

# Follow-Up of Mei Zen Acupuncture Application in Abdominal Obesity with Abdominal Blood Flow and Clinical Measurements

## Abdominal Obezitede Mei Zen Akupunktur Uygulamasının Abdominal Kan Akımı ve Klinik Ölçümlerle Takibi

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**ABSTRACT** Mei Zen technique, which is one of the recommended methods especially in cosmetic acupuncture, is also used in the treatment of obesity and infertility. In this method, 3 steel needles of 0.18x0.8 mm size are inserted into the same place from a single point. The aim of this case report is to examine whether the Mei Zen needling technique and the proposed protocol in the treatment of infertility and obesity in a patient with abdominal obesity change the blood flow in the abdomen and its effect on the waist circumference. Abdominal wall blood flow measurement with Doppler ultrasonography, abdominal region and weight measurements, and visceral fat measurement before and after the application were evaluated. According to the results of this case report, the obesity/infertility protocol applied with the Mei Zen acupuncture technique can increase abdominal blood circulation and reduce weight, waist circumference, visceral fat, even without dietary changes or exercise support.

**Keywords:** Obesity; acupuncture; Mei Zen technic; blood flow

**ÖZET** Özellikle kozmetik akupunkturda önerilen yöntemlerden biri olan Mei Zen tekniği obezite ve kısırlık tedavisinde de kullanılmaktadır. Bu yöntemde 0,18x0,8 mm boyutlarında 3 adet çelik iğne aynı yere tek noktadan sokulur. Bu vaka raporunun amacı, abdominal obezite şikâyeti olan bir hastada infertilite ve obezite tedavisinde Mei Zen iğneleme tekniği ile önerilen protokolün karın bölgesindeki kan akımını değiştirip değiştirmediğini ve bel çevresine etkisini incelemektir. Değerlendirme uygulama öncesi ve sonrası Doppler ultrasonografi ile abdominal kan akımı ölçümü, karın bölgesi ve kilo ölçümleri ve visceral yağ ölçümü ile gerçekleştirilmiştir. Bu vaka sunumunun sonuçlarına göre Mei Zen tekniği ile uygulanan obezite/kısırlık protokolü, diyet değişikliği veya egzersiz desteği olmadan bile karın kan dolaşımını artırabilmekte ve kilo, bel çevresi, iç organ yağlanmasını azaltabilmektedir.

**Anahtar Kelimeler:** Obezite; akupunktur; Mei Zen tekniği; kan akımı

Acupuncture provides neurophysiological effects on autonomic nervous system modulation, neuroimmunological and hormonal regulation.<sup>1</sup> Neurophysiological effects of the acupuncture can explained as follows; increase the level of anorexigenic and orexi-genic peptides secreted from the hypothalamic arcuate nucleus, increase in ghrelin, beta endorphin and adiponectin levels, decrease in leptin level.<sup>2-4</sup>

Acupuncture also provides blood flow regulation in the general and local area. For example, ST36 and LI4 point stimulation causes increased flow in the radial artery and skin microcirculation.<sup>5,6</sup> Also cerebral perfusion increases with the needling of GV14, GV20, GV26.<sup>7</sup>

Mei Zen acupuncture technique (MZAT) is one of the methods recommended in obesity/infertility.

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**FIGURE 1:** According to Mei Zen Technique, acupuncture points applied in the abdominal region and 3 needle application technique from one point.

The difference of MZAT from conventional acupuncture applications is the use of shorter needles (needle size 0.18x0.8 mm), but placing three needles at the same time on a single point. According to MZAT, the first needle placed ensures the energy to be directed to the region, while the other two needles have a strengthening effect. The points used in the treatment of obesity/infertility in the abdominal region are: CV4, CV6, CV12, CV14, ST19, ST21, ST25, ST28, ST29, SP15, LIV14, GB24, LIV13, GB26, extra points described around the umbilicus (Figure 1).<sup>8</sup>

The aim of this case report is to examine whether the proposed protocol for the treatment of infertility/obesity using the MZAT needling technique changes blood flow in the abdominal region and its effect on the waist circumference.

## CASE REPORT

MZAT application was recommended to a 45-year-old female patient, who especially complained of obesity in the abdominal region. She was stated that abdominal blood flow would be measured with Doppler ultrasonography (DUSG) before and after each session. After the patient accepted to intend the trial and obtained the informed consent the acupuncture sessions were started. The patient was an architect, married and had two children. Her periods were regular, she had no additional disease, was not on any medication, a regular exercise or nutrition program.

Before treatment, height, weight, waist circumference (cm), trunk fat (in percent, %) and visceral

fat (1-59 unit) [by bioimpedance method (Viscan AB-101, TANITA Corp., Tokyo, Japan)] were measured.<sup>9</sup> The Tanita body composition analyser provides a visceral fat rating from 1-59. According to manufacturer's instructions a rating lower than 9.5 unit states a healthy level of visceral fat, whereas ratings between 10-14.5 unit shows a slightly excessive, and 15-17 unit an excessive visceral fat level.

