Bell’s palsy is caused by a lesion of the facial nerve and results in unilateral paralysis or paresis of the face. The condition affects approximately 23 in 100,000 persons, with onset typically occurring between the ages of 10 and 40 years. The authors report the case of a 26-year-old woman with Bell’s palsy, whom they treated with osteopathic manipulative treatment that was focused on the enhancement of lymphatic circulation. The osteopathic manipulative procedures used involved reducing restrictions around four key diaphragms (thoracic outlet, respiratory diaphragm, suboccipital diaphragm, cerebellar tentorium), as well as applying the thoracic pump, muscle energy, primary respiratory mechanism, and osteopathy in the cranial field. The authors, who were guided by the four principles of osteopathic philosophy, report that the patient’s symptoms resolved within 2 weeks, during which two sessions of osteopathic manipulative treatment, each lasting approximately 20 minutes, were held. Patient recovery occurred without the use of pharmaceuticals.

Bell’s palsy (ie, unilateral facial nerve paralysis) is an idiopathic, acute condition caused by a lesion of the facial nerve, resulting in unilateral paralysis or paresis of the face. Approximately 23 in 100,000 persons per year become afflicted by Bell’s palsy.1 Symptoms, which can affect either side of the face, typically first occur in patients between the ages of 10 and 40 years.1 Bell’s palsy affects men and women at a roughly equal rate of occurrence.1

The physiologic mechanism responsible for Bell’s palsy appears to involve inflammation of the facial nerve within the osseous facial canal, causing compression and ischemia of the nerve.1 A viral cause of Bell’s palsy has been suspected since the mid-1990s, when the genome of herpes simplex virus–type 1 was isolated from facial nerve endoneurial fluid in patients afflicted with Bell’s palsy.1 Osteopathic physicians commonly find restricted ipsilateral motion of the temporal bone and upper cervical restrictions in patients with Bell’s palsy.2 The conventional treatment for patients involves the use of oral prednisone (60–80 mg daily) for 5 days, followed by a tapering in dosage for 5 additional days.1

Symptoms of Bell’s palsy may be mild (with only delayed blinking of the eye on the affected side of the face) or more severe (including weakness of the eyelid muscles and inadequate tear production).1 Severe symptoms sometimes progress to corneal ulcerations. In so-called Bell’s phenomena, a patient’s affected eye rolls upward whenever an attempt is made to close the eyelid. Other possible features of Bell’s palsy include drooping of the corners of the mouth, indistinct skin folds and facial creases, and an unfurrowed forehead. During mastication, food may collect between the patient’s teeth and lips, and saliva may dribble from the corner of the mouth. Smiling may reveal a marked contrast between the two sides of the face, with the affected side being expressionless. Depending on where the lesion occurs in the osseous facial canal, a patient’s taste reception in the anterior two thirds of the tongue may be altered. A patient may also experience pain in or behind the ear and hyperacusis.1

**Report of Case**

In the present case, we used osteopathic manipulative treatment (OMT) focusing on the enhancement of lymphatic circulation to treat a patient with Bell’s palsy. We used no pharmacologic interventions. During the application of treatment, we were guided by the four principles of osteopathic philosophy4,5:

- The body is a unit.
- The body is self-healing and self-regulating.
- Structure and function are reciprocally interrelated.
- Rational treatment is based on an understanding of the above three principles.

**Patient History**

The patient in the present case was a 26-year-old woman who arrived at the osteopathic manipulative medicine clinic at the University of North Texas Health Science Center at Fort Worth—Texas College of Osteopathic Medicine with right-sided facial weakness, which she said she had for 1 week, accompanied by a dulled sense of taste. She noted that
the day before the onset of her symptoms, she was up all night studying.

In response to questions, she said she had not experienced trauma or fallen asleep in a drafty room. Nor, she claimed, did she have previous infection with herpes simplex virus—type 1, acute or chronic auditory disorders, or recent dental work. The patient’s medical history was notable for an incident of facial weakness that lasted for 1 month when she was 7 years old. The only surgical procedure in her medical history was a tonsillectomy. During the week prior to her visit to the clinic, she had noticed only slight improvement of her symptoms. She said she was not taking any medication.

