

Child abuse-II

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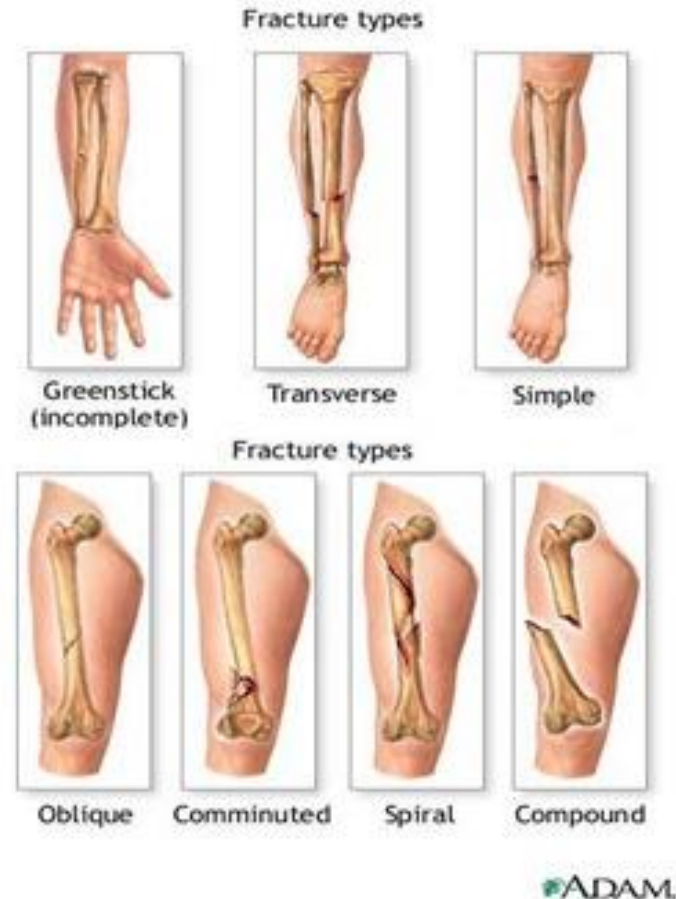
Fractures

- Highly suspicious when seen in infants
- Diagnosis by radiology
- Dating is important
- Need to exclude bone diseases (osteogenesis imperfecta, infantile cortical hyperostosis, congenital syphilis, copper deficiency, Menke's syndrome)



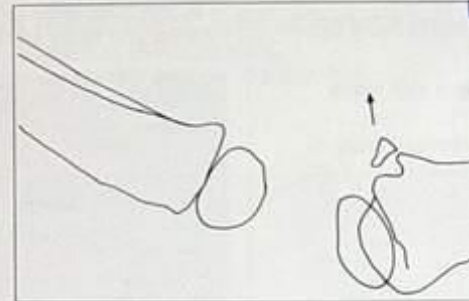
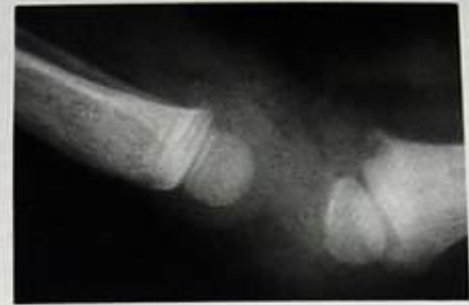
Long bones

- Characteristic distribution and pattern
- Most are indirect (abnormal angulations, torsion or traction)
- Avulsion of the metaphysis or chipping of the edges of the metaphysis (Bucket handle)
- Transverse or spiral fractures of long bones



