
Sudden infant deaths and Battered baby syndrome

Legitimacy

- Legitimacy is the legal state of a person born in lawful marriage.
 - **DEFINITION:** If a person is born during the continuance of a legal marriage, or within 280 days after the dissolution of the marriage by divorce or death of husband, his birth is presumed to be legitimate (S. 112 IEA).
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Circumstances where the child will be illegitimate or bastard:

1. Baby born of the parents not legally married
2. Baby born well beyond 280 days of dissolution of parent's marriage
3. Father is under the age of puberty or physically incapable to impregnate her due to congenital / acquired disease or deformity
4. Person did not have access to his wife during the time that the child was begotten.

Medicolegal aspects

- Inheritance of property
 - Posthumous child
 - Supposititious child
 - Paternity
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The question of legitimacy arises in:

Inheritance : A legitimate child only can inherit the property of his father.

Affiliation Cases: A women may allege a particular man to be the father of her illegitimate child and file a case in the court for fixing the paternity.

- If the paternity is fixed on a certain person, he becomes responsible to support the child.
- A first class Magistrate can sanction a monthly allowance of up to five hundred rupees, taking into consideration only the necessaries of life, such as food, clothing and lodging but not luxury.

Posthumous child

- Child born after the death of its father, the mother being conceived by said father.

Legal issues involved are-

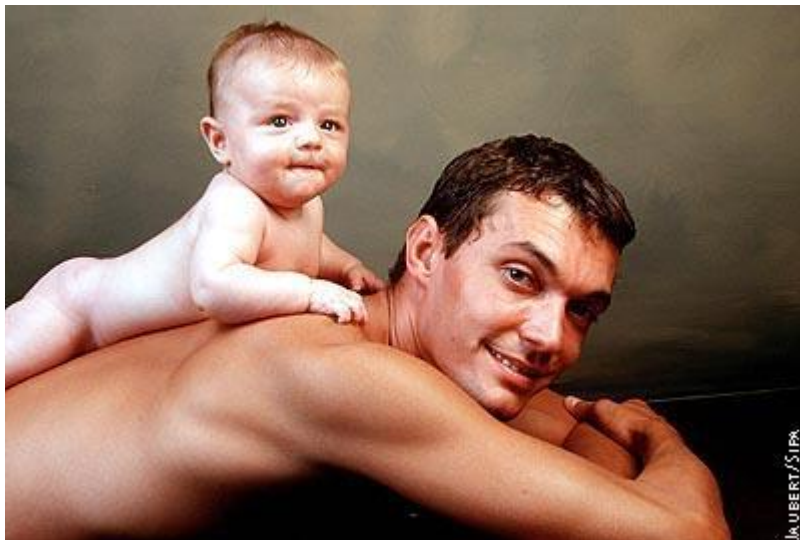
- Legitimacy
 - Inheritance of property
 - Compensation case for slander against mother.
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Supposititious Children :

- It means **fictitious children**.
- A women may pretend pregnancy and delivery and later produce a male child for female child born of her or an abortion.
- This is of claiming property. In such cases, the women should be examined for signs of pregnancy and delivery.
- The medical evidence is useful only when age of the supposititious child does not correspond to the date of the pretended delivery.

Paternity

- The question of paternity arises in contests over legitimacy, posthumous birth, or supposititious children. It is a point difficult to decide in contests over legitimacy, posthumous birth, or supposititious children.



Atavism

- The child does not resemble its parents, but resembles its grandparents.
 - This is due to inheritance of characteristics from remote instead of from immediate ancestors, due to a chance recombination of genes.
 - Any mental or physical characteristic or tendency or disease peculiar to a remote ancestor may be inherited.
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SUPERFECUNDATION

- It means that fertilisation of two ova which have been discharged from the ovary at the same period by two separate acts of coitus committed at short intervals.
- Incidence of twins is 1.5% and of these 70 % binovular twins
- One fetus may abort early
- Foetus copressus or fetus papyraceous
- The spermatozoa causing fertilisation may be from different men.

