture of femur</td>
<td>Wrapped in white plastic tarp and two sheets, secured around the body with three wire cables (125 inches to 180 inches in length)</td>
<td>Ethanol 39 mg/dL, Benzodiazepines positive</td>
</tr>
</tbody>
</table>
Scene findings | Evidence of injury on autopsy | Burn details | Bound details | Toxicology
--- | --- | --- | --- | ---
Case 7: 59 M | Discovered bound and burned on kitchen floor of a house fire. Hands and feet bound. Odor of accelerant - gasoline. | Four gunshot wounds - head, right arm, right hand, left hand - no bullet recovered. The right arm suffered a gunshot wound and 2nd and 3rd degree burns; the areas of the remaining three gunshot wounds were not charred. Injury due to firearm: multiple skull fractures; left frontal lobe contusion; fractured humerus. Multiple abrasions to the head, right arm, and right shoulder. Multiple lacerations to the scalp. | Extensive burns - 2nd and 3rd degree burns to both arms; sparing the hands, left lateral thorax, abdomen; both lips sparing feet. | COHb 12%

Case 8: 30 M | Discovered bound and burned between two houses. Body bound with copper wire. | Intramuscular hemorhage bilaterally in the superior sternocleidomastoid muscles and both inferior poles of the thyroid gland. Areas surrounding these injuries were charred. Pleural surfaces of both lungs covered in petechiae, lungs hyper-inflated. | Charred anteriorly with sparing of skin on back. No soot in larynx or lower airways. | Wrapped in two blankets. Loops of copper wire bound body around neck, mid thorax; including upper arms but not the hands, and around the ankles. | COHb 2%. Ethanol 157 mg/dL. Cocaine positive. Cannabinoids positive. Fentanyl positive.

Bound And Burnt in Detroit

- Post-assault burning of a body does not usually obscure the injuries that caused death.
**Bound And Burnt in Detroit**

**Question 1:** Suspicion of charred remains as a homicide involving postmortem burning should include:

Answer A: unfamiliar outdoor place, an absence of any vital response and presence of an accelerant
Answer B: familiar place, the presence of a vital reaction
Answer C: found inside the home with a suicide note
Answer D: The absence of burns on feet
Answer E: witnessed by others

**Question 1 Correct Answer:** Answer A

**Rationale for Correct Answer:** The homicides involving postmortem burning usually are discovered in an unfamiliar outdoor place. They have a traumatic cause of death. There is an absence of any vital response to the thermal changes and an accelerant is usually present. Published Reference for Question 1: Postmortem burning of the corpses following homicide; A.Rıza Tümer et al. / Journal of Forensic and Legal Medicine, 19 (2012) 223-228.

**Learning Objective for Question 1:** Characteristics of postmortem burning of the corpses following a homicide.

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**Question 2:** What is reported % rate of unidentified causes of death in the literature for postmortem burning following a homicide

Answer A: 5%
Answer B: 4%
Answer C: 2%
Answer D: 1%
Answer E: 3%

**Question 2 Correct Answer:** Answer A

**Rationale for Correct Answer:** The reported % rate of unidentified causes of death in the literature is 5%. Published Reference for Question 2: Criminal burning; L. Fanton et al. / Forensic Science International 158 (2006) 87-93.

**Learning Objective for Question 2:** To know the incidence of rate of unidentified causes of death.

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**Bound And Burnt in Detroit**

**References**