Metaphysial fracture

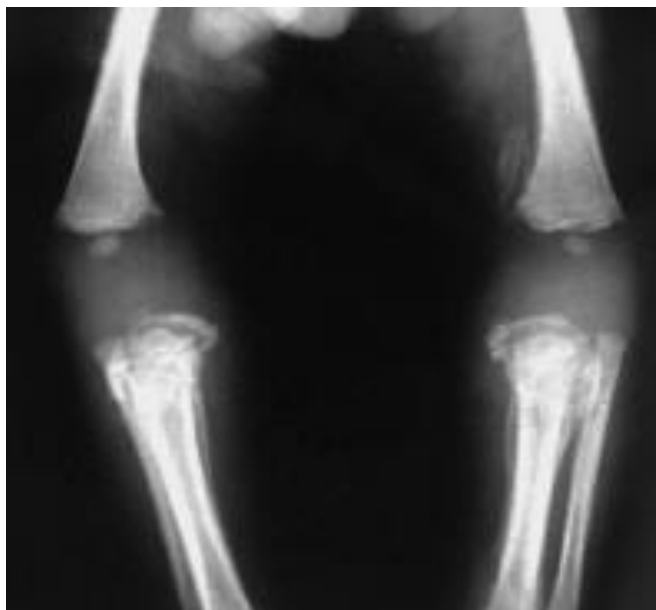
Metaphyseal (corner) fracture of lower end of femur in a child of 15 months who was rising by the legs and hit head against a wall



Distal metaphyseal chip fractures of lower end of tibia and fibula in abused infant

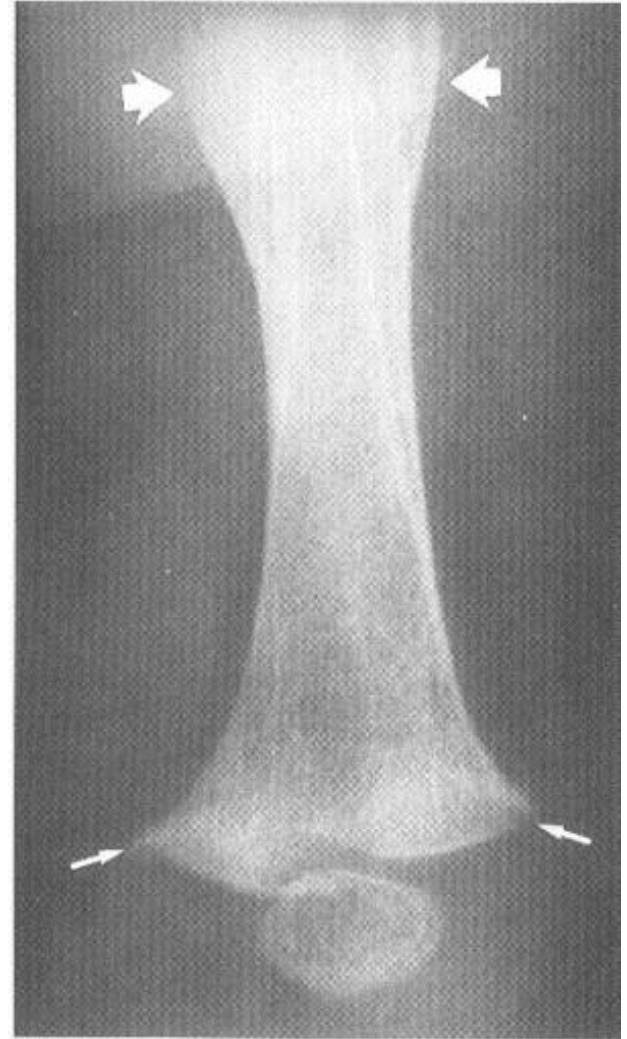


Bucket handle fractures



Long bones cont..

- Fractures of different stages of healing
- Epiphysial dislocation
- Subperiosteal deposition of bone (periosteum is loosely attached lift with shearing or traction)
- Blood accumulate under the raised periosteum and calcify