SUPERFOETATION

- This means fertilisation of second ovum in a woman who is already pregnant
 - Later, two foetus are born either same time with different stage of development or
 - Different periods varying from 2 to 3 months
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Sudden infant death syndrome (SIDS)

Synonym: Cot death, crib death, SIDS.

DEFINITION: It is defined as sudden death of an infant which remains unexplained after thorough case investigation, including performance of complete autopsy, examination of death of scene & review of clinical history.

Predisposing factors:

1. Incidence: 2-3 / 1000 live births
2. Age: 2wks-2yrs (most common 2mth-4mth)
3. Sex: M > F
4. Common in lower socio-economic groups
5. Common in low birth babies, twins
6. Usually occurs in late night period
7. In many cases, there is prior h/o common cold/coryza

Aetiology: Hypothesis

1. Overlying of the infant by drunken parents
2. Prone sleeping position
3. Inadvertent smothering by soft cloth/pillow
4. Sleep apnea which causes hypoxia & respiratory depression
5. Hypotonic babies in which posture of neck reduces airway lumen
6. Dust mite allergy
7. Cows milk allergy
8. Ca/selenium deficiency

Autopsy

- The post-mortem findings are negative.
- The only constant findings are multiple petechial haemorrhages on the visceral surfaces of the heart, lungs and thymus.
- Many infants show froth in the air-passages and facial pallor.

Theories :

- 1) Prolonged “**sleep apnoea**” which makes them susceptible to hypoxia, which finally leads to bradycardia and cardiac arrest
- 2) Nasopharyngeal catarrh, bronchitis or tracheobronchitis of viral origin.
- 3) Other causes of death are conduction system anomalies, GORD, adrenal insufficiency.

Battered baby syndrome

- **Synonym:** Non-accidental injury of childhood, Caffey's syndrome, Child abuse syndrome, Maltreatment syndrome.
 - **DEFINITION:** A battered child is one that suffers repetitive physical injuries of different stages of healing inflicted by a parent/guardian which are non-accidental and non pathological in nature
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Factors relating to battering of child

1. Child factors:

- Age: between 2-5 yrs
- Sex: M>F
- Position of child: usually unwanted, illegitimate child

2. Parent factors:

- Lack of education, tolerance , understanding & self-control
- h/o family disharmony, long standing emotional problems or financial problem
- Lower socio-economic group
- Life style: habitually indulging to intoxication.

3. Precipitating factors:

— Frequently crying, refuses to take food, disobedient, persistently soils clothes.

Presentation

- Delay in production of victim for treatment.
 - History not tally with the injuries.
 - Injuries are superficial in nature (like abrasion, bruise or sometimes fracture).
 - Child treated by different physicians after each incidence of violence.
 - Child presented with different type of injuries with different stages of healing.
 - e/o old healed injuries over the body.
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- Multiple bruises are seen on cheeks mouth and neck.
 - Bite marks may be found on cheeks, shoulders, chest, abdomen, legs.
 - Bursting injuries of liver or spleen.
 - Multiple rib fractures are seen.
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- Differential diagnosis has to be made from scurvy, congenital syphilis, rickets, osteoporosis, osteomyelitis.
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Battered baby syndrome

Synonyms -

- Non accidental injury of childhood
- Child abuse syndrome
- Caffey's syndrome
- Maltreatment syndrome in children

Definition-

One who has received **repetitive physical injuries** as a result of **non accidental violence** and **deprivation of nutrition, care and affection** by the parents or guardians.

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- Cruelty on infants and children is not new.
 - Destruction of newborn infants, stringent measures including physical torture and pain at home and in teaching institution to introduce discipline and teaching programme, child labour system and all may extend upto cruelty and negligence on children.
 - The problem was unveiled by Silverman (1953) & Wooley and Evans (1955) in its exact shape, magnitude and significance.
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- It is a tragic and disturbing phenomenon, a crime that is often successfully hidden by its perpetrators.
 - Young children receive serious physical abuse.
 - A frequent cause of permanent injury or death.
 - Psychiatric factors in the perpetrator are probably of prime importance in the pathogenesis of the disorder.
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History

- J. Caffey (1946) a Pediatric radiologist (Caffey's syndrome named after him) observed multiple fractures of long bones in six infants, who were suffering from chronic subdural hematoma.
- In 1961, Dr. Henry Kempe, at symposium of American Academy of Pediatrics, proposed the term 'Battered child syndrome' in order to direct attention to the seriousness of the problem.

