



(Mills-Watson, 2020)

(Gray, 2021)

Lymphatic Drainage to Improve Fluid Dynamics and Fascial Restriction Following Surgery.

**HYPOTHESIS: Manual Lymphatic Therapy can reduce chronic swelling post-surgery and
improve associated fascial restrictions.**

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Table of Contents

1. Abstract	Page 2
2. Introduction	Page 2
3. Methods	Page 6
4. Results	Page 9
5. Discussion	Page 11
6. Conclusion	Page 13
7. Bibliography	Page 15

Abstract

Skin removal surgery can occur for many reasons but most are cosmetic in nature and center around excessive weight loss. The most common skin removal surgeries in North America are the Tummy Tuck and the Panniculectomy (ABCS, 2017), which in short involve the upper and lower abdomen. While skin removal surgery is common, individuals whom have lost excess weight, generally undergo a longer recovery process and there is limited information provided with respect to post-operative care.

Manual Lymphatic Therapy can improve recovery post-surgery and help reduce both short term and long term side-effects for individuals who have received skin removal surgery under any circumstance. This case study looks at the efficacy of MLT in treating an individual suffering from long term (greater than two years) side effects following skin tightening surgery.

The treatment administered proved effective in not only reducing fluid retention around the surgical sites, but also provided secondary fascial release and reduced hip pain immediately following treatment. However, on follow up, some of the realized gains were lost and treatment was repeated in order to maintain prior positive results, identifying the possible need for further treatment from a certified Lymphatic Therapist.

Introduction

Manual Lymphatic Therapy (MLT) is a “gentle, non-invasive manual technique that has a powerful effect on the body (MOCC, 2021).” If performed correctly with precise pressure,

direction and speed, MLT can greatly enhance recovery and facilitate drainage (MOCC, 2021). When Manual Lymphatic Therapy is applied to an individual, the therapist is helping to restore the natural balance of fluids by stimulating the system that is already in place (MOCC, 2021). This treatment helps with maintaining blood circulation, body fluid balance and immune functions (MOCC, 2021). Between 60% to 70% of all lymph circulation is just below the skin (MOCC, 2021), so the pressure applied for treatment must be light enough as to not engage the fascia. Once the fascia is engaged, the lymph can collapse and a reduction in lymphatic flow may occur. Greater pressure can be applied to the deeper lymphatic nodes such as the clavicles, axillae, deep abdomen and inguinal areas (MOCC, 2021). The lymph is found within the lymphatic system that transports the substances from the interstitium and is collectively called the lymph-obligatory load.

While skin removal surgery is a common procedure, it is clear from literature that the effect on the lymph circulation can be adversely affected by these cosmetic alterations. With a high percentage of the circulation just below the skin, some of the pathways can be removed and altered without the client being made aware.

The client used for this case study underwent two surgical procedures at once, a Lower Body Lift, and a Thigh Lift:

- Lower Body Lift: This is a 360 degree procedure involving the abdomen, upper outer thigh, waist, buttocks and lower back. This surgery is required to lift the buttocks and thighs while at the same time, tightening

excess abdominal skin. This is an extensive procedure due to the number of areas that are addressed (MD Beauty Clinic, 2021).

- Thigh Lift: This procedure targets loose skin and excess fat of the inner part of the thigh. Incisions are made and hidden in the crease of the groin and on the inner aspect of the thigh. The excess skin and fat are removed and the thigh itself is tightened in order to give shape and definition to the leg (MD Beauty Clinic, 2021).

This case study was chosen to test the efficacy of Manual Lymphatic Therapy to address chronic post-surgical swelling and fascial restrictions in a client with excess fluid retention following the aforementioned skin tightening surgeries. The therapist has an ongoing working relationship with this client and has tried to treat the fluid retention in the past without much improvement, of interest was the significance of the procedure done and the confirmed ongoing swelling since. MJ was a perfect candidate as a case study participant.