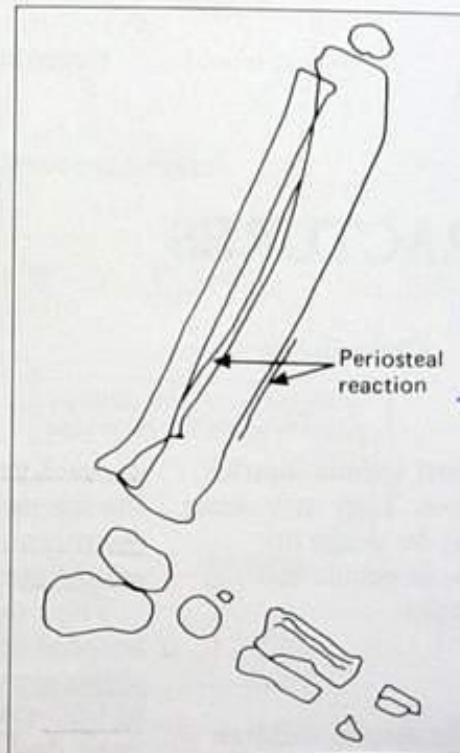


Periosteal new bone formation

Fractures



Distal non-displaced fracture of lower shafts of tibia and fibula in abused child of 6 months, with evidence of



skeleton must be complete. Babygrams (the whole baby in one radiograph) are generally unacceptable. Radiologists have scanning has



Healing fractures



Multiple fractures of
different stages of
healing





Supracondylar fracture of
humerus



MULTIPLE FRACTURES OF LOWER LIMB



Rib fractures (string of beads)

- From violent shaking while holding around chest or from antero-posterior compression
- 90% are in children < 2 years old
- Ribs may fracture in posterior or lateral location (or both)
- Initially not evident radiologically



Rib fractures (string of beads)

- Callus formation enhances detection within 2 weeks
- Appear like a string of beads
- Need to exclude birth trauma and resuscitation related injuries in neonates



Rib fractures

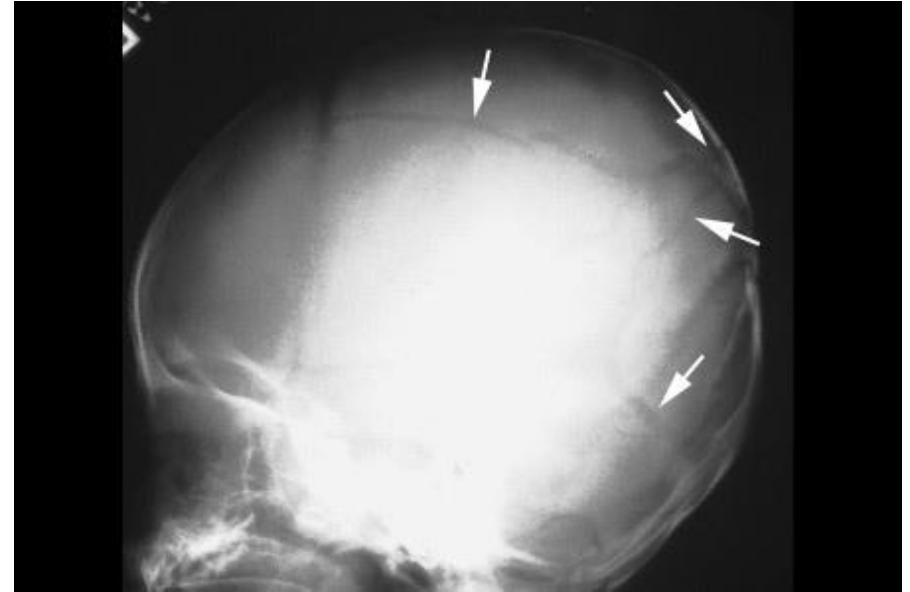


Multiple rib fractures



Skull

- Common in fatal child abuse
- Associated with scalp injury
- Could be single, multiple or depressed
- Commonly in occipito-parietal area due to drops on vertex
- Fracture lines usually ends at sutures
- If crosses there is a lateral displacement



