Resolution of Atypical Chest pain in Two Adolescent Females Utilizing Osteopathic Manipulative Treatment: A Case Report

Hope Voto, D.O. NMM+I Resident, Katherine Worden, D.O., MS, Clinical Associated Professor OMM.

Midwestern University, Glendale, AZ 85308. Authors for Correspondence: hvoto@midwestern.edu

Case Report 1

Chief Complaint: Chronic bilateral chest pain

History of Present: KC is a 15 year-old female who is seen in the office 10/5/5 for initial evaluation of her chronic bilateral chest pain. The pain begins spontaneously, in November 2014. The back pain is not her primary care physician and she found her chest pain to be unrelenting by her. She presented to us with an extensive medical workload over the following year. The pain is exacerbated by deep breathing, hyperventilation, and strain. It is also reproducible over her right upper quadrant and tender to palpation. They discussed starting narcotics therapy. She was incidentally found to have dilated aortic pain. The pain is alleviated by diaphragmatic breathing. The patient was referred to a local primary care physician.

Physical Exam: Postural findings:
- Height: 5’8”, Weight 114 lbs, BMI 23.9 kg/m2
- Respirations: 12, Heart Rate 91 bpm, Blood Pressure 107/70

Diagnostic Tests:
- CBC: Normal
- Lipid profiles: Normal

Relevant Findings:
- Bilateral pain to palpation at the lateral sternum bilaterally, posterior subluxation of the anterior ribs
- Thoracic: Spine tenderness to palpation, decreased ROM
- Lumbar: Muscle spasm at the bilateral quadratus bilaterally and lumbar spine

Preliminary Diagnosis:
- Erector: Normal for age
- Erecto/riboret: Normal skeletal alignment, and no noted subluxation. Arterial: aortic root dilated, arterial anulus is 25mm w/ a score of 1.2, stenosis of Valvere is 33.7 with a score of 22, intracranial occlusion is 35 mm w/ score 4.26, and penile arterial anulus is 35 mm with a score of 4.6. No evidence of subaortic stenosis or subvalvular hypoplasia. Thoracic and lumbar spine vertebrae normal and no noted altered.
- Thoracic: Mild distance of the spine and posterior scoliosis. Mild distance of the articular and anterior ribs. Multiple Daniels done to the abdominal area free paresis. May suggest a minor form of connective tissue disorder.
- Treatment:
- OMT treatment: One hour OMT visits over the course of three months. Treatment consisted of muscle energy to the ribs, intercostal release, strum-costal webbing and lateral segmental vertebrae. The patient responded well to OMT with a decrease in pain and improvement in function.
- OMT treatment: The patient experienced a decrease in pain and improvement in function.

Fig 6a Posterior dislocation

Fig 6b Anterior dislocation

Discussion

The הגדול reported that “Generalized joint laxity is commonly seen in healthy individuals who do not have complaints…” In general, women have greater joint laxity than men, and up to 5% of healthy women have symptomatic joint hypermobility compared with 0.6% of people of African, Asian, and Middle Eastern descent also have increased joint laxity.”[45] It is important for physicians to take into consideration when assessing and treating an adolescent female with chest pain. Upon review of the literature on BHS, there is little mention of chest pain in BHS as being specifically associated with ligamentous laxity or BHS. In these cases, physiologic hypermobility contributed to their difficulty in adapting to thoracic injury. (Eccentric)

While imaging of the retrovertebral chondrosternal joint of the true ribs (fig. 2A) is difficult to obtain, biomechanically similar subluxations can be exemplified by the classic, to varying degrees (fig. 2B & 4B).

Using OMT to treat chest pain in these two adolescent females resulted in subjective improvement. Hence, osteopathic physical examination and treatment should be considered for evaluation and treatment of chest pain in patients presenting to ligamentous laxity/BHS; particularly for adolescent females. This will enhance the opportunity for osteopathic evaluation and treatment of pediatric chest pain, thereby raising awareness of the value of OMT on both a clinical and economic level.

Case Report 2

Chief Complaint: Acute bilateral chest pain

History of Present: BB is a 15 year-old male who was seen in the office on 10/3/5 for initial evaluation of his bilateral chest pain and normal vital signs. His past medical history was non-contributory. The patient was referred by his sister who was treated four years earlier by the same physician.

Physical Exam:
- Height: 5’8”, Weight 114 lbs, BMI 23.9 kg/m2
- Respirations: 12, Heart Rate 91 bpm, Blood Pressure 107/70

Diagnostic Tests:
- CBC: Normal
- Lipid profiles: Normal

Relevant Findings:
- Bilateral pain to palpation in the sternum and at the upper ribs, which were subluxed anteriorly
- Thoracic: Spine tenderness to palpation, decreased ROM
- Lumbar: Muscle spasm at the bilateral quadratus bilaterally

Preliminary Diagnosis:
- Erector: Normal for age
- Erecto/riboret: Normal skeletal alignment, and no noted subluxation. Arterial: aortic root dilated, arterial anulus is 25mm w/ a score of 1.2, stenosis of Valvere is 33.7 with a score of 22, intracranial occlusion is 35 mm w/ score 4.26, and penile arterial anulus is 35 mm with a score of 4.6. No evidence of subaortic stenosis or subvalvular hypoplasia. Thoracic and lumbar spine vertebrae normal and no noted altered.
- Thoracic: Mild distance of the spine and posterior scoliosis. Mild distance of the articular and anterior ribs. Multiple Daniels done to the abdominal area free paresis. May suggest a minor form of connective tissue disorder.
- Treatment:
- OMT treatment: One hour OMT visits over the course of three months. Treatment consisted of muscle energy to the ribs, intercostal release, strum-costal webbing and lateral segmental vertebrae. The patient responded well to OMT with a decrease in pain and improvement in function.
- OMT treatment: The patient experienced a decrease in pain and improvement in function.

Fig 7a Acute bilateral chest pain

Fig 7b Resolution of the pain after two treatments.

Conclusion

- These cases highlight the use of OMT for correctly assessing and treating chest pain in 2 adolescent females with chest pain.
- OMT can be beneficial in diagnosing and treating this disorder, thereby reducing exposure to diagnostic radiation and associated health risks.
- Financial resources would be conserved and overall stress of the patient and their families would be reduced.
- Future studies are needed to explore the connection between ligamentous laxity/BHS, osteopathic manipulation, and chest pain.

References


Fig 6a Posterior dislocation

Fig 6b Anterior dislocation

Fig 7a Acute bilateral chest pain

Fig 7b Resolution of the pain after two treatments.