Physical Examination
The patient’s physical examination revealed weakness of her right eyelid with delayed blinking, along with a mild right-sided facial droop and lips that remained flat on the right side when she attempted to smile. Cranial nerves II through XII were intact, except for the right facial nerve (CN VII). The patient’s upper and lower extremity deep-tendon reflexes, muscle strength, and sensation were grossly intact.

Structural Examination
The patient’s general appearance was most notable for facial asymmetry with decreased tone on the right side. The structural examination also revealed a side-bending/rotation dysfunction on the right side of the cranium. Cervical vertebrae C2 and C5 were side-bent and rotated right. Fascial restrictions were found in the patient’s cervical and thoracic outlet areas. Standing and seated flexion tests revealed iliosacral and sacroiliac somatic dysfunction on the right side. There was decreased right sacroiliac motion and right anterior innominate rotation.

Osteopathic Manipulative Treatment
Osteopathic manipulative treatment—applied in two sessions, each lasting approximately 20 minutes—was used to address the patient’s somatic dysfunctions. Treatment focused on enhancing the patient’s lymphatic circulation. No medications were prescribed. First, several osteopathic manipulative (OM) procedures were used to achieve symmetry. Then, four key diaphragms were treated to aid lymphatic circulation: the thoracic outlet, the respiratory diaphragm, the suboccipital diaphragm, and the cerebellar tentorium.

In the first OM procedure applied, the patient’s right anterior innominate was treated with the muscle energy technique while she remained in a supine position. The patient’s right leg was flexed at the hip and knee until the restrictive barrier was engaged. She was instructed to extend her right hip while an osteopathic physician (D.G.L.) applied an equal counterforce, thus maintaining an isometric contraction for 5 seconds. This technique was repeated several times until symmetry was achieved.

Next, with the patient in the prone position, sacral rocking was performed. Pulmonary respiratory flexion and extension of the sacrum were monitored and exaggerated by applying a synchronous force at the pulmonary respiratory axis until symmetrical motion was achieved. The first diaphragm treated was the thoracic outlet (Figure 1). With the patient supine and the physician at the head of the table, a direct myofascial release was initiated by placing a thumb in both of the supraclavicular fossae. A constant force was directed caudal and laterally until a release was felt.

While the patient remained supine, her respiratory diaphragm was treated. The physician performed this procedure by standing at her side and engaging the abdominal viscera with a posterior and cephalad vector.

After this procedure, the thoracic pump technique was applied. In this technique, the physician applied a rhythmic force to the patient’s anterior chest wall for 2 minutes.

The physician corrected the cervical rotational dysfunctions by using postisometric muscle energy. The suboccipital diaphragm was treated with myofascial and soft tissue techniques to alleviate the cervical and suboccipital fascial restrictions and to enhance local circulation. To increase lymphatic flow around the right stylomastoid foramen and surrounding tissue, the mandibular drainage technique (ie, Galbreath treatment) was used (Figure 2). This technique, which involves passively induced jaw motion to effect increased drainage of middle-ear structures via the eustachian tube and lymphatics, was performed by applying a slow repetitive unilateral anterior traction force to the mandible on each side.

Finally, primary respiratory mechanism and osteopathy in the cranial field were used to balance the tension membranes and to promote symmetry in temporal bone and sacral motion. The cerebellar tentorium served as the focus of this treatment because of its attachments—specifically its lateral attachments to the temporal bones along the petrous ridge enclosing the superior petrosal sinuses; its posterior attachments to the occipital bone forming the transverse sinuses; its apical attachment to the clinoid process; and its attachment to the cerebral falx forming the straight sinus.

Figure 1 (top, right). To perform thoracic outlet release, the osteopathic physician’s thumbs are placed in the patient’s supraclavicular fossae, and pressure is applied in a caudal and lateral vector until release is felt.

Figure 2 (bottom, right). To perform the mandibular drainage technique (ie, Galbreath treatment), the osteopathic physician’s hand is placed on the patient’s mandible to apply an anterior tractional force. This is repeated on both sides.
Results
The morning after her treatment, the patient reported that most of her muscle tone had returned and her sense of taste was again normal. On the third day posttreatment, there was a 24-hour exacerbation of the symptoms after the patient consumed two alcoholic drinks. Within 1 week after treatment, however, she had fully regained her sense of taste and almost all of her facial tone. Only a mild delay in blinking remained.