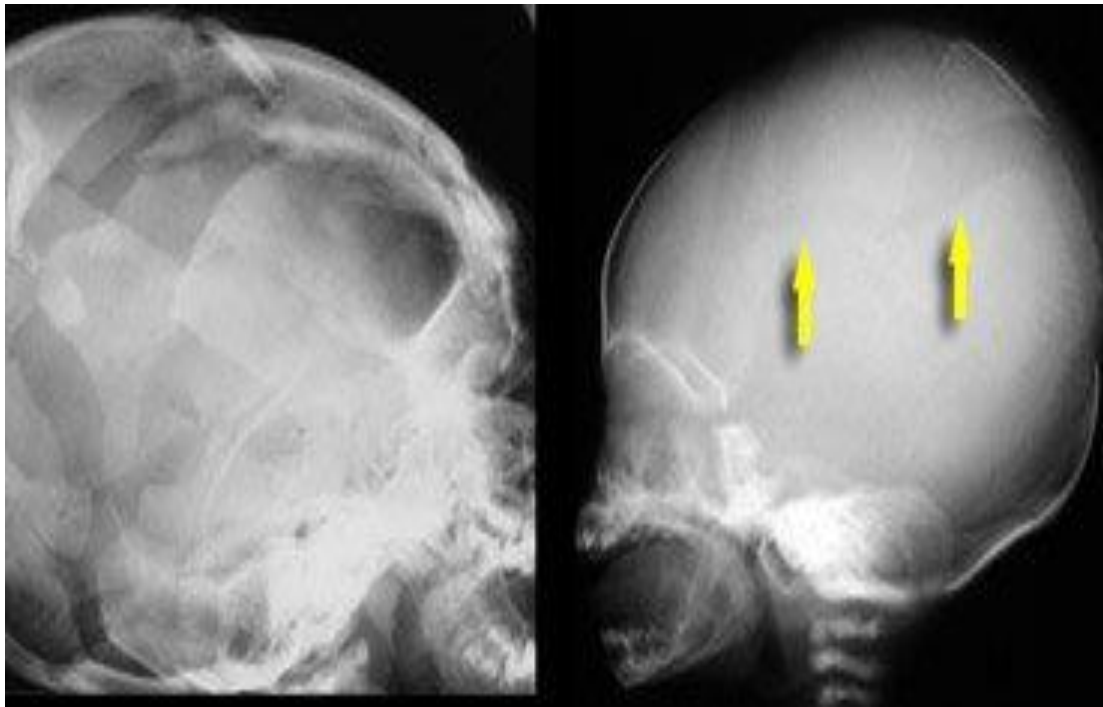
Skull fractures cont..

- Blow /fall on the sides of the head
 - May see horizontal fracture running backwards extending towards to base of the skull.
- Frontal fractures usually rare
- Occipital fractures from falls on back
- Suture 'diastasis' (with or without fractures)
- Growing fractures - due to effects of raised intracranial pressure



Skull fractures

Occipito parietal skull fracture



Suture diastasis



Severe head injuries in a baby or toddler

- Most common form of fatal child abuse

Mechanisms

- Direct blow
- Chronic repetitive injury
- Shaking (Controversial area)
- Short falls



Shaking (controversial)



Injury pattern

- Bleeding on (subdural/subarachnoid hemorrhage) or in brain, usually from a blow or with violent shaking alone
- Subdural haemorrhage is from rupture of bridging vessels
- Swelling (edema) of the brain in the contained space (the skull vault),
- EDH rare



Eye injuries

- Black eye, sclera and conjunctival haemorrhage are often seen
- Direct violence can cause
 - bleeding into vitreous humour,
 - Lens dislocation
 - Retinal detachment
 - Retinal haemorrhage
- Controversy exists over shaking and eye injury



