

Children With Musculoskeletal Condition

Chapter 24

Musculoskeletal System

- Supports body and provides for movement.
- Gait – toe walking after 3 yrs can indicate a muscle problem.
- Genu Varum – bowlegged.
- Genu Valgum – knock knee – seen after 5 yrs.
- Diagnostic Tests – bone scan, CT, MRI, and US.
- Lab Tests – CBC, and Sed Rate.

Musculoskeletal Condition

- Contusion
 - Tear in SQ tissue.
- Hematoma
 - Bld escapes into soft tissue.

Treatment OF Soft Tissues

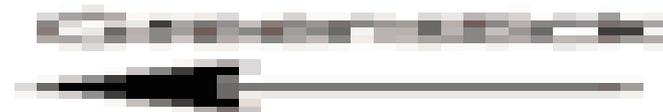
- Treated immed
- Cold pack – 30 min
- Elevate
- Neurovascular Check

Traumatic Fractures

- Break in a bone mostly by accidents.
- Tenderness on movement.
- Swelling
- Discoloration
- Limited Movement
- Numbness

Types Of Fractures

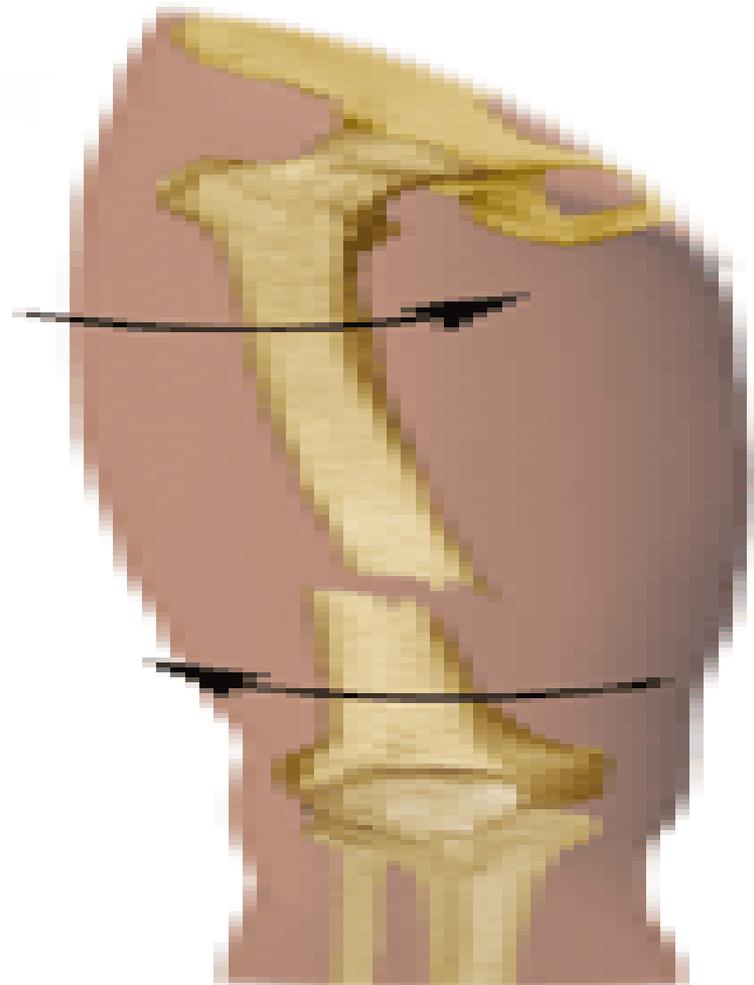
- Simple – bone is broken, skin is not.
- Compound – skin accompanies broken bone – added danger of infection.
- Greenstick – incomplete fx - one side of bone is broken and other is bent. Found commonly in children.
- Fracture with children will not affect bone growth.





Fx Of Femur In Early Childhood

- Largest and strongest bone of body.
- Spiral Fx – forceful twisting motion.
 - Child abuse may be suspected if history does not correlate with X ray.



