Clinical Integration of Osteopathic Manipulative Medicine

Family Medicine / Emergency Medicine: Acute Whiplash Injury

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Intro: Cervical whiplash syndrome is mostly associated with a traumatic event of the cervical spine, secondary to abrupt flexion/extension movements of the spine. Most traumas are due to motor vehicle accidents, sports injuries, and even shaken babies. Anatomically, there is damage to various parts of the neck including: ligaments (posterior longitudinal ligament, interspinous ligaments, alar ligaments), joints (facet joints), cervical vertebrae, cervical disks, nerves and muscles. The injury is fairly common but yet remains poorly understood. In a 1-year prospective study, it has been shown that patients with whiplash injury versus other trauma injuries had a higher rate of disability\(^1\). In the acute setting, imaging, such as x-ray, CT, or MRI, is unlikely to show evidence of injury. The pathology of whiplash is still unclear but is believed to be related to microvascular bleeding and local release of inflammatory mediators. Despite this, many patients remain symptomatic for months and even years. A systematic review of 47 studies showed that 50% of adults with whiplash injury reported neck pain symptoms at one year\(^{\text{ii}}\). High resolution MRI imaging of the C-spine in patients with history of whiplash injury demonstrated chronic soft tissue damage, particularly of the alar ligaments\(^{\text{iii}}\). Usually, whiplash resolves on its own within 2-3 weeks. Pain and symptoms are commonly treated with pain-relievers such as acetaminophen or NSAIDs, physical therapy, and stretches.

Patient presentations:
- Neck Pain
- Muscle tightness
- Muscle spasm
- Decreased range in motion
- Occipital headaches
- Tension headaches

Differential Diagnoses
- Fracture
- Vascular (arterial dissection)
- Muscle tear
- Cartilage damage
Clinical Pearls/Caveats
- Cervical spine osteopathic manipulation can be just as efficacious as NSAIDs in the setting of whiplash
- Intramuscular Ketorolac injections, 30-60 mg, are indicated in the setting of acute whiplash but carries a higher chance for adverse effects vs OMT treatment
- Studies have shown that osteopathic manipulation may have beneficial effects on physical and mental aspects of late whiplash syndrome

OMM Integration:
In a study by Tamara M. McReynolds, DO and Barry J. Sheridan, DO, the results showed that OMT had significantly better effects than intramuscular injections of ketorolac in decreasing pain intensity and also had equal efficacy as the injection in providing pain relief for patients with acute neck pain in the emergency department. Nonsteroidal anti-inflammatory drugs are the main course of medications used to treat acute whiplash; though they are considered generally safe, they have adverse effects including gastrointestinal pain, diarrhea, nausea, and gastrointestinal bleeding. A study by Dabbs and Lauretti indicated that cervical manipulation for neck pain is much safer than the use of NSAIDs. In patients who have contraindications to NSAIDs, OMT is a reasonable alternative treatment.

Osteopathic Structural Examination:
- Cervical spine
  - Tissue texture changes
  - Joint restrictions
  - Areas of tenderness
  - Range of motion
- Thoracic spine
- Ribs
- Diaphragm
- Lumbar spine
- Zink Patterns

Possible treatments options:
- Cervical:
  - OA Decompression
  - Muscle Energy
  - Counterstrain
  - Balanced Ligamentous Tension
  - Facilitated Positional Release
  - HVLA (as per study, Intramuscular Ketorolac Versus Osteopathic Manipulative Treatment in the Management of Acute Neck Pain in the Emergency Department: A Randomized Clinical Trial)
- Myofascial to the cervical, thoracic and lumbar region
- Thoracic outlet release
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