Black eye and sub conjunctival haemorrhage

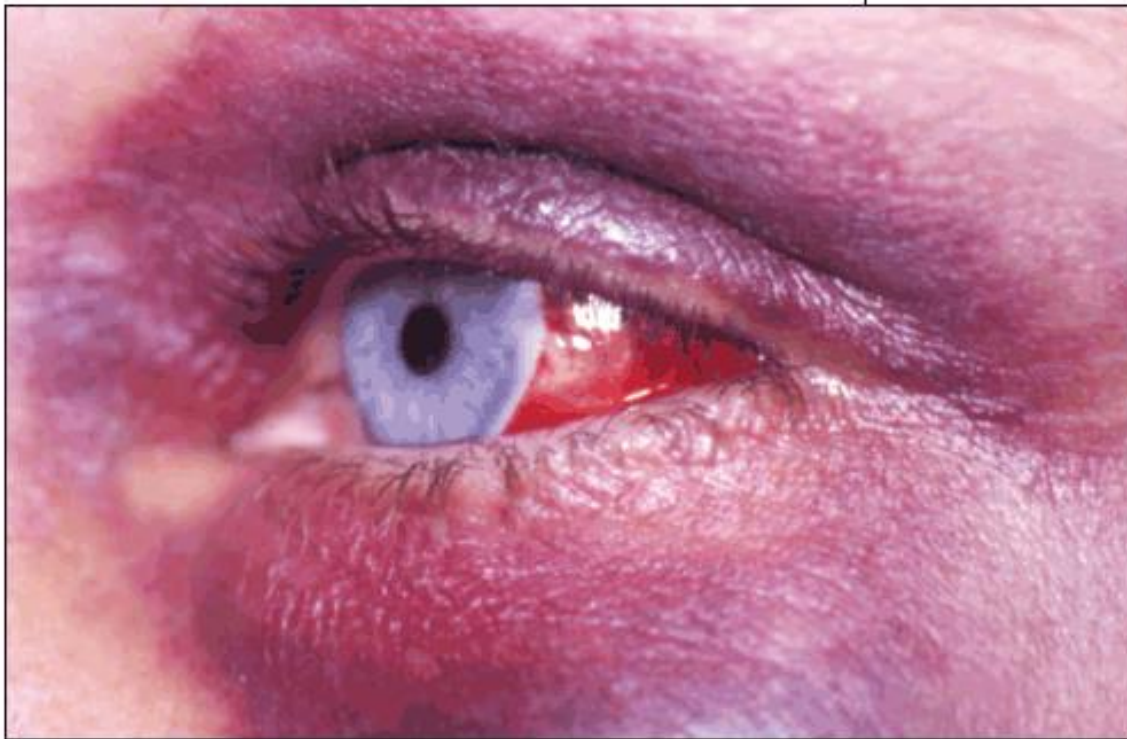


Figure 2 – In addition to her black eyes, a left lateral subconjunctival hemorrhage was evident.



Lip injuries and torn frenulum

- Common and is a characteristic sign of battered child
- Mechanism is by slapping/forceful feeding and forceful closure of the mouth



Internal injuries

- Almost always confined to the abdomen
- Mechanism is direct blows
- The duodenum and the proximal jejunum - most common
- May see hematoma in wall of bowel or seromuscular tears



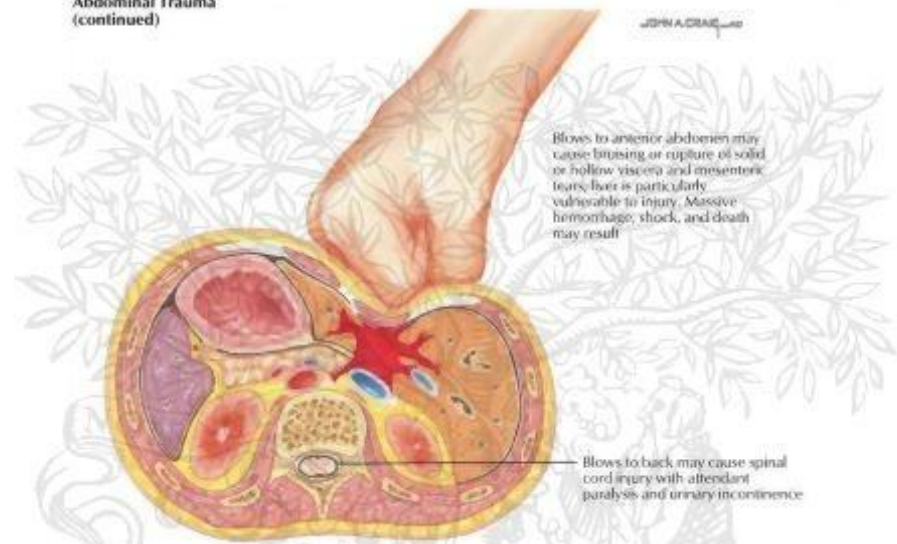
Internal injuries cont..