Superior

Fx and Traction In The Older Child

- Used when cast cannot maintain alignment of two bone fragments.
- Traction aligns injured bone by use of weights and countertraction.
- Immobilization is maintained until bones are fused.

Buck's Traction

- Used for fx of femur and hip and knee contractures.
- Countertraction is applied, hip and leg is pulled into extension.
- Bed is placed in fowler's position.
- Buttocks slightly off bed for countertraction. May need to put jacket restrain on.

Russell's Traction

- Sling is positioned under knee, which suspends distal thigh above bed.
- Need to do neurovascular check.
- Any discoloration indicates a decrease in circulation.
- Ex. Pg. 575.

Bryant's Traction

- Used for treatment of fx of femur in children under 2 yr or 20 to 30 lbs.
- Bathe child daily.
- Sheepskin may be applied to bed.
- Sheets must be tight without any food in bed.
- Increase fluids to prevent constipation.
- Breathing exercises encouraged.
- Crib may be taken to playroom.

Nursing Implications With Bryant's Traction

- Observe ropes.
- Legs should be at right angles to body and buttocks and clear off bed.
- Elastic bandage checked.
- Cont traction is necessary.
- Weights are not supported or lifted when bed is moved.
- Neuro check
- Volkmann's Ischemia – complication when circulation is obstructed due to leg being elevated.
- Ex. Pg 572.

Other Types Of Traction

- Split Traction
- Thomas Traction
- Skeletal Traction – Steinmann pin or Kirschner wire is attached into bone and traction is applied to pin.
- Boot cast or sling on lower leg may be used.
- Adds risk of infection from skin bacteria.

Circulatory Checks

- Neuro checks – any tx.
- Pain – compartment syndrome – ischemia to an extremity caused by pressure on tissue from excessive edema.
- Circulation – any compromised.
- Fasciotomy – surgical procedure to reduce pressure and increase tissue perfusion.
- Pulse – compare affected with unaffected.
- Sensation – numbness and tingling.
- Color – arterial insuff, cyanosis, - indicate venous stasis.

Osteomyelitis

- Infection of bone.
- Seen in children 1 yr and between 5 and 14 yrs.
- 70 to 80 % - staph.
- Infants – heel stick site or scalp vein monitor.

Osteomyelitis

- S/S
 - Pus under periosteum of bone which will cause necrosis of that part of bone.
 - Pain – purulent drainage in bone marrow.
 - Infant's – infection can travel to joint space and can lead to septic arthritis.
 - Difficulty walking or unable to stand or walk.
 - Inflammation is local.
 - Blood cultures
 - Urine test – bacterial agents.
 - Tissue biopsy
 - Elevated WBC and sed rate
 - Bone scan

Osteomyelitis

- Treatment
 - IV antibiotics – 4 to 6 wks.
 - Arthroscope – drain pus and relieve pressure.
 - Pain meds.
 - Handle joint carefully.
 - Cast or splint – neuro check.
 - No wt bearing.

Duchenne's Muscular Dystrophy

- Childhood type of MS.
- Sex linked inherited disorder in boys.
 - S/S
 - Seen in children 2 to 6 yr.
 - Muscles become hypertropied.
 - Progressive weakness, freq falling, and clumsiness.
 - Increased creatinine phosphokinase.
 - Delayed motor dev from infancy.

Duchenne's Muscular Dystrophy

- Treatment
 - Muscle biopsy
 - Myelogram – electrical stimulation of muscle that's shows muscle contraction. Will have decrease of motor function.
 - Prevent complications.
 - Maintain quality of life.
 - Support team.

Legg –Calve – Pertes Disease (Coxa Plana)

- Blood supply to epiphysis or end of bone is disrupted.
- Affects dev of head of femur.
- Boys 5 to 12 yrs.

Legg – Calf – Pertes disease

- S/S
 - Painless limp.
 - Limited motion.
 - X- ray and bone scan for diagnosis.
 - Buck's traction- to skin, may see ace wrap or leg taped .Watch for skin irritation.

Legg – Calve – Pertes Disease

- Treatment
 - Heals spontaneously.
 - Keep femoral head deep in hip socket while it heals and avoid wt bearing.
 - Placed in brace or cast.
 - Bedrest and traction.
 - May require hip replacement as adults.
 - May develop arthritis as an adult.