Client MJ is a 55 year old male. He is a body builder that has been under the therapists care for the last 11 years, under a multitude of roles. MJ has received previous assistance in weight loss, bodybuilding, nutrition, myofascial and oestoarticulation treatment. MJ started out as obese (over 360 pounds) and very unhealthy. Over the course of 3 years, he managed to lose 160 pounds of body fat and changed his nutrition habits for a healthier lifestyle, he no longer had high cholesterol, high blood pressure, diabetes risk factors or chronic knee pain, his check-ups with his physician and blood work had him in the 99th percentile for his age group. After 8 years of consistent weight training and building a strong muscle base, he still had a lot of loose

skin around his legs and abdomen that he was unable to tighten or reduce. He made the decision in 2019 to have skin removal surgery and about 15 pounds of excess skin was excised.

The healing process took over a year for the bulk of the swelling to subside, the scarring was kept to a minimal and there were no further complications. The main complaint that was recently brought up was the fact that ever since the surgery in his legs and his hips have never felt the same. He has hip pain and low back pain, mid back pain, neck pain with headaches and constant swelling of his legs and lower trunk. Additionally, MJ feels that the swelling in his quadriceps muscles on his right leg are causing muscle stiffness and adding to his restrictions. Management for the pain is minimal and he has tried everything he can think of to reduce swelling in his lower body. MJ notes taking herbal medicine, using a sauna, reducing carbohydrate intake, and taking water pills. MJ has been treated in the past as a case study and received ongoing Manual Osteopathic Therapy from the writer.

The goal of this case study was discussed with MJ to try to find a way to reduce the fluid retention in his legs and abdomen. MJ was excited to try any method to assist with his ongoing issue especially because he was never provided after surgical care or advice following his extensive surgery. The therapist informed him that this was not full Manual Lymphatic Therapy and that it may be required for him to see a more seasoned practitioner if results were confirmed but not longstanding. MJ was not receiving any treatment of this nature but confirmed that his physician made no comment on his holding on to excess fluid. The surgeon and his physician both noted to him visit after visit that this is a normal process of healing, even now, two years later. In order to properly identify efficacy of treatment, MJ's results were

recorded over two weeks. He was treated at the same time of day, on the same day (Thursdays at 3pm) and measurements were recorded.

Methods

Client MJ provided informed consent for both the treatment and use of anonymous results for this case study. He was assured that his identity would be protected as well as the information recorded, secured. Short and long-term goals were discussed and these goals along with the assessment results were included in the chart. Prior to starting treatment, the therapist went over contraindications for treatment, MJ answered no to all. Of concern was edema and possible removal of lymph nodes. MJ confirmed no major nodes were removed, the surgical sites were not near the popliteal fossa, inguinal or external iliac nodes. Additionally MJ did not have any diagnosis or concern of edema.

Photos of MJ's legs were taken from the front, back and both lateral sides, photos were also taken of his lower trunk, from the front and back. These were the two areas where the skin tightening surgery took place and the scarring is visible in some of the photographs. Additionally, measurements were taken to confirm if the lymphatic drainage was beneficial from an acute standpoint. The therapist measured the following areas:

- Left and Right calf, at the midpoint of the gastrocs
- Left and Right lower quadriceps, at the lowest point of scarring identified
- Left and Right upper quadriceps, at the largest circumference
- Thighs were measured over the midpoint of the glutes

- Waist was measured just above the hips, below the abdominal incision line
- Trunk was measured at the bellybutton, just above the abdominal incision line

Measurements were taken before treatment and immediately following, therapist used a tape measure, the circumference was recorded in inches. Results were recorded in a chart, dated and stored on a password encrypted flash drive, along with the photographs.

MJ was also informed that this treatment would be of no cost to him in order to encourage active participation and follow-up in the future. MJ was provided the following assessments and treatments.

The treatment was performed in a specific order of proximal to distal and back in relation to the terminus. The technique used was the same for all lymph stations, the direction of drainage was done towards the respective station. The therapist performed a circular or wave pattern (specified in the techniques) to improve the lymph flow. The strokes used to move the lymph needed to be repeated several times in a consistent rhythm (3-7 times, of a 3 second duration) and were gentle and steady in pressure (MOCC, 2021).

The order of treatment was as follows: Terminus – Cisterna Chyli – External iliac and Inguinal Nodes – Popliteal nodes – Lower Limb Lymph – Popliteal nodes – Upper Limb Lymph – Inguinal Nodes – Abdominal Lymph – External Abdominal Nodes – Inguinal Nodes – Cisterna Chyli – Terminus.

