MAN’S BEST FRIEND OR A FOUR LEGGED DANGER?
DOG BITES IN PEDIATRICS

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Overview of epidemiology and pathophysiology of dog bites
Discuss developmental characteristics of young children that places them at risk of dog bites
Address ABCDE and emergency department care through two case reviews
Discuss prevention strategies
CASE STUDY 1

- 6 ½ year old boy from Nunavik, transferred following an attack by Huskies, suffering from severe facial trauma.
CASE STUDY 2

- 7 months old boy transferred from rural hospital after the grand mother’s Labrador attacked the baby.
Dof bites in pediatrics
INTRODUCTION

- Mammalian bites in the ED at the MCH
  + Dog = 85 cases / year
  + Horses = 30 cases / year
  + Cats = 15 cases / year
- Dog’s jaw can exert forces of 200 to 450 lbs/square inch $^7, 8$
- Dog bites results in pain, disfigurement, time lost from school, fear and anxiety (temporary or longterm) $^4$
EPIDEMIOLOGY

- Majority children are aged 5-9 years old (Canada = 28.5 %, USA = 40 %) \(^1,^2\)
  - followed by 1-4 years old age group

- Majority are males \(^1,^2,^5\)
  - Canada = 57.9 %, USA = 51.8 %

- At home (34.2 %) or at the neighbour’s home (30.3 %) \(^1\)
  - Dog’s owner familiar to the victim (35.1 %)\(^1,^3,^5,^7\)
Injury most often occurs between 16h00 – 20h00 and during the summer months ¹, ², ⁵

Injuries involved mostly the face, the head and the neck ¹, ², ³, ⁴, ⁵

Majority of patients discharged home ¹, ²
PATHOPHYSIOLOGY

- Abrasion
- Puncture
- Laceration (deep or superficial)
- Crush injury
  - Facial bone fractures, extremity fractures
- Tissue avulsion
- Infection
- Psychological trauma

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DEVELOPMENTAL CHARACTERISTICS OF THE YOUNG CHILD

- Small stature
- Under developed motor skills
- Child will bring their face in a distance perceived as threatening by dog
- Head is a convenient target
- Small children may stimulate a prey
CASE STUDY 1

- 6 ½ year old Inuit boy transferred with severe facial lacerations and tissue avulsion to the left face.
- He kept complaining of right arm pain.
Alert, responds to voice, c/o pain to arm

No increased work of breathing, able to speak

Pale & waxy white skin, CR > 2 sec
CASE STUDY 1 - AB

- **Airway:**
  - Patent or not patent?
  - Is the patient protecting his airway?

- **Breathing:**
  - Do you NEED to intubate?

Can you bag-valve mask this patient?
CASE STUDY 1 - C

- Circulation:
  + Bolus NS 20mL/Kg
  + Bolus blood

- Disability
  + GCS 14

- Exposure
  + Prevent heat loss

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CASE STUDY 1 – CARE IN THE ED

- Stabilise & monitor ABCD
- Pain control
  - Manage curiosity
- Wound care
  - Irrigate with copious amounts of NS\textsuperscript{6, 7, 10}
- Save the eye – keep moist
  - NS gauze and tegaderm or Lacrilube and tegaderm
CASE STUDY 1 -

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Dof bites in pediatrics
CASE STUDY 1 -

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Dof bites in pediatrics

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CASE STUDY 1 – CONSULTANTS

- Anesthesia – airway difficulties
- ENT – need for tracheostomy?
- Plastics – Treatment of injuries and facial repair
- Ophtalmology – LT eye care
CASE STUDY 2

- 7 month old boy attacked by grandmother’s dog. At rural hospital, hematoma was noted on exam and x-rays revealed skull fractures.
CASE STUDY 2 - PAT

- Interacting with the environment, playful
- No work of breathing

Pink, CR < 2 secs
CASE STUDY 2 – PRIMARY ASSESSMENT

- Airway - patent
- Breathing –
  + RR 32, O2Sat 100% r/a
- Circulation –
  + HR 160, CR < 2sec, strong peripheral pulses
- Disability –
  + GCS 14, pupils PERLA
- Exposure
CASE STUDY 2 - SECONDARY ASSESSMENT

- Rt parietal region –
  + 1 laceration (2 cm)
  + 2 puncture wounds

- Rt occipital region -
  + 1 laceration (1 cm)
  + 2 puncture wounds
CASE STUDY 2 - CARE IN THE ED

- Stabilise ABCD
  - monitor for signs of bleeding
  - monitor Neurological status
- Pain control
- Family presence and support
- Antibiotic treatment
CASE STUDY 2 – TERTIARY ASSESSMENT

- Skull x-rays
  - Depressed skull fracture

- CT
  - Lt occipital fracture
  - Rt posterior depressed skull fracture
  - Pneumocephalus and small hemorrhagic contusion
CASE STUDY 2 – TERTIARY ASSESSMENT

Right posterior parietal depressed fracture

MRI of hemorrhagic contusion
PSYCHO SOCIAL FOLLOW-UP

- Child psychosocial intervention:
  - Animal therapy
  - Family presence

- Family interventions:
  - Feelings of guilt
  - ASD in parents related to their perception of the acuity of the injury and the child’s pain\textsuperscript{11, 12}
PREVENTION

- Adult supervision is key
- Teach children aged 4-6 to approach dogs appropriately
  - Don’t approach when asleep, eating, or in a crate
  - Show fist first, no eye contact with the animal
  - Stand still, don’t run away
- Designate an area where the dog is not to be disturbed
CONCLUSION

- Children are at greater risk of dog related injury
- Threats to the ABCDE should not be ignored
- Stabilize & anticipate
- Pain control is a priority
- Ensure parental psychosocial support and presence
TAKE HOME POINTS

✗ ABCDE
✗ Do not get distracted by the extend of the physical injury
✗ Irrigate, irrigate, irrigate
✗ Pain control
THANK YOU!
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REFERENCES


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