Osteosarcoma

- Malignant tumor of long bones.
- Age 10 to 15 yrs.
- Higher incidence if child had radiation for other cancer.
- Mets fast due to high vascularity of bone tissue.
- Lungs primary site.
- Can also be seen in brain and other bone tissue.

Osteosarcoma

- Pain and swelling.
- Mistaken for growth spurts.
- Confirmed by biopsy.
- CT and bone scan .

Osteosarcoma

- Treatment
 - Radical resection or amputation.
 - Long term survival with early diagnosis and treatment.
 - Problems with body image.
 - Family support – anger and fear.
 - Grief
 - Stump Dressing
 - Observe for bleeding.
 - Phantom pain – nerve cont to report pain.
 - Rehab



Ewing's Sarcoma

- Malignant growth in marrow of long bones.
- Older school age and early adolescents.
- Without mets, 60% survival rate.
- With Mets, poor prognosis.
- Sites for mets – bone and lungs.

Ewing's Sarcoma

- Treatment
 - Amputation is not recommended because tumor is sensitive to radiation and chemo.
 - No wt bearing – chance of pathological fx.
 - Parents made aware of effect of chemo and radiation.

Juvenile Arthritis

- Systemic inflammation of joints, connective tissue, and viscera.
- Cause – unknown but may be due to infection or autoimmune disease.

Juvenile Arthritis

- Types
 - Systemic – acute febrile. Fever 103 for 10 days.
 - Polyarticular – five or more joints, such as hands and feet. Affects girls.
 - Pauciarticular – four or few joints. Larger ones such as hips, knees, and ankles.

Juvenile Arthritis

- Symptoms
 - Redness
 - Pain
 - Photophobia
 - Decreased visual acuity

Juvenile Arthritis

- Treatment
 - Reduce joint pain and edema.
 - Promote mobility and joint function.
 - Promote growth and dev.
 - Promote independent functioning.
 - Help families deal with illness.
 - Meds

Juvenile Arthritis

- Nursing Care
 - Medications
 - Warm baths
 - Warm heat packs upon awakening
 - Joint exercises
 - Rest
 - ROM
 - Play activity

Juvenile Arthritis

- Home Care
 - Firm mattress
 - Regular eye exam
 - No wt gain
 - Swimming
 - Remission and exacerbations

Torticollis

- Shortening of sternocleidomastoid muscles.
- Associate with breech births and forcep deliveries.



Torticollis

- S/S
 - Present at birth.
 - Holds head to side of muscle involved.
 - Chin tilted to opposite direction.
 - If persist past 2, surgery required.

Scoliosis

- S shape curvature of spine.
- More common in girls during adolescence.
- Poor posture.
- Untreated, can have back pain, fatigue, disability, and cardiac and lung complications.



Scoliosis

- Causes
 - Poor posture.
 - Easily correctable.

Neuromuscular

- Muscle weakness or imbalance.
- MS, cerebral palsy.

Neuromuscular

- Treatment
 - Correction of spine.
 - Milwaukee Brace – 20 to 40 degree curve.
 - Worn 23 hrs, over a T shirt.
 - TENS

Neuromuscular

- Nursing Care
 - Screening
 - Observe for symmetry.
 - Observe for one shoulder higher than other.

Neuromuscular

- OR
 - Spinal Fusion
 - Instruct on cast or brace.
 - Mobilization
 - Improving appetite and fld intake to avoid constipation.

Sports Injuries

- Complete Physical
- Family History

Sports Injuries

- Prevention
 - Warm up and cooling down periods.
 - Do not apply heat to soft tissue injuries.
 - Rest, ice, compression, and elevation.
 - Fx - X ray will confirm.

Family Violence

- Spousal abuse, child neglect, and malnutrition.
- TV at home should be controlled.
- When children see abuse, they learn it.

Child Abuse

- Battered child syndrome.
- Bruises are red, green, and yellow.
- As bruises heal, they change colors at different stages.
- This will indicate that they have not occurred at same time.