- Lymphatic rhythm assessment: Client was assessed for their lymphatic rhythms at the following listening stations: calves, thighs, ASIS, lower and upper abdomen. They were assessed bilaterally following the SQAR methods. The therapist looked for

Symmetry, Quality, Amplitude, and Rate of the lymph rhythm. Where there was a difference, the therapist noted the specific changes for reassessment after treatment was applied (MOCC, 2021).

- **Terminus:** Client supine, therapist sitting behind the client. Therapist places hands bilaterally superior to the clients' clavicle, proximal to the sternum. The therapist applies light pressure (no greater than 5 grams) in a medial-posterior direction (MOCC, 2021).
- **Cisterna Chyli:** Client supine, therapist stands to one side of the client and places their down table hand over the clients thorax, between the belly button and sternum. The therapist applies posterior and superior pressure in a "scooping" movement to pump the nodes (MOCC, 2021).
- **External Iliac Nodes and Inguinal Nodes:** Client supine, therapist performs a "wave" motion with their down table hand, facing the client. The external iliac nodes are pumped inferior and posterior with the fingers of the therapists hand towards the inguinal nodes and the inguinal nodes are pumped posterior and superiorly with the palm of the same hand (MOCC, 2021).
- **Popliteal nodes:** Client supine, therapist on the side being treated places their down table hand under the clients knee in the popliteal space. The therapist pumps the nodes by applying anterior and superior pressure (MOCC, 2021).
- **Lower Limb Lymph:** The client is supine, therapist places both hands on either side of the clients lower leg, just above the ankle. The therapist applies a gentle superior compression towards the popliteal lymph nodes (MOCC, 2021).

- Upper Limb Lymph: The client is supine, therapist places both hands on either side of the clients upper leg, just above the knee. The therapist applies a gentle superior compression towards the inguinal lymph nodes (MOCC, 2021).
- Lower Abdominal Lymph: The client is supine, therapist places both hands on one side of the clients abdomen, below the belly button, being mindful of the watershed. The therapist applies a gentle inferior compression towards the inguinal and iliac lymph nodes (MOCC, 2021).

Results

Prior to the initial assessment, MJ confirmed that he had gone to the gym in the morning and trained his upper body. The previous he trained his legs and was concerned that the results of the case study could be affected due to excess fluid retention in the muscles due to his workout. The therapist confirmed that this would not be an issue, so long as MJ agreed to keep the same workout routine for the next three weeks to minimize any variance in testing. He presented quite upbeat, happy to try the new treatment and noted that his low back felt tight and his right quadriceps muscle was extremely tight, to the point of an aching pain.

He described that no matter how much he stretched or foam rolled the muscles, the stiffness would not go away. He also stated that the right leg complaints were ongoing for the last three weeks. His leg workout the day before did not play a role in his discomfort.

MJ presented with almost no motility of lymph flow above the knees. At the calf muscle, he had good, normal flow which was equal on both sides. Once the therapist started to assess

lymph flow near the surgical sites, the SQAR was as follows: Symmetrical, low quality, low amplitude, and low rate. During treatment, the therapist cleared all pathways and started at the calf muscle, gently encouraging lymphatic flow and moved up the entire chain. Due to the significant nature of the treatment (bilateral limbs), MJ was advised to inform the therapist immediately if at any point he started to feel unwell. After treatment was completed and measurements were taken, there was an immediate drop of 9.5 inches collectively, with the average measured site dropping anywhere from 0.5 to 1.0 inch. This result was extremely promising and in addition to the lost inches, MJ noted that his quadriceps pain was gone and his hips felt like they had more mobility. His pants also seemed to fit a little better.

MJ was encouraged to keep up with his daily exercise regimen as movement encouraged lymphatic drainage and was asked to keep a mental note of how his legs and abdomen felt throughout the week. If there was any adverse effect from the treatment, he would follow up with his physician immediately.

The following week, MJ noted that he had urinated quite a lot for two days following the treatment, more than normal, but other than that, he was feeling great. He explained that for most of the week, his pants felt more comfortable, and in the mornings, he could see more abdominal definition. MJ also noted that his right quadriceps stiffness had not returned and his hip mobility was still improved. Progress photos and measurements identified some gains of inches but not completely back to his first pre-treatment assessment. SQAR was almost identical and the treatment completed was the same as previous. MJ responded well to treatment and again he lost considerable inches, this time collectively he lost 8 inches.

