Osteopathic Considerations In Obstetrical Trauma

by Anthony Capobianco, DO
Duality of Gestational and Birth Trauma

- Many chronic disorders stem from pregnancy, labor and delivery
- Both mother and child(ren)
- Neonatal trauma reflects mother's trauma
- Pelvic floor injury reflects newborn trauma
OMT Pre, Post and During Pregnancy

- Prevention and treatment of natal trauma
- Prevention of perinatal trauma
- Benefits mother and newborn
- Child at risk for "inheriting" maternal trauma
- Legacy of trauma if traumatized child is female and future mother
- Pre-conception OMT ideal prevention and treatment of natal and perinatal trauma
Hallmarks of Traumatic Forces

- Compression
- Tension
- Shear

- Acting upon: potency, fluid, fascia, organ, bone
- Connotations: restriction, strain, strain pattern, somatic dysfunction, dysfunction, jam, distortion, displacement, osteopathic lesion, unphysiologic/pathological pattern, hyper-mobility, imbalance, asymmetry, torsion, blockage, stasis, fascial drag
Importance Preconception/Prenatal OMT

- Symmetry
- Position
- ROM
- Ease of motion within ROM
- Optimizes osseous & soft tissue space,
- buoyancy, flexibilty / tension balance
- Structure / Function relationship
Endocrine System Via Cranial Base Mechanics

Ex: Hypothalamic-pituitary-ovarian axis

Supports

- Conception
- Pregnancy
- Fetal development
- Delivery
- Lactation
- Motherhood
- Parenthood
Health / Maternal Health

- Fluidity (freedom within limits) to have and balance necessary opposing ROM / phases of tension and laxity / biphasic reciprocal polarity

- Nowhere in physiology more salient and essential with narrower margin error than for mother and child's body during pregnancy, labor and delivery

- Adaptive and compensatory mechanisms leave little reserve for any additional trauma (single let alone multiple gestations)

- OMT maximizes already narrow margin of error
OMT Approaches

- So-called “General” Tx - key and secondary lesions HIGH YIELD
- Specific Tx - key and secondary lesions
- Chief Complaint Tx
- General + specific + chief complaint - ideal
Prenatal Trauma

- Acquired
- Pre-existing (majority) - de-compensations of never before addressed trauma
- Complicated or exacerbated by stresses and strains of pregnancy, labor and delivery
- Jeopardizes development and/or delivery of unborn baby
Pregnancy Extreme Biomechanical Stress/Strain

- C-T Junction / Thoracic Inlet
- T – Spine/ Daphragm / Thorax / Mediastinum
- Arcuate Ligaments
- Peritoneum (Abdominal/Pelvic)
- Visceral Column (lg and sm intestine, stomach, liver)
- Linea Alba / Rectus Abdominal mm
- Lumbosacral Junction / L5 S1 facet(s)
- Pubis / Pubic Symphysis
- Sacrococcygeal complex
- Pelvic floor/pelvic diaphragm/ UG diaphragm
- Unborn baby – babies feel pain!!!
Late Pregnancy Induced Strains

- Altered head angle
- Increased kypholordotic strain at cervicodorsal junction
- Compression of thoracic inlet
- Stretch in diaphragm required
- Sacral nutation induced
- Lumbosacral strain
- Changes in load bearing and alignment in legs and feet

Late pregnancy
Changing Peritoneal Cavity Dynamics During Pregnancy
Examples of Maternal Disease/Disorders Rooted in Mechanical Trauma

- Pelvic Floor Trauma (Incontinence, Vaginismus, Dysfunctions)
- Infections
- C-T-L Spina I /Paraspinal Pain
- Sciatica
- Sacroiliacitis
- Coccydynia
- Bulging / Herniated disc
- Pubic Symphysis Pain
- L5/S1 Facet Syndrome
- Dyspepsia / GERD
Neuritis / Neuralgia / Neuropathy Mechanisms

- **Compression (Direct)**
  Osseous against neural structures themselves
  Vasa nervorum
  Hypothyroidism (Myxedema) complicates

- **Compression (Indirect)**
  Through Soft Tissue – ex. Piriformis / hip external rotators
  Sciatica

