

# Manual Drainage of the Gallbladder

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## Background

Although osteopathic manipulative techniques (OMT) are often applied to the viscera, there is little research showing the effects that these techniques may have. Manual drainage of the gallbladder has long been practiced by osteopathic physicians. Barral and Mercier describe manipulation of the common bile duct and emptying of the gallbladder in *Visceral Manipulation* (1), including the sound created when bile is discharged from the gallbladder. In *Foundations for Osteopathic Medicine* (2), Lossing states that the gallbladder should be evaluated and goes on to provide treatment strategies for both the gallbladder and the Sphincter of Oddi.

Current mainstream medical practice offers few options for treatment of gallbladder dysfunction. According to the University of Wisconsin School of Medicine and Public Health, "Cholecystectomy is the only known effective treatment for the diagnosis of biliary dyskinesia." (3) Little research has been done on the role of Osteopathic Manipulative Treatment (OMT) in the treatment of gallbladder dysfunction. OMT may reduce both symptoms of gallbladder disease and the need for surgical intervention, thereby reducing both cost and risk. Manual therapy may provide a well tolerated therapeutic option for both treatment and prevention of gallbladder disease.

The treatment applied in this study consisted of both a set portion that was organized to target the gallbladder and allow for drainage as well as a flexible portion that was tailored to the individual. Osteopathic philosophy teaches to approach a patient with any disease as a unique unit of body, mind and spirit, that has the capacity to heal. An osteopathic manipulative approach for a patient with gallbladder disease would include:

- ✓ Evaluation & treatment of gallbladder / bile system function directly
- ✓ Evaluation & treatment of somatic innervation of the gallbladder
- ✓ Evaluation & treatment of autonomic innervation of the gallbladder
- ✓ Evaluation & treatment of the blood flow to & away from the gallbladder
- ✓ Evaluation & treatment of the lymphatic flow to & away from the gallbladder
- ✓ Evaluation & treatment of the areas of greatest restriction

Our primary aim was to demonstrate that OMT, in subjects with or without symptoms of subclinical gallbladder disease, can cause the immediate ejection of bile that approximates physiologic function. Normal gallbladder function associated with fatty meal testing has been defined as an ejection fraction(EF) of  $\geq 27.5\%$ . (4) Additionally, we hoped to demonstrate reduction in gastrointestinal symptoms after OMT and show that OMT is perceived as comfortable or enjoyable, including visceral techniques.

## Methods

A cohort of patients, who were not diagnosed with or treated for gallbladder disease but who had risk factors for subclinical gallbladder dysfunction, were identified by querying the electronic medical record(EMR) of a busy, single, outpatient, multidisciplinary musculoskeletal medicine clinic, VCOM Sports and Osteopathic Medicine (VSOM). These patients were mailed an invitation to participate in the study. Eligible patients were then called and if interested, interviewed to confirm eligibility. Participants were scheduled for a 1-time study visit during which their gallbladders were imaged with ultrasound (US) before and after an OMT protocol was performed. Written informed consent and pre- and post-treatment surveys were completed during the same visit.

Imaging and treatment were performed by the same clinician. The OMT protocol included gallbladder drainage techniques, evaluation and treatment of spinal segments which provide neurological supply to the gallbladder, techniques to balance autonomic tone and treatment of the areas of greatest restriction. Subjects were contacted for a phone interview 1 week after the appointment to reassess any reported symptoms.



Image 1: Gallbladder Drainage Technique



Image 2: Sphincter of Oddi Technique

## Inclusion Criteria

EMR Search  
Sex: Female  
Age:  $\geq 40$  and  $\leq 64$   
Body Mass Index (BMI): 25 – 30  
Seen at VSOM  
7/1/17-12/31/20  
(N= 180)

Cross referenced with CPT:  
98925; 98926;  
98927; 98928;  
98929  
(N= 136)

## Exclusion Criteria

Unreached (N=35)  
Cholecystectomy (N=32)  
Abdominal Surgery (N=23)  
Declined (N=11)  
BMI (N=4)  
Oral Hormones (N=4)  
Irritable Bowel Syndrome (N=4)  
Osteoporosis (N=1)  
Rheumatoid Arthritis (N=1)  
Crohn's Disease (N=1)  
Severe Depression (N=1)

Unable to be scheduled (N= 9)  
Eligible and willing (N= 19)  
Final study subjects (N= 10)

Figure 1: Inclusion & Exclusion Criteria



Image 3: Gallbladder Ultrasound Scanning

## Study Visit Protocol

### The Pre-Treatment Survey:

- Do you experience abdominal pain after eating?
- Do you experience nausea/vomiting after eating?
- Do you experience bloating after eating?
- Do you experience excessive belching?