- Susceptible because of rich vascular supply and the fixation to the retroperitoneum.
- The pancreas, spleen, kidneys, and liver may be injured as a result of direct blows or other blunt trauma.
- Physical abuse is a common cause of traumatic pancreatitis in children.

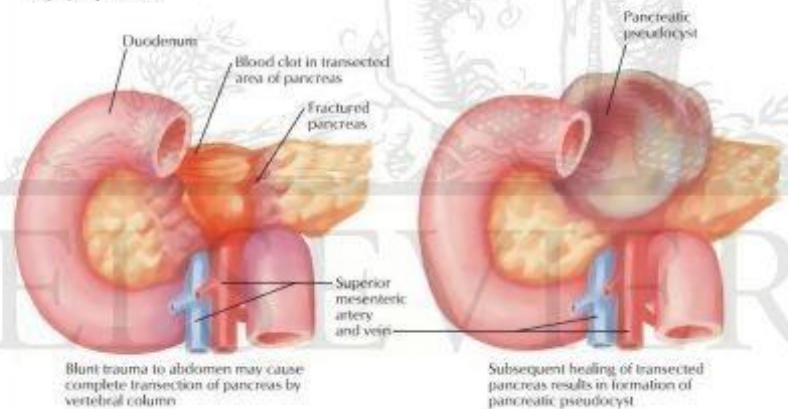


Internal injuries

Abdominal Trauma
(continued)



Injury to pancreas



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Other injuries

- Areas of alopecia with scalp haematomas
- Patterned injury
- In very young tear in the floor of the mouth
- Ligature marks on the penis



Child sexual abuse

- Refers to any use of children for sexual gratification by adults [4].
 - 4. Bamford F, Roberts R, Child sexual abuse in ABC of Child Abuse 3rd edi pp 38
- Characteristic features
 - The abuser male known to the child
 - Children of all ages and either sex
 - Any social class, more commonly in poor families
 - Type may vary



Types of sexual abuse

- Obscene language
- Pornography
- Exposure
- Fondling
- Molesting
- Oral sex
- Intercourse
- Sodomy



Ways of presentation

- Statements of children
- Symptoms due to local trauma / infections
- Emotional symptoms
- Sexualised conduct/inappropriate knowledge
- Pregnancy



Genital injuries

Figure 10: Be careful not to mistake normal for abuse. On left normal is seen with middle picture (close picture of same child) shows redness of hymen

Far right: Lichen sclerosus or atrophicus. Characteristic depigmentation of the labia majora extending to the anus. (Commonly there is wrinkling of the skin of the labia, from atrophy, and sometimes bruising or bleeding.)



Perioral bruising on palate. Always look in mouth for signs of oral sex.

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Swelling of the skin around the anal verge may be seen occasionally after recent abuse and thickening after repeated abuse. The skin of the anal verge may become rounded and smooth. Distinguish from lichen sclerosus et atrophicus, perianal moniliasis, and scratching by children infected with threadworms. Skin changes by themselves are not sufficient to lead to investigation of abuse.

Perineal bruising or bleeding without reasonable explanation raises substantial suspicion. It must be distinguished from haemangiomas and dilated vessels. Veins may be dilated in association with bowel disorder.



Injuries of penile penetration

CLASSIC INJURY OF ATTEMPTED PENILE PENETRATION

Right: Hematoma of hymen
and split of posterior
fourchette

Far right: Recently torn
hymen in teenage girl.
Hymen usually tears in
posterior half →