Case history

- A three year child was brought to hospital casualty by his mother.
- History stated that, the child was all right 2 hours back after which he had sudden fall with abnormal tonic posturing of upper and lower limbs with up rolling of eye balls, associated with frothing from mouth and unconsciousness.
- H/O infection on face, back and leg since five days.
- Past history of trauma to head due to fall 15 days back and details of treatment were not available.

- **Developmental history** - Mile stones were delayed.
- **Socioeconomic history** -
 - Mother had live-in relationship since 2years and had two children.
 - 1 year old male child (from a **live-in relationship**) who was alright.
 - 3 year old male child (from previous estranged husband).
 - Mother was illiterate, domestic help living in a rented place with her partner who was educated up to 5th standard and was a watchman in a college. Both were alcoholics and ganja addicts.

- **Birth history-**

Full term normal delivery at home with average weight.

Case history

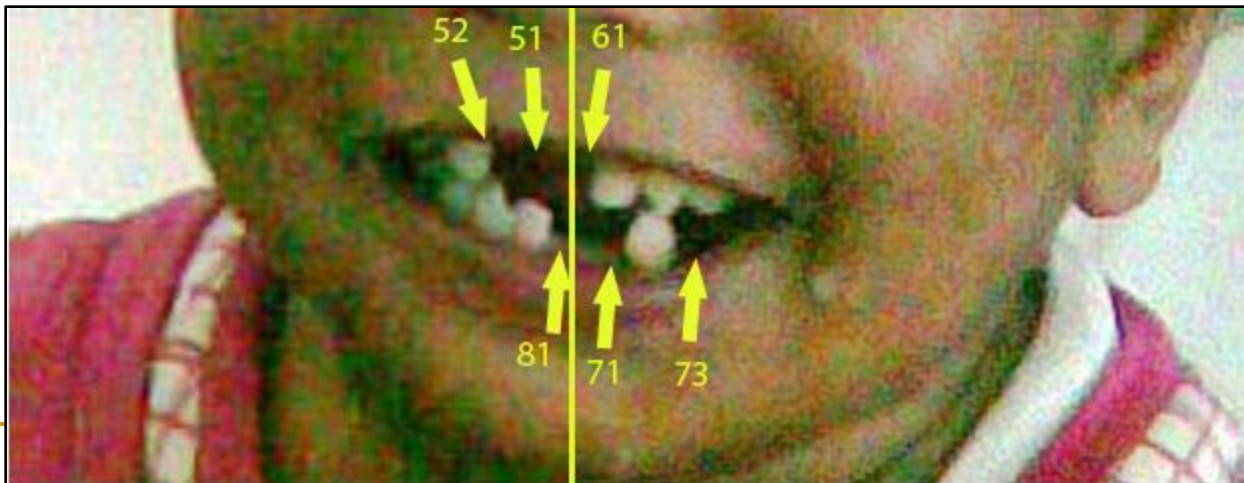
Clinical findings

- Unconsciousness with tonic posture.
- Multiple lesions with brownish black scabs & hypopigmented scars were present over the face and trunk.
- Multiple contusions of various size were present over the left upper limb, right lower limb and reddish blue to bluish black coloured.
- Deformities of right leg and right thumb were present.



Case history

- Frontal bossing
- A bluish contusion of size 2cm x 1cm was present over right frontal region.
- Teeth were fallen and loosen.
- Dental carries were present. Second temporary molars were not appeared.
- Buccal mucosa had a healed ulcer.