- **Excessive neuronal tension**
  Pelvic, lumbar, hip jt, soft tissue strains
  cause pull upon nerve roots, sciatic nerve
Structural / Functional Reciprocal Relationships

Soma / Viscera:

Decreased/ Altered Somatic

- ROM
- Ease Within Range
- Asymmetry/Position

Causes:

Increased Visceral

- Maternal and Fetal and Dysfunction and Pain
Reciprocal Balance of Tension and Laxity

- Relaxin furthers joint instability adding strain upon compensating structures
  
  Ex:
  
  - Gait restrictions from Tibial/fibular torsion causing pelvic girdle instability secondary to pubic symphysis separation in conjunction with adaptive pregnancy external hip rotation
Adaptive/Compensatory Mechanisms are Reciprocal Mechanisms

Ex: Throughout pregnancy unrestricted and balanced shoulder girdle mechanics needed to adapt to relatively massive force loads acting across contralateral body vectors.
Examples of Reciprocal Mechanisms

- Releasing abdominal torsions increases space and structural support for mother and baby
- Reducing thoracolumbar / diaphragmatic strain releases pelvic motion restrictions
- Correction of sacral / SI strain pattern allows increased thoracic ROM via anterior longitudinal ligament / crurae for respiration and late pregnancy expansion
Easy Abdominal Sidebending Pattern

Uterus and abdomen rotate away from side of compression

Compressive forces on uterus are minimal

Easy sidebending pattern
Poor Abdominal Sidebending Pattern

Lateral flexion now creates adverse compression onto uterus and lower abdomen.

Opposing rotatory forces occur within the abdominal wall, rectus and uterus.

Poor lateral elasticity, for example in ribcage or quadratus lumborum or abdominal wall, creates a barrier to opposing lateral flexion.

Uterus does not rotate away from side of compression.
Pelvic Ligaments

- **Uterosacral**: align and influence
- Cervix and sacrum
- **Round**: align and influence
- Fundus and perineum

Uneven tensions from contiguous structures can inhibit symmetrical expansion of uterus to accommodate developing baby with least amount of force - ex: causing transverse lie
Comprehensive OMT and Pelvic Pain

- Maintains pelvic floor function
- Balance of tension and laxity for Pregnancy and labor

- Addresses pelvis in context of whole Ex: spine, abdominal cavity, lower ext
- LE restriction causing decreased shock absorbency in turn traumatizing pelvis
Un/balanced Pubic Symphysis Divergent and Convergent Force Vectors
OMT Minimizes Traumatic Stresses To

- Enlarging uterus = baby
  
  **Later stages:**
  
  - Fetal mobility
  
  - Positioning
  
  - Comfort – Unborn/born babies feel pain!

- *Secret Life of the Unborn Child* by Dr. Verny
Sacrococcygeal Complex Attachments
Pelvic Floor / UG Diaphragm
Birthing Always Traumatic to Pelvic Floor

With or without
- Instrumentation
- Induction
- Perineal or vaginal tearing or episiotomy

- trauma forces the mother's pelvis beyond elastic capacity of ligaments and soft tissues to tighten after birth to realign pelvis leaving pelvic Bones/ soft tissues unbalanced in strained position

- Tx externally within hrs or days of delivery
- Tx internally per vagina/ / anal not before 6 weeks
Allopathic Vs. Osteopathic Emphasis

Conventional Obstetrical Delivery:

- Uterine contractions
- Cervical dilatation

Traditional Osteopathic Delivery:

- Symmetrical, unrestricted bony pelvis
- Allows for physical accommodation and force
- In addition to conventional focus
Routine Intrapartum Obstetrical Interventions

- Lithotomy Labor & Delivery Position
- Epidural Anesthesia
- Cesarean Section
- Induction
- Episiotomy
- Vacuum Extraction
Position Conventional Delivery

- Lithotomy/stirrups - hyperexternal rotation hips locks in counternutation + sacral extension (PRM) phase of late gestation
- Recumbency immobilizes sacrum via weight bearing restricting B/L SI joint motions
- B/L SI joint restriction locks in torsion/shear pattern compromising space for baby and birth
- Posterior sacral flotation restricted during labor
- Sacrum curved up baby travels against gravity increasing maternal exhaustion/complications
Locked-In Sacral Extension Phase Lesion