Although the total loss was not as great as before, the overall results proved more significant.

The overall girth of the areas measured further decreased.

MJ and the therapist were very encouraged by the results as the theory that some of his lymphatic system had been removed during surgery was correct.

The final treatment (week three) was not completed due to scheduling conflicts but MJ confirmed that the results achieved from the second treatment had longer lasting effects. He noted that his slim-fit pants felt looser and in the morning, he could see less “love handle” around his abdomen. This of course was a subjective measure of “feeling” as the therapist was unable to measure or confirm progress. The therapist encouraged MJ regarding his ongoing benefit from the treatments and suggested further follow up and ongoing treatment. The homework was similar to previous, he would maintain activity levels, and keep up with his usual daily regimen. The therapist requested that MJ stop taking diuretics to reduce fluid storage as this in general is an unhealthy practice and could have other unknown adverse side-effects. MJ agreed to the therapists requests and agreed that this was not a healthy thing to do.

Discussion

The lymphatic system contains vessels and nodes with lymph, a mixture of proteins, water, waste products, and immune system elements. Located throughout the body, lymph nodes filter all this debris. The largest nodes are in the neck, groin, and armpits. They all work together to make sure "clean" lymph is transported back to the veins that carry blood toward the heart (Brennan, 2021).

Manual Lymphatic Therapy is an already well known treatment modality for individuals with medical conditions such as lymphedema which involves swelling, generally in one of the limbs. The swelling is caused by lymph fluid that is collected in the soft tissues, due to genetic disorders, injury, infection, cancer treatment or surgery (Brennan, 2021). With the information already known in the medical community, it is curious that on most cosmetic websites and additional research in to post-operative care, there is little to no information available. This was confirmed by the client in that recovery was to limit movement for the first three weeks in order to facilitate recovery and he was then told to increase activity as tolerated. There was no information provided about the effect on the lymphatic or fascial systems, he was told it could take up to a year to feel “normal” again.

Due to the prevalence in cosmetic surgery in North America and its expected growth in the future, supportive recovery treatments such as fascial therapy and lymphatic therapy should be part of the post-operative treatment care regiment. This could be offered within the clinic itself or done in partnership with external providers, but the cost would be part of the overall procedure. The information regarding proper care and recommendations for treatment should be more accessible to the general public to make informed decisions. The side-effects are known but not properly outlined and the surgeons care reflects a lack of understanding of the overall effect to the body as a whole.

Not only is lymphatic treatment beneficial in terms of assisting patients with swelling, but because lymph fluid also includes immune system elements and waste products, it can greatly assist with recovery and reduce long-term adverse effects from surgery.

Conclusion

Manual Lymphatic Therapy proved to be an effective form of treatment for an individual in a chronic stage of post-surgical swelling as a side effect from skin removal surgery.

Although the client in this case was extremely active and took as many steps as he could in order to eliminate the fluid retention in his legs and abdomen, the issue persisted. It appears that a portion of the lymphatic system was removed and adversely affected the body's ability to not only maintain proper lymphatic drainage, but impacted the joints as well.

Clients, like MJ, would greatly benefit from this treatment following the acute phase of surgery (within 6 weeks) to improve recovery and possibly reduce the chance of long term side effects of skin removal surgery. If significant side effects occur, such as chronic lymphedema, Manual Lymphatic Therapy performed by a Manual Osteopathic Therapist would not be appropriate. In cases like these, treatment from a certified Lymphatic Therapist, who can help create new lymph pathways would be required.

As this case study only focused on one patient (who was more likely than not in the higher percentage cohort of recovery), results are isolated to his case alone. The advantage however, is that even in a case such as his, where MJ was already active and actively participating in recovery, he still benefited from treatment. One could further assume, that Lymphatic Therapy is useful for anyone with similar conditions, so long as they do not have any medical contraindications to treatment.

Treatment of this nature, can be used as a primary or secondary form of management but how that is determined is based on an individual's condition, presentation and if they are already being treated by other modalities. A close working relationship between the surgeon and therapist is essential in assisting individuals who undergo surgery of any sort, but more so, ones that involve removal of skin or alteration of the body's structure.

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