Comment
When using OMT to treat a patient who has Bell’s palsy, knowledge of the anatomy of the facial nerve as it traverses the patient’s second treatment session, which took place 1 week after the first session, included all of the OM procedures described above, except for muscle energy technique for the cervical area. One week after the second treatment session, the patient was asymptomatic.

Figure 3. A lesion along the intratemporal course of the facial nerve within the osseous facial canal is believed to be responsible for Bell’s palsy. Intraosseous branches of the facial nerve include the greater petrosal nerve, the stapedius nerve, and the chorda tympani. The six terminal branches of the facial nerve are the buccal, cervical, mandibular, posterior auricular, temporal, and zygomatic branches.
the temporal bone is important in understanding the nature of symptoms.

The facial nerve enters the internal acoustic meatus, located in the petrous portion of the temporal bone, where it begins its intratemporal course (Figure 3). Within the facial canal lies the geniculate ganglion, which supplies general and special nerve cell bodies for taste and cutaneous sensation of the external acoustic meatus. Intraosseous branches of the facial nerve include, in descending order, the greater petrosal nerve, the stapediaus nerve, and the chorda tympani. The petrosal nerve provides parasympathetic innervation of the lacrimal gland. The stapediaus nerve innervates the stapediaus muscle, allowing dampening of loud sounds, and the chorda tympani supplies taste to the anterior two thirds of the tongue and parasympathetic innervation of the submandibular and sublingual glands. The facial nerve exits the cranium through the stylomastoid foramen to give rise to six terminal motor branches leading to the muscles of facial expression (Figure 3).7

This anatomic knowledge allowed us to deduce that the patient’s lesion was most likely at the chorda tympani. This deduction was also supported by the patient’s altered sense of taste and the lack of tearing and auditory disturbances.

Inflammation within the facial canal, as seen in patients with Bell’s palsy, affects the function of the facial nerve and its intraosseous branches by causing ischemia and compression. To restore a patient’s fluid balance, proper lymphatic flow is important. Lymph can take in large proteins and particles that may not otherwise be absorbed directly into the bloodstream. It can also deliver these proteins as nutrients to cells. Lymph is the first line of defense against bacteria, viruses, and toxins, which are destroyed by passing through lymph nodes.

Although bone does not contain lymph channels, it does have prelymphatic channels through which interstitial fluid can flow. Lymph circulates in a low-pressure system that relies primarily on interstitial fluid pressure and the pumping effect of extrinsic muscle contractions. When the muscles intermittently contract, they compress the lymph vessels and one-way valves within these vessels, allowing for unidirectional flow. When tissue inflammation occurs, lymphatic flow is impeded and edema ensues.5,8

The osteopathic treatment plan described in the present case study focused on the enhancement of the patient’s lymphatic flow by freeing up restrictions found in four key diaphragms: the thoracic outlet, respiratory diaphragm, suboccipital diaphragm, and cerebellar tentorium. Treatment of the patient began in the area of the thoracic duct and thoracic outlet with myofascial release of the supraclavicular fascia and use of the thoracic pump technique. The respiratory diaphragm was treated to allow for deeper breathing, thus creating greater pressure gradients to aid in lymphatic flow.5 Primary respiratory mechanism and osteopathy in the cranial field were used to release restrictions in the cerebellar tentorium, which attaches to the temporal bone and allows for physiologic temporal motion. Because of dural attachments to C1, C2, and the sacrum, somatic dysfunctions in these areas were addressed.

Contraindications to the use of the manipulations described in the present study include metastatic disease and obvious bony fractures.

Conclusion

The application of OM procedures focusing on the enhancement of lymphatic circulation resulted in complete relief of the patient’s unilateral facial nerve paralysis within 2 weeks—without the use of pharmaceuticals. Successful treatment consisted of two sessions, approximately 20 minutes each and 1 week apart, to free up restrictions found in four key diaphragms. The results of the present case study suggest that efficacious treatment of patients with Bell’s palsy can be based on the four principles of osteopathic philosophy,4,5 incorporating OMT and eschewing pharmacologic intervention.

References