

Live Birth and Still Birth: Medico-legal Importance

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Case relevance

- In cases of suspected infanticide, concealment of birth, inheritance disputes and legitimacy, it is important to determine whether the child was liveborn, stillborn or deadborn.

Definitions

Signs of live birth

Lung tests

Hydrostatic test

Medico-legal opinion

1. Definitions

Term	Definition / key points
Live Birth	Child born after the period of viability, showing signs of life after complete birth, or even when at least one part of the body has come out of the mother's womb. Signs of life include crying, respiration, movement of limbs and beating of heart.
Still Birth	Fetus born after 28 weeks of pregnancy, which does not show any signs of life after complete expulsion from the mother.
Dead Birth / Deadborn	Fetus already dead in the uterus before the beginning of labour, showing signs of intrauterine death such as maceration, mummification and Spalding's sign.

2. Signs of Live Birth During Foetal Autopsy

A. External Signs

Chest and skin - Before respiration, chest is flat and smaller than abdomen. - After respiration, chest becomes expanded, arched or drum-shaped. - Chest circumference becomes greater than abdominal circumference. - Skin colour changes from bright red to brick-red to yellow to normal by first week. - Absence of vernix caseosa may suggest the child was washed and survived for some time.	Umbilical cord, caput and cephalhaematoma - Day 1 - cord is shrunken. - Day 2 - inflammatory line at base of stump. - Day 3 - mummification of cord. - Day 5 - cord falls off. - Day 10-12 - complete healing and scar formation. - Caput succedaneum and cephalhaematoma: presence indicates the fetus was alive during labour.
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B. Internal Signs

Internal sign	Finding / importance
Lungs	Lungs become expanded, voluminous and cover the heart after respiration.
Diaphragm	Before respiration: diaphragm at 4th-5th rib. After respiration: diaphragm descends to 6th-7th rib.
Stomach and intestines	Breslau's second life test / stomach bowel test: stomach and intestines are tied, removed and placed in water. If they float, it indicates swallowed air due to respiration. Presence of milk in stomach is positive evidence of live birth. Large intestine becomes free of meconium within 24 hours after birth.
Middle ear	Wreden's test / Wreden-Wendt test: absence of gelatinous embryonic connective tissue and presence of air in middle ear cavity indicate respiration after live birth.
Foetal channels	After live birth, there is closure or obliteration of umbilical arteries, umbilical vein, ductus venosus, ductus arteriosus and foramen ovale.
Teeth	Presence of neonatal incremental line in enamel of teeth is the surest sign of live birth.

3. Differences Between Lungs of Liveborn and Stillborn Baby

Feature	Liveborn / Respired Lung	Stillborn / Unrespired Lung
Volume	Large, fills thoracic cavity, covers heart	Small, does not fill thoracic cavity
Colour	Mottled, salmon-pink	Uniform bluish-red / dark
Consistency	Soft, spongy, elastic, crepitant	Dense, firm, liver-like, non-crepitant
Margins	Rounded	Sharp
Diaphragm level	6th-7th rib	4th-5th rib
Cut section	Frothy blood may ooze	Little frothless blood
Microscopy	Alveoli expanded, lined by flat squamous cells	Alveoli unexpanded, lined by cuboidal / columnar cells
Fodere's test	Lung weight about 60-70 g	Lung weight about 30-40 g

Feature	Liveborn / Respired Lung	Stillborn / Unrespired Lung
Ploucquet's test	Lung:body weight ratio 1:35	Lung:body weight ratio 1:70
Hydrostatic test	Floats in water	Sinks in water

4. Hydrostatic Test

Name and principle

- Also called lung floatation test / Raygat's test.
- Before respiration, unrespired lungs have higher specific gravity than water, about 1040-1050, so they sink.
- After respiration, lungs contain air and their specific gravity decreases to about 0.94, so they float.

Procedure

- Remove the lungs and place them in a container of water.
- If they float, cut lungs into small pieces.
- Squeeze or compress the pieces between sponges to remove tidal air and expiratory reserve air.
- Place the pieces again in water.
- If they still float, the test is positive, indicating true respiration.
- A piece of liver is placed in water as control.
- If liver floats, it indicates putrefactive gas formation and the test becomes invalid.

5. Fallacies of Hydrostatic Test

Fallacy	Meaning	Causes
False Positive	Lungs float even though baby did not respire naturally.	Putrefaction causing gas formation; artificial respiration or forced air insufflation.
False Negative	Lungs sink even though baby had respired.	Atelectasis; feeble respiration; pulmonary oedema; pneumonia; congenital syphilis; obstruction by alveolar duct membrane or mucus.

6. Medico-legal Significance

Aspect	Medico-legal importance
A. Infanticide	To prove infanticide, it must be established that the child was born alive and then killed. If the child was stillborn or deadborn, charge of murder cannot be framed. Killing of a liveborn infant is punishable as murder under Section 302 IPC / Section 103 BNS.
B. Presumption in Law	Law presumes that a newborn found dead was born dead unless live birth is proved. Therefore, the autopsy surgeon must provide evidence of live birth.
C. Concealment of Birth	Secret disposal of the dead body of a child to conceal birth is punishable, whether the child died before, during or after birth. Relevant provision: Section 318 IPC / Section 94 BNS.
D. Inheritance and Property Rights	A child born alive, even if it survives only for a short time, acquires legal personality. Such a child can inherit property and transmit rights to legal heirs. Stillborn or deadborn child has no inheritance rights.
E. Legitimacy and Civil Disputes	Proof of live birth is important in legitimacy, succession, affiliation cases and property disputes.
F. Manner of Death	Foetal autopsy helps differentiate natural death due to prematurity or disease, death due to acts of commission such as smothering, strangulation or poisoning, and death due to acts of omission such as failure to tie umbilical cord or withholding food.

Conclusion

Exam conclusion

- In medico-legal practice, determination of live birth is essential in suspected infanticide and inheritance disputes. Important evidence includes respired lungs, hydrostatic test, Wreden's test, Breslau's test, umbilical cord changes and neonatal incremental line.