Sacrococcygeal inferior (extension phase)
dural drag/pull on:

● Brain and pituitary

● Restricted SBS ROM hypopituitarism:

● Postpartum depression

● Postpartum psychosis

* Dr. Sutherland and postpartum psychotic patient on horseback - apparently sacral restriction released while mother posting out of sync with gallop
Epidural Anesthesia

- Quick anesthesia to subarachnoid space
- Many unmyelinated nerve fibers for visceral pain
- Less effective somatic pain
- Sensation loss causes pelvic floor muscle relaxation
- Reducing rotation of presenting part
- Slows labor necessitating Pitocin
C - Section

- During labor or elective with or without prior Pitocin® traumatic forces on infant regardless of final exit
- Interrupts newborn's “First Breath” / “First Cry” primes movement of six aspects PRM
- Last century osteopathic obstetrician made small uterine incision for “delivery”
Induction

- Sudden violent unnatural non-rhythmic expulsive en masse contractions
- Traumatic forces cause longitudinal and lateral compression
- Craniovertebro-sacral intraosseous strains
- T3 convexity left type I lesion common
- secondary to transverse lie with or without induction
Vacuum Assisted Vaginal Delivery

- Multilayered Fetal Head Trauma
  - Periosteum
  - Potency
  - CSF
  - CNS
  - Bone
  - Scalp fascia/muscle
  - Higher Prevalence of Neonatal Jaundice Than With

- Maternal Pelvic Trauma
Pelvic and Head Trauma
Peripartum Sequelae of Trauma

- Scar Tissue
- Hyperemesis / Emesis Gravidarium
- Mastitis
- Lactation Insufficiency
- Nipple Disorders
Scar Tissue

- OMT – periphery to center
- Can begin immediately (subtle indirect)
  Ease surrounding tissue restriction / tensions
  More direct contacts once closure material removed
- Contracted and conjoined layers of fascia
  together restrict normal slide and glide
  movements within fascial planes
Nausea / Vomiting Pregnancy

Uterine, abdominal viscera and fetal blood and neural supply interference from

- Osseous Lesions
- Weight Pregnant Uterus
- Distended Constipated Bowel

Doctor Still's *Research and Practice*, 1910
Mastitis / Lactation Insufficiency

OMT for strains of

- Clavicles
- Ribs 1 – 8
- Costovertebral
- Sternocostal articulations
- Focal contact for involved milk ducts

Lactation Insufficiency:
Above structures B/L
Mastodynia / Nipple Irritation

- OMT above areas incl breast release via
- Cupping - B/L contact
- Focal contact – one or more fingertips/pads
- Nipple contact
- Via maternal hand(s) or direct contact

(sore breasts, nipple irritation / surface abrasion)
Traditional Osteopathy

- Dr. Still – provided principles & practice
- Taught every case a law unto its own
- However provided guidelines for common conditions
- Maneuvers presented help satisfy both - sufficient...
Relative / Absolute Contraindications / Precautions / Cautions / Considerations

- Calf pain / swelling - pre / postnatal R/O DVT via palp, Homan's, cuff < 180 mm/Hg
- DVT/PE, DM, HTN, Anemia, Pre-eclampsia
- Placenta previa, abruptio plac, hydramnios
- Head, Leg, abdominal, pelvic pain R/O visc
- Wait until fetus settles before cont. OMT
- High risk miscarriage around 12 – 16 wks, late preg – avoid xs stim cocc, lower uterus
Biomechanical Upshot

- Evaluate and treat pre-existing and acquired trauma
- Expecting (or future) mother
- Via global and local OMT
- Osteopathic striving allows adaptation to massive demands, forces and shifts the mother (and child!) will undergo, up to and through delivery.
- Contemporary, non–obstetrician osteopath administered osteopathy assessing and treating high yield areas offers foundation often suffices to greatly benefit mother and child
- Attempt comprehensive tx even though obstetrical encounter often limited or late in pregnancy
In the early part of the last century, 1915 American School of Osteopathy graduate and traditional osteopathic obstetrician, O.P. Grow, DO advised treating a minimum of every week, and even more as needed.