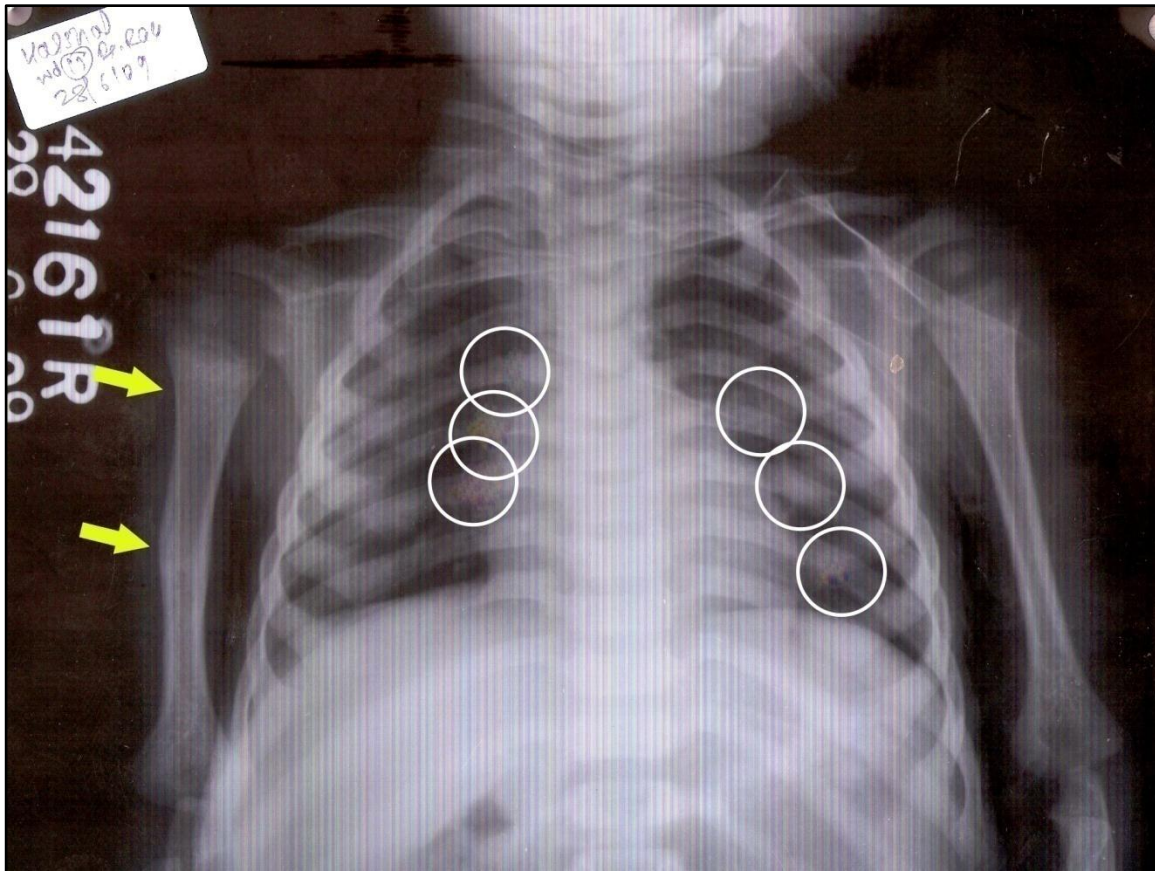
Investigations

1. X-ray skull lateral view –

- No e/o fractures,
- 2nd temporary molar teeth were not erupted .
- Age about 20-30 months



2. X ray chest A.P. view-
- Rachitic rosary
 - Shortening of humerus with splaying and fraying
 - Old healed fracture of shaft of right humerus.





3. X-ray B/L forearm with hand A.P. view-
 - a. Fracture of junction of middle and distal 1/3rd of left ulna.
 - b. Old healed fracture of right ulna.
4. X-ray right hand with wrist A.P. view-Deformity of right thumb

Two carpal bones have appeared, lower ends of radius and ulna not appeared, base of first metacarpals not appeared.

