Suspected Abusive Head Trauma: Initial Management



Evidence Based Practice

Findings Concerning for Abusive Head Trauma

- Retinal hemorrhages
- Traumatic retinoschisis
- Subdural hematoma with or without skull fracture
- Unexplained intracranial injury
- Unexplained scalp injury or skull fracture
- · Cerebral ischemia on neuroimaging

Exclusion criteria:

- Injury due to motor vehicle or bike accident
- Non-abusive injury witnessed by multiple people
- · Known injury occurring at birth

Additional Medical Evaluation

(Based on SCAN recommendations; usually requires admission)

Laboratory Testing

- Obtain CBC, PT, PTT
- Obtain factor VIII level and factor IX level
- Obtain fibrinogen and D-dimer, if there is history of neurologic compromise
- Review newborn screen

Radiologic Testing

- Obtain MRI/MRV of head and total spine
- Discuss need for sedation/anesthesia with radiology (avoid sedation if possible)

Ophthalmologic Exam

- Place Ophthalmology consult for a dilated exam
- Discuss timing of exam with admitting team, as dilation can impact neurologic exams

Reference

Anderst, J., et al. (2022). Evaluation for bleeding disorders in suspected child abuse. *Pediatrics, 150*(4), e2022059276.

https://doi.org/10.1542/peds.2022-059276

When a Report is Needed

- A social worker will complete a PAR to document a psychosocial assessment if concern for potential abuse. A PAR is initiated whenever abuse is under consideration. A PAR does not mean a child protective services report will be made
- If a mandated reporter believes in good faith there is a reasonable cause to suspect abuse, a hotline report must be made without unnecessary delay to the appropriate state agency and/or law enforcement.

Patient undergoing medical evaluation following head CT for suspected abusive head trauma (AHT)

Initial Steps

- Stabilize as needed prior to further evaluation
- If not at Adele Hall, transfer to CMKC Adele Hall ED
- Children with abusive head trauma may have other injuries; therefore, review the <u>Child Physical Abuse</u> <u>Clinical Pathway</u> and utilize associated Power Plans before continuing

Does the
CT head show an intracranial injury?

Yes

Consult

- Consult Neurosurgery
- Consult Trauma
- Consult Social Work
- Consult SCAN

Review

Review results with SCAN Physician.

Additional evaluation may be indicated,
based on SCAN recommendations

Update Social Work and request assistance with On-Site Safety Precautions (1:1 observation and/or visitor restrictions, refer to Abuse/Neglect Process Flowchart_for details)

Communicate

- Clearly communicate process with families
- Provider and Social Work Education
- Ensure closed loop communication with all teams involved

Collaborate with Social Work and determine if a report to child protective services and/or law enforcement is needed

Admit to Trauma Surgery, unless otherwise directed by Trauma

Inpatient Management



OR code for mobile view

Off Pathway.

A normal CT or CT with skull fracture alone **does not** rule out intracranial injury

- If ongoing concern for AHT, consult SCAN Physician to discuss additional work-up
- If other ongoing neurological concerns, consider differential diagnosis and consult Neurology to discuss additional work-up
- Refer back to <u>Child Physical Abuse Clinical</u> <u>Pathway</u> as needed

Differential Diagnosis

- Accidental head trauma
- Accidental toxic ingestion
- Birth trauma
- Congenital condition (e.g., glutaric aciduria type 1, Menkes disease)
- Neoplastic condition
- Seizures/epilepsy
- Meningitis/encephalitis
- Focal intracranial infection, refer to <u>Focal</u> <u>Intracranial Infection Clinical Pathway</u>
- Stroke, refer to <u>Stroke Clinical Pathway</u>
- Obstructive hydrocephalus
- Bleeding disorder
- Vascular abnormalities (e.g., aneurysm, hereditary hemorrhagic telangiectasia)

This list is not all inclusive of possible differential diagnoses

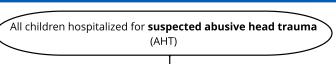
Provider and Social Work Education Videos

Conversations about suspected child abuse can be challenging. These 5-minute videos demonstrate effective communication with families.

Available to Children's Mercy providers and social workers through the <u>Child Abuse Toolkit</u>

Abbreviations:

PAR = Patient At Risk Assessment PICU = Pediatric Intensive Care Unit SCAN = Safety, Care, and Nurturing





Triage and Acute ICU care, (e.g. fluids & electrolytes, ICP management, EEG monitoring) are outside the scope of this pathway. Follow unit specific protocols to stabilize the child and medically manage the traumatic and/or anoxic brain injury.