It should be noted that in seventeen years of country practice, out of 700 births his maternal mortality rate was none, and fetal mortality rate 2.2%, far below current statistics for the time.
I maintain that nowhere in the field of osteopathic medicine can the physician accomplish so much to relieve humanity as in lending his skill to expectant mothers.

O.P. Grow, DO, 1933, *Osteopathic Obstetrics*
Convention vs. Nature!
Dr. A.T. Still: From Dry Bone To Living Man
by John Lewis British DO
MAGNIFICENT!
Transcendent, Existential, Relevant, Timeless
15 years to write, 5 years on - site extensive research
Personally and professionally life altering
Students, patients, patrons, parents, friends, partners, staff, writers, film, library, COM faculty, colleagues and truth seekers
Www.atstill.com Request personalized inscription
Dr. A.T. Still

“Truth has no cause to fear opinions.”

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“Act boldly and mighty forces will come to your aid!” - Johann Goethe
PRACTICAL OSTEOPATHIC OBSTETRICAL PROCEDURES: TABLE SESSIONS

by Anthony Capobianco, DO
Perinatal Trauma

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Duality of Perinatal Trauma

- Clearly birth traumatic for the mother as well as baby
- Fetal skull controlled dilator of maternal perineal tissues
- RBC s commonly present in newborn's CSF
Birth Trauma

- More effectively tx when root causes and accompanying strains addressed
- Affects all ages
- Relevance and focus on newborns/young (with OB considerations) especially before age nine or so is unrivaled
- Ossification of unfused preosseous elements: sacrum, atlas, occiput, sphenoid, temporal 7 – 9 yrs
- Since LOA occiput presenting part at vaginal delivery occipital condylar compression (right) and surrounding structures classic lesions are “go to” high yield areas (CN 9,10,11,12,medulla,etc)
- Condylar/any compressions common even after elective or emergency C – sections due to transverse fetal lie, longitudinal compressions, induction trauma, presence of twin, neoplasia
Pediatric OMT Preventative Medicine

- Prevention of lifetime pathology especially childhood illness and disabilities a prime directive
- Parenting arduous even when children relatively healthy, must navigate normal events of teething, exanthems, febrile illness, necessary infections for immune priming, injuries learning to walk, developmental, safety demands, emotional needs for attachment

“Recognizing and treating these dysfunctions in the immediate postpartum period is one of the most important phases of preventative medicine.”
- Viola Frymann, DO, The Trauma of Birth
Osteopathy Unparalleled – Emphasis On & Ability To Tx

- **INTRAOSSEOUS** as well as interosseous strain patterns!
- Intraosseous strains ultimately underly/complicate/perpetuate interosseous lesions
- Permanent interosseous corrections follow intraosseous corrections
- Bony trabeculae and periosteal structures (tendons) can hold torsion and tension
- Inflammation, periostitis, tendonitis
Intraosseous Strains - Adult (> 20 -25 epiphyseal / growth plate fusion)

- Induce key lesions
- Complicate/interfere with interosseous OMT
- Cause relapse - recurring pain, illness, disability
- Cause compensatory mechanisms, secondary lesions
- “Bent twigs” virtually all patients, any age
- Breath of Life / Liquid Light also always available
- Lesson: approach birth trauma even in a very aged patient as if the person is still a newborn -Ruby Day, DO, Sutherland student, teacher of James Jealous, DO
TRAUMATIC FORCES of LABOR and DELIVERY

- MAXILLAE / PREMAXILLAE
  - Malalignment
    - Malocclusion

- SPHENOID
  - Lateral strains (SBS*)
  - Vertical strains (SBS)
  - Disequilibrium
  - Hearing loss

- OCCIPITAL SQUAMA
  - Condylar compression
  - Unilateral
  - Bilateral

- TEMPORAL SQUAMA
  - Temporal petrous
  - Eustachian tube distortion

- Jugular foramen
  - CN 9 and/or 10, 11
  - Torticollis
    - Poor suck
    - Vomiting
    - Irregular respirations
      - "Idiopathic" scoliosis
      - Parallelogram deformity

- Future hypoglossal canal
  - CN 12
  - Poor suck

- Orbital distortion
  - Mild
    - Eso/exophoria
  - Severe
    - Strabismus

* SBS = Sphenobasilar synchondrosis
Dr. Sutherland's Triad: Condylar, Occipital, Squamal, O-A Compression/Strain Pattern
Intraosseous Strains- Newborn / Young Child < 9 yo preosseous elements fusion

