FORENSIC SCIENCE
VI SEMESTER

Written by -ANJALI GUPTA
ASSISTANT PROFESSOR
FORENSIC SCEINCE
BTIE, SAGAR

POSTMORTEM LIVIDITY

Synonyms: Livor mortis, postmortem hypostasis, vibices, Suggilation, postmortem staining.

Definition -Postmortem lividity is a purplish blue or reddish blue discolouration due to settling of blood by gravitational force within the dependent, dilated and toneless small veins and capillaries of rete mucosum.

Formation and Spread of Lividity

- If body is left undisturbed without change of its position, then the postmortem staining starts appearing in small patches over the dependent part of body by the end of fi rst hour after death.
- Gradually the small patches increase in size and coalesce with each other to form uniformly stained areas.
- For this complete spreading of postmortem staining, it takes about 5-6 hours. Then the lividity gets fixed (when the livid area is pressed by thumb for a period of 30 seconds and if there is no evidence of blanching then it is said that lividity is fixed) until the onset of decomposition where it disappears by disintegrating.
- In early stages, postmortem hypostasis can be blanched by compressing the area say for example with thumb. Once the livor gets fixed, it cannot be blanched. Thus blanching of livor suggests non-fixed state of livor.

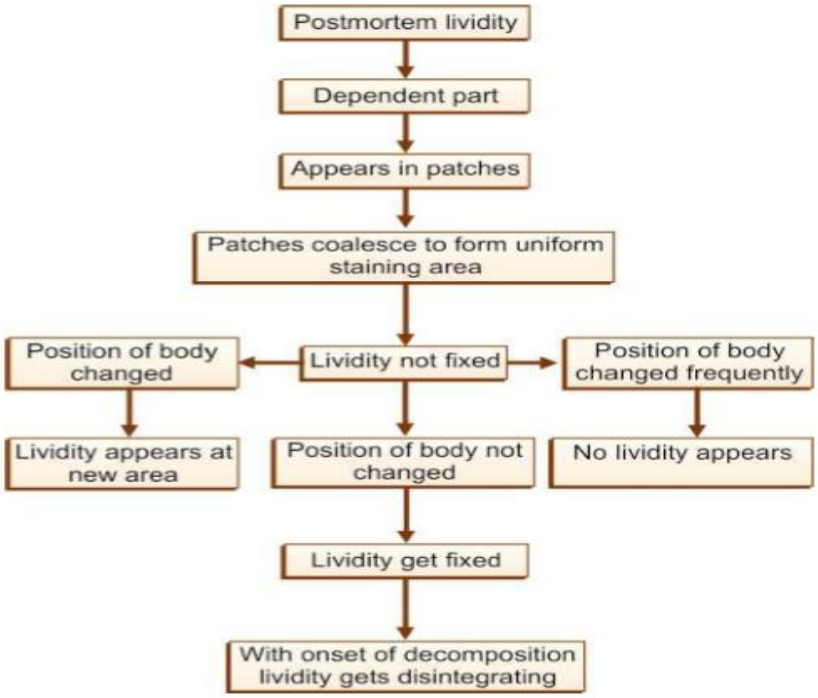

FIG. 7.9: Flowchart showing formation of postmortem lividity

Table 7.10: Color of lividity and cause of death

Cause	*Colour*	*Mechanism*
Carbon monoxide	Pink	Carboxyhemoglobin
Cyanide	Cherry-red	Excessive oxygenated blood
Fluoroacetate	Pink/cherry red	Excessive oxygenated blood
Refrigeration	Pinkish	Retention of oxygen in Cutaneous blood by cold
Hypothermia	Pinkish	Retention of oxygen in Cutaneous blood by cold
Sodium chlorate	Brown	Methemoglobin
Hydrogen sulfide	Green	Sulfhemoglobin

Fig. 8.1
Lividity, or livor mortis, represents the postmortem settling of blood within the dependent skin, due to gravitational forces. Note that areas of skin exposed to pressure do not develop lividity

Factors Influencing

Following are the factors that infl uences the appearance of postmortem lividity

1. Position – fixed undisturbed position is essential for formation of lividity. Thus in a constant rotating body lividity usually does not appear.

2. Hemorrhage – if the person has excessive loss of blood or is in hemorrhagic shock, postmortem lividity may not be appreciated

3. Anemia – if the dead person is suffering from anemia then it becomes diffi cult to appreciate lividity

4. Complexion – postmortem lividity is more prominent in fair persons than darker complexion
5. Cold – if bodies are preserved in cold storage, then lividity may get fixed at later time and under such circumstances, it is not a good parameter to estimate death interval.

Medicolegal Importance

1. Presence of postmortem lividity is sign of death.

2. Time since death can be estimated.

3. From the distribution of postmortem lividity, relative position of body can be identified.

4. Cause of death – from the colour of postmortem lividity, cause of death can be known in some cases.

5. Postmortem lividity may appear in tissues under nails if hand remains in dependent position. In such condition, the lividity may be confused with cyanosis.

6. Postmortem lividity may be confused with contusion. Blood dyscrasias/ hemorrhagic spots may be confused with postmortem lividity.

8. Under low ambient temperature, normally bluish purple postmortem lividity adopts a bright red or pink colour due to re-saturation of hemoglobin with oxygen. Postmortem lividity in intestine may be mistaken for intestinal infarction or strangulation.

Table 7.10: Color of lividity and cause of death

Cause	*Colour*	*Mechanism*
Carbon monoxide	Pink	Carboxyhemoglobin
Cyanide	Cherry-red	Excessive oxygenated blood
Fluoroacetate	Pink/cherry red	Excessive oxygenated blood
Refrigeration	Pinkish	Retention of oxygen in Cutaneous blood by cold
Hypothermia	Pinkish	Retention of oxygen in Cutaneous blood by cold
Sodium chlorate	Brown	Methemoglobin
Hydrogen sulfide	Green	Sulfhemoglobin
Aniline	Deep blue	Deoxygenated blood
Carbon dioxide	Bluish	Deoxygenated