### Pre-Treatment Ultrasound Evaluation:

- The gallbladder length, width and height were measured by ultrasound.
- Gallbladder volume was calculated using the formula:  $\pi/6 \times (L \times W \times H)$ . (5)

### Study Protocol: (total time 20-30 minutes)

#### Assessment:

- Assessment of thoracic vertebrae 6-9
- Assessment of gallbladder tenderness

#### Standard Initial Treatment Sequence:

##### Supine:

- Occipitoatlantal Decompression
- Press Over the C4 Transverse Processes
- Rib Raising
- HVLA to the primary dysfunction within T6-9, if indicated
- Direct and Indirect Myofascial Release of the Thoracoabdominal Diaphragm
- Gallbladder Chapman's Reflex Point
- Liver Pump
- Sphincter of Oddi Technique

##### Seated:

- Gallbladder Drainage Technique

### Secondary Assessment:

- Screen for Areas of Greatest Restriction (AGR)

### Secondary Treatment:

- Treatment of 3 somatic dysfunctions found by AGR screening was applied using Muscle Energy and/or Articular Techniques for up to 10 minutes.
- If initial treatment of any area did not result in objective improvement or if the subject did not prefer or tolerate a specific technique, indirect or direct Myofascial Release was applied.

### Post-Treatment Ultrasound Evaluation:

- Measurement of gallbladder volume was repeated after OMT and ejection fraction(EF) calculated using the equation:  $100 \cdot [100x(V2/V1)]$ .

### The Post-Treatment Survey:

- Did you experience pain during the treatment?
- Did you experience other symptoms or changes?
- How would you describe the treatment?

### 1-Week Post-Treatment Phone Call:

- All questions were repeated from the pre-treatment and post-treatment surveys which had a yes or non-zero answer.
- Subjects were thanked for their time and willingness to participate

## Results

- ✓ In 7 of 10 patients, OMT resulted in gallbladder ejection fraction(EF)  $\geq 21\%$ .
- ✓ The mean EF among the 7 responders was 30%.
- ✓ Of the 6 patients that reported gastrointestinal symptoms upon entering the study, 67% reported improvement after treatment.
- ✓ No discomfort with the entire treatment was reported by 6 patients while 4 reported 2/10 discomfort with the gallbladder drainage technique only.
- ✓ The 10 participants were evenly split between describing the treatment as comfortable or enjoyable.

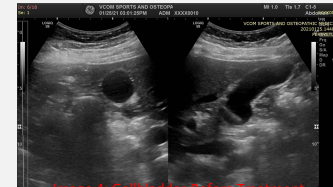


Image 4: Gallbladder Before Treatment

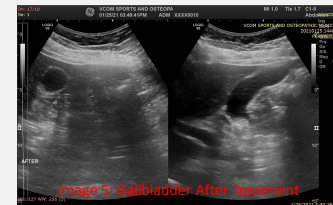


Image 5: Gallbladder After Treatment

Figure 2: Symptoms reported after treatment

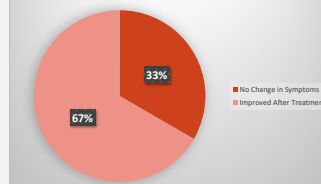


Figure 3: Gallbladder Ejection Fraction After OMT



## Conclusions

Using conventional radiographic evaluation, OMT has been shown to effect gallbladder emptying approximating the established response to a fatty meal test (EF $\geq 27.5\%$ ). Most symptomatic participants did report a reduction in symptoms of gallbladder dysfunction after a one-time treatment. OMT was reported as comfortable or enjoyable by all participants and even targeted visceral techniques were tolerated with minimal discomfort. The limitations of this study include, small sample size, use of patients without clinical disease, lack of blinding and possibly measurement, voluntary response or undercoverage bias.

Allopathic treatment of gallstones and symptomatic gallbladder dyskinesia is limited to low-fat diet, pharmaceuticals and cholecystectomy. OMT may provide a well-tolerated option for both treatment and prevention of gallbladder dysfunction that is associated with less cost and less risk than the current standard of care. The method trialed here provides a basis for planning a study that can show statistically significant reduction in the frequency of symptoms after OMT.

## References

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