- Perinatal trauma/ strains especially induced early in development prior to fusion of preosseous elements cause entire child to grow from distortion especially accelerated face (orthodontia)
- Underly and take precedence over interosseous lesions – chronic cases
- Distortion leads to less future capacity for adaptation/compensation for stress, injury, pathogens, toxins, pharmaceuticals, modern life
- Hematopoietic consequences
- Sickly child impacts marriage, family, schooling, economics
Research

- Swedish study 412 patients all born before 1940 who died of drugs and alcohol or suicide between 1978 and 1984
- For more than any other risk factor
- Birth trauma most closely associated with suicide
Another Swedish study
Strong links between birth trauma and suicide
Strong correlation between type of birth trauma and
Method of suicide:
  ● Mechanical means with instrumentation trauma
  ● Asphyxiation with birth asphyxiation
  ● Drugs, drug addiction with opiates/barbituates
during labor
Research (cont.)

- Lancet study 1985
- strong links between birth trauma and suicide
- Three common denominators
  - Respiratory distress in excess of one hour at birth
  - Lack prenatal care prior to week 20 prenatally
  - Chronic ill health mother during her pregnancy
Principles of Treatment / Young Child

- Direct approach displaces bone away from
- neural tissue
- Cranial nn (9,10,11,12)
- Cortex
- Medulla
- Cord

- Caveat that can be judiciously disregarded for direct approach (i.e.: SBS compression release via direct)
TX Challenges and Assistance

- Prepare / recruit caregiver – caregiver sets tone
- Entitlement no pain, ADD parent/child,adol – 40 yo
- Distraction - toys (water, wood, books)
- Crying from fear restraint and ventral exposure respiratory assistance
- Newborn acute head injury recently traumatized occiput - gradually increase force to engage barrier
- First 3 week serene window
- Commando / Captain of the ship through the storm
- Constancy / boundaries - “No” builds trust
Cases

- Jamie P., 3 mo old failure to thrive
- Secondary to severe GERD
- Post dates
- Facial presentation
- Jaundiced/apneic
- Colic, feedings nasal d/c
- Palor low tone torticollis, cervical, below wht 9,10,11,12 5 mo old 5 feedings five oz.s / 7mo 25%

- Jeffrey T., 8 mo old “cerebral palsy”
- Fetal distress x 5 hrs, sedation, C-sect
- Opisto, LE dragged colic, GERD
- B/L spasticity
- SBS / B/L condylar compression
- Walking at 5 ½ mon
- 25 yr report 'NML”
Cases (cont.)

- Michael M., 5 yo ♂
  - Severe asthma
  - Daily oral steroids
  - Weekly hospitalizations
  - Freq ER visits
  - INDIRECT SBS
  - 15 + yrs virt no sx

- Christine C.,♀
  - 2 week post dates, emergency C -sect
  - Meconium aspiration
  - Indirect above supine cranium and sacrum
  - Room O2 in < 24 hr
Cases (cont.)

- Shira S., 4 mo old ♂
- Down's Syndrome
- OMT q wk x 6 wks
- Then q 4 -6 wks
- Height, teeth erupt
- Nap 2 hrs - Nml
- No protruding tongue,
- Facial features, coryza s
- Mistaken for “Mosaic”

- Laura M., 11 yo ♂
- Severe dysequilibrium
- Constant head pain
- Topamax/GERD Rx s
- Homebound x 3 mo s
- Holding walls, assisted
- L temp int rot out phase, triad
- OMT/VST → recovery!
Zen Story About The Storm and Starfish

- Colossal Storm washes thousands of Starfish up upon miles of shore
- Master goes to the beach
- Picks up one starfish at a time - throws one back into the water one at a time
- Onlooker walking by admonishes saying "It will not make any difference!"
- With one in hand master "It will to this one!"
Cranial Master Wisdom Slide

- “No! Try not. Do, or do not. There is no try.”
- “Smaller in number are we, but larger in mind.”
- Ask a question? Answer you I will.”
- - Yoda
KEEP CALM AND CARRY ON
Dr. Anthony Capobianco

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