Age- About 2 years

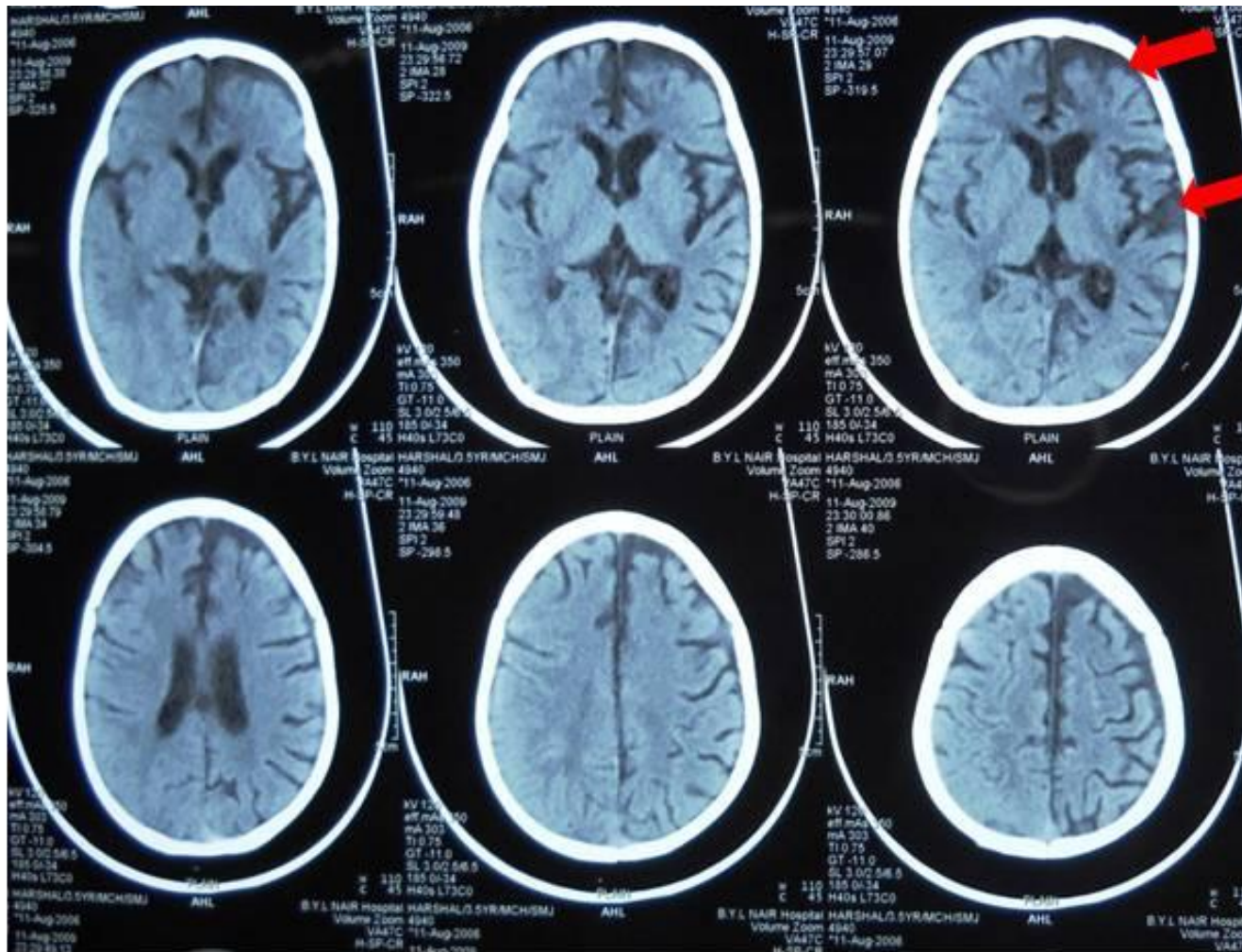


5. X-ray lower limbs- A.P. view-

- Bowing deformity of both femur.
- Old healed fracture of mid shaft of right femur.
- There was displaced transverse fracture of mid shaft of right tibia noted.



- USG abdomen- Normal
- CT brain plain and contrast- Left sided frontoparietal acute subdural hematoma.