For Children's Mercy ICU providers, refer to internal "Severe Traumatic Brain Injury Guideline."

Additional Inpatient Management Based on Severity of Injury

When transferring between teams (Intensive Care, Neurosurgery, Gen Peds, Rehabilitation) communicate about pending/incomplete action items

Injury Severity based on post-resuscitation Glasgow Coma Scale (GCS)

	Mild (13-15)	Moderate (9 -12)	Severe (<u><</u> 8)
Consults Fiming can vary based on the child's needs. Some consults may take place in ICU vs Med/Surg	 Trauma SCAN Social Work Ophthalmology Neuropsychology Service Endocrinology On case-by-case basis: Rehabilitation Medicine Physical Therapy Occupational Therapy Speech Therapy Neurology Neurosurgery 	Trauma SCAN Social Work Neurosurgery Ophthalmology Rehabilitation Medicine Neuropsychology Service Endocrinology On case-by-case basis: Neurology Physical Therapy Occupational Therapy Speech Therapy	 Trauma SCAN Social Work Neurosurgery Ophthalmology Neurology Rehabilitation Medicine Neuropsychology Service Endocrinology Physical Therapy Occupational Therapy Speech Therapy Audiology (most appropriate at end of stay) On case-by-case basis: Palliative Care Team
Seizure prophylaxis and monitoring	Mild/Moderate If concern for clinical or subclinical seizure, contact Neurology to consider long-term EEG and/or antiepileptic medications		 Severe EEG monitoring for at least 24 hrs Levetiracetam for minimum of 7 days. If ther are no seizures in 7 days, may discontinue. Additional recommendations per Neurology
Endocrine evaluation	• BMP • Cortisol (8 am), ACTH (8 am), IGF - 1, prolactin • TSH, T4 • If urine output is > 5 cc/kg/hour over 3 - 4 hours, obtain: serum sodium, serum osmolality, urine sodium, urine specific gravity, urine osmolality		
Additional work-up for	Await SCAN consult recommendations		

Abbreviations:

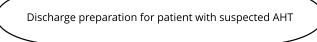
DI = Diabetes insipidus ICP = Intracranial pressure SCAN = Safety, Care, and Nurturing SIADH = Syndrome of Inappropriate Antidiuretic Hormone Discharge Preparation

Contact: EvidenceBasedPractice @cmh.edu

Link to: synopsis and references

Last Updated: 11.22.2024





Schedule Follow-Up Visits and Prepare Referrals

Discuss with Care Management several days in advance of discharge, if possible

Follow-Up

All Patients:

- SCAN Clinic in 2 3 weeks with repeat skeletal survey obtained at that time
- Primary Care Provider (recommend contacting the PCP directly to provide update), establish new primary care provider if needed
- Identify who will manage nutritional status and schedule follow-up accordingly (e.g., Feeding Clinic)

As Recommended By Consultants or Based on Indications Below:

- Ophthalmology Clinic
- Neurosurgery Clinic
- Neurology Clinic, if the patient has had seizures
- Rehabilitation Clinic, if there are acute rehabilitation needs (tone management, neuroirritability, and/or weakness) or if appropriate for Hammersmith Infant Neurological Examination (i.e., neuroimaging concerning for eventual developmental delay and cerebral palsy)
- Developmental Pediatrics, if neither Neurology Clinic or Rehabilitation Clinic follow-up is indicated
- Endocrine Clinic

Referrals

- Early Intervention or Early Childhood, for children who are < 3 years of age with head injury
- Kansas: Infant/Toddler Services
- Missouri: First Steps
- Children's Center for the Visually Impaired for functional vision evaluation and connection with vision resources, if eye/vision findings identified
- Outpatient/Home Health Therapy Services (PT, OT, SLP), if recommended by inpatient therapist or provider
- Nutrition Services

Prepare Caregiver for Discharge

Once placement determined by Child Protective Services:

- Recommend Discharge Planning Family Meeting to ensure clear communication with caregiver(s) assuming care at discharge
- Consider parent/caregiver care stay ("PCU")
- Provide "AHT Diagnosis and Follow-Up Information" handout (found in Depart)

Abbreviations:

AHT = Abusive Head Trauma
OT = Occupational Therapy

OT = Physical Thorapy

PT = Physical Therapy

SCAN = Safety, Care, and Nurturing SLP = Speech Language Pathologist

Contact: EvidenceBasedPractice @cmh.edu

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at which should be applied based upon the