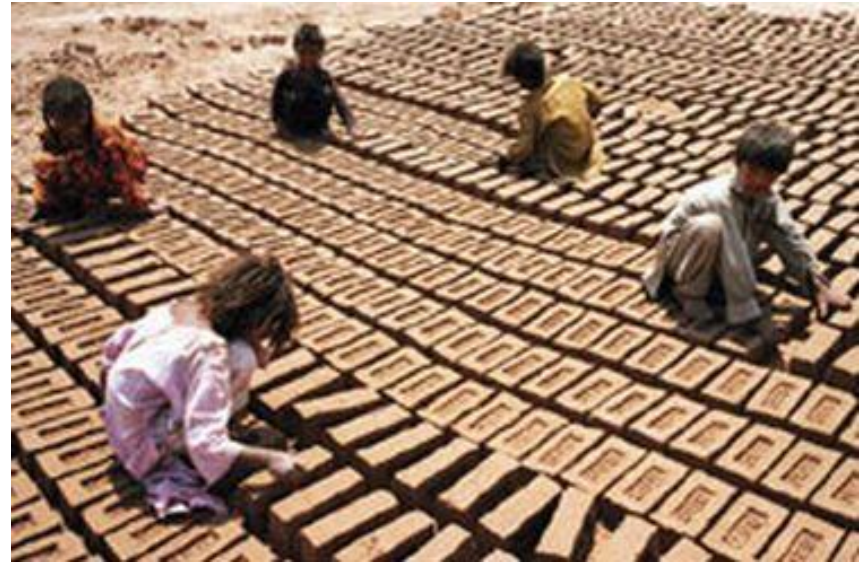


Anal abuse



Child labour

- If a child less than 14 years is used to earn money it is child labour.



Child labour



Child labour



Neglect

- Deprivation of care or attention to the child by their parent or guardian is neglect



Marked decrease in subcutaneous tissue



- Same child after proper care and nourishment

Munchausen's syndrome by proxy

- Perpetrator fabricates an illness in a child
- Repeated visits to doctor
- Aetiology is denied by perpetrator
- Unnecessary investigations and treatment to child
- Symptoms and signs disappear when the child is separated



Common presentations

- Bleeding
- Seizures
- Apnoea
- Failure to thrive
- Diarrhoea
- Vomiting
- Fever
- Rashes/allergy



Fatal child abuse

- Up to 10% risk of death of the child if not intervened
- Therefore it is vital to recognize non fatal child abuse.



Causes of death

- Blunt force trauma commonly head injury (hitting, beating, shaking, throwing, dropping)
 - Commonly result in head injury
 - Secondly rupture of abdominal viscus
- Suffocation
- Burning
- May see classic homicides (shooting, stabbing, strangling)

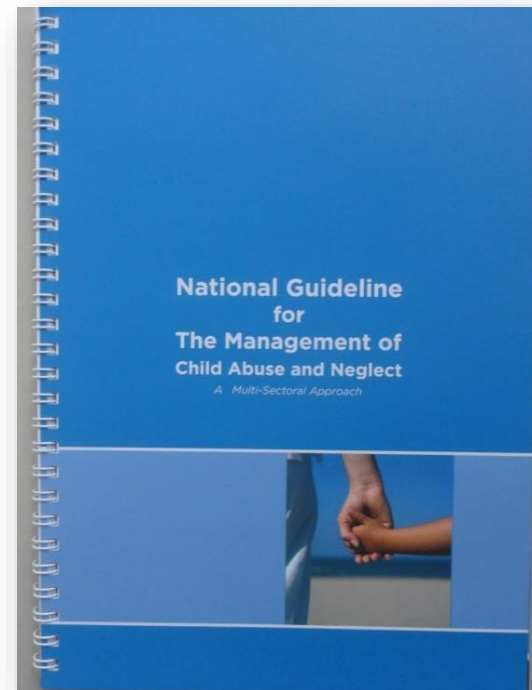
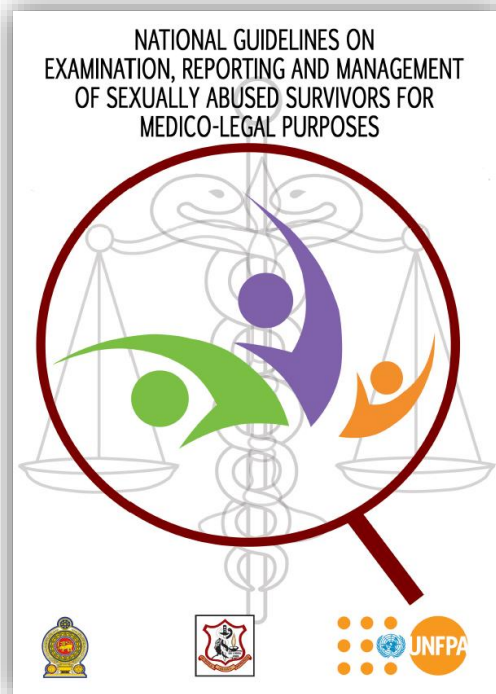