DIAGNOSIS-

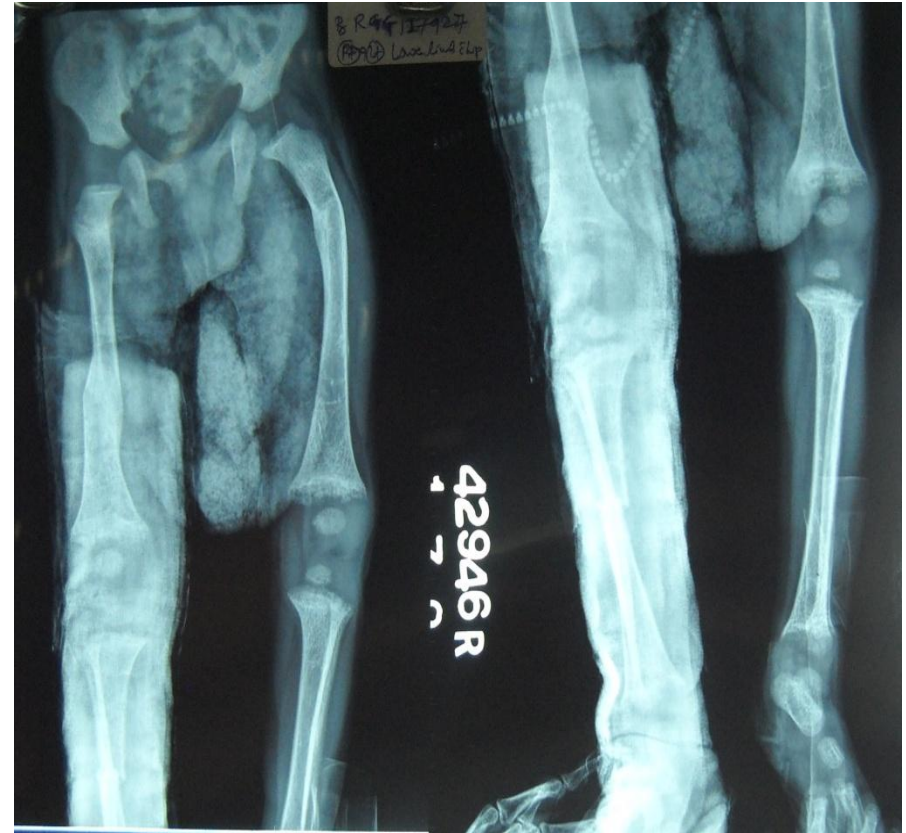
- Battered baby syndrome with left frontoparietal subdural haemorrhage with grade III PEM and rickets.
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Basis of diagnosis—

1. Multiple contusions in different stages of healing.
2. Multiple lesions caused by some irritant.
3. Multiple fractures in different stages of healing.
4. Subdural haematoma.
5. Poor nutritional status and hygiene.
6. Inconsistent history by parents.
7. Delay in seeking medical attention.
8. Other sibling was alright.

Treatment in IPCU

- Antibiotics, analgesics, I.V. fluids, vitamin A and D, calcium supplements were given.
- Orthopedic Mx-POP casts were applied to right lower limb and left upper limb.
- Conservative treatment was advised by Pediatric surgery and Neurosurgery departments.
- Child responded well.



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- The police was intimidated and a case was registered against the parents.
 - Immediately the parents absconded with the child but they were nabbed by the police.
 - The child was subsequently handed over to an NGO by the parents with the intervention of MCPC (Multidisciplinary Child Protection Centre).
 - Age verification was done in our department for schooling and further rehabilitation.
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The rehabilitated child





Discussion

- Present case had all classical features of battered baby syndrome.
 - Forensic expert and multidisciplinary approach has an important role to play in uncovering cases of battered baby syndrome and gathering evidence for prosecution of culprits and rehabilitation of the child.
 - Recent times has witnessed cruelty on children at an alarming rate in India too. Very little is reported about this in Indian literature.
 - Before labeling the case as “Battered Baby Syndrome”, it should be thoroughly investigated and all the possibilities of accidental injuries should be ruled out so as to avoid unnecessary harassment of an innocent.
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- A recent WHO estimate shows that 40 million children in the world, aged 0 – 14 years are abused and neglected. These children require both health and social care.
- This patient required medical treatment, emotional support, proper counseling and protection.
- Proper family rehabilitation and behavior improvement services should be supplied very enthusiastically to fight with this kind of issues. It has been found that poverty and alcohol abuse are two main devils that results in battered baby syndrome.
- We need to take steps to improve socioeconomic conditions to fight against this burning issue.

Thank you...