Investigation of a case of child abuse

- History –
 - Delayed presentation
 - Inconsistent
 - Recurrent odd complaints
 - Video evidence is preferred to prevent the secondary victimization.



National Guidelines were prepaid by professional Colleges with partnership of the Ministry of Health



Clinical case conference

- Initial presentation of the child may be to
 - Paediatrician
 - Psychiatrist
 - JMO
 - Gynecologist
- Once diagnosed possible child abuse
- Organize a clinical case conference to
 - Share the information
 - To stop re-victimization
 -



Investigation of a case of child abuse cont..

- Visit to the scene
- Clothing
- Preliminaries-



Investigation of a case of child abuse cont..

- External examination
 - General
 - Demeanour
 - Height
 - Weight
 - Nourishment
 - Cleanliness
 - Specific (injuries and scars)
- Review in 7-10 days



Investigation of a case of child abuse cont..

- Internal examination (for fatal child abuse)
- Special investigations
 - I. Radiology
 - Skeletal survey
 - CT scan
 - MRI scan
 - US scan
 - Contrast medium radiology
 - Radio- nucleotide imaging (early detection of skeletal trauma)
 - Scintigraphy radioisotope bone study



Special investigations cont...

2. Toxicology

3. Haematology (to exclude natural pathology)

4. Histology (eye, chronic SDH, age of injuries in fatal child abuse)



Investigation of a case of child abuse cont..

- Referrals
- Opinion
- Institutional case conference



Conditions to be excluded

- Accidental trauma
- Birth trauma
- Resuscitation artifacts
- Bleeding disorders
- Bony diseases
- Innocent scars
- Dermatological conditions
- Self inflicted injuries (Bite marks)



Erythema multiforme



Referrals

- Paediatrician
- Physician/ surgeon
- Obstetrician
- Psychiatrist
- Eye/ENT surgeon
- All X rays to be reported by a consultant radiologist



Institutional case conference

- **multidisciplinary** forum
- **sharing of information,**
- for discussion,
- and for making **recommendations** to social services departments,
- which are ultimately responsible for the **welfare of the child** under discussion.



Aimed at

- Diagnosis
- Assess the extent
- Management (social and psychological)
- Decide where the child should go
- Monitoring after discharge
- Rehabilitation
- Counselling of the perpetrator



Participants of the case conference

- Probation officer
- Police officer from the area
- A member from the child protection authority
- Paediatrician
- JMO
- Psychiatrist
- Parents or guardian



Difficulties in investigation

- **History**
 - Child is too little
 - Under the care of the abuser
 - Not remember the incident
 - Child may think that he was abused because he was “naughty”
 - May not divulge the information to strangers
 - May not brought at all (tip of the iceberg)
 - Unawareness of the primary care doctors



Examination - difficulties

- Has to take the consent
- Delayed presentation
- Child may not allow strangers to touch
- Conditions mimicking child abuse



Investigations- difficulties

- Unavailability
- Problems of interpretation (unawareness)
- Delayed presentation affects the results



Trial- difficulties

- Delay
- Child may be suppressed by the court procedures and cross questioning
- Embarrassment



Summary

- Internal injuries in child abuse except head injury are usually confined to abdomen.
- Duodenum, jejunum and pancreas are commonly affected internal organs
- Child sexual abuse is common but presentation is less.
- Commonest form of fatal child abuse is blunt head injury



Summary cont...

- Investigation of a case of child abuse carried out in many steps.
- Case conference is an important step in management of victims of child abuse.
- There are inherent difficulties associated with investigation of child abuse.