The patient's height was 162 cm, weight 70 kg (body mass index 26.7; overweight), waist circumference was 106 cm, trunk fat was 41.4%, visceral fat was 11.0 unit (slightly excessive).

The patient had received 8 sessions of acupuncture with MZAT, two days a week. No special diet or exercise program was recommended for her during the study. Before the treatment, measurements were made with DUSG from the right/left superior/inferior epigastric arteries. Immediately after the measurement, abdominal application was performed with the MZAT (Figure 1). The application points in the abdominal region are mentioned in introduction section. The needles were kept for 30 minutes, and immediately after the needles were removed, she was sent to the radiology department again, and DUSG measurement was made from the same regions. Measurements were performed by the same radiologist. Average time between removal of needles and DUSG administration was 23.2±7.8 minutes. There was a slight reduction in weight (69.6 kg), waist circumference (104 cm), trunk (40.4%) and visceral fat (9.5 unit) levels after eight treatment sessions.

The blood flow velocity detected in DUSG before and after each session is shown in Table 1. Mean of all blood flow measurements before treatment (right/left, inferior/superior epigastric artery) was 48.72±9.2 (31-66) cm/sec, mean of all blood flow measurements after treatment (right/left, inferior/superior epigastric artery) was 58.63±8.7 (41-79) cm/sec. When the flow rates before-after the treatment were compared (Wilcoxon Ranks Test), a statistically significant increase was found in blood flow rates ( $p=0.04$ ).

## DISCUSSION

According to the results, data on the increase in abdominal wall blood flow measured by DUSG were

**TABLE 1:** The results of the Doppler ultrasonography measurements.

|           | Right superior epigastric artery<br>1 <sup>st</sup> measurement | Right superior epigastric artery<br>2 <sup>nd</sup> measurement | Difference | Left superior epigastric artery<br>1 <sup>st</sup> measurement | Left superior epigastric artery<br>2 <sup>nd</sup> measurement | Difference |
|-----------|---|---|------------|--|--|------------|
| Session 1 | 31  | 61  | +30        | 37   | 52   | +15        |
| Session 2 | 50  | 62  | +12        | 45   | 62   | +17        |
| Session 3 | 45  | 47  | +2         | 50   | 52   | +2         |
| Session 4 | 42  | 64  | +22        | 41   | 59   | +2         |
| Session 5 | 40  | 49  | +9         | 43   | 59   | +16        |
| Session 6 | 49  | 51  | +2         | 56   | 58   | +2         |
| Session 7 | 66  | 79  | +13        | 63   | 76   | +13        |
| Session 8 | 53  | 72  | +19        | 56   | 69   | +13        |
| Mean±SE   | 47±10.3   | 60.6±11.3   |            | 48.9±8.9   | 60.9±8.2   |            |
|           | Right inferior epigastric artery<br>1 <sup>st</sup> measurement | Right inferior epigastric artery<br>2 <sup>nd</sup> measurement | Difference | Left inferior epigastric artery<br>1 <sup>st</sup> measurement | Left inferior epigastric artery<br>2 <sup>nd</sup> measurement | Difference |
| Session 1 | 36  | 56  | +20        | 35   | 51   | +16        |
| Session 2 | 39  | 41  | +2         | 37   | 53   | +16        |
| Session 3 | 55  | 53  | -2         | 56   | 57   | +1         |
| Session 4 | 52  | 54  | +2         | 56   | 57   | +1         |
| Session 5 | 44  | 56  | +12        | 43   | 52   | +9         |
| Session 6 | 50  | 54  | +4         | 52   | 58   | +6         |
| Session 7 | 59  | 60  | +1         | 56   | 76   | +20        |
| Session 8 | 59  | 61  | +2         | 63   | 65   | +2         |
| Mean±SE   | 49.2±8.8  | 54.4±6.1  |            | 49.8±10.2  | 58.6±8.3   |            |

SE: Standard error.

obtained at the end of 8 sessions treatment with MZAT. In the evaluations of weight, waist circumference and visceral fat measurement, data were obtained in tendency of reduction without diet change and exercise support.

It has been shown in many studies that local blood flow increases in local applications.<sup>5,10,11</sup> Selection of acupuncture points on the anterior abdominal wall was conducted considered the feeding area of the abdominal wall. Therefore, superior and inferior epigastric artery flow rates were evaluated.<sup>10</sup> In a study, local perfusion was detected both during and after the application in which evaluations made with a Doppler perfusion imager.<sup>11</sup>

When the points used in the MZAT are examined in the light of the literature, it's seen that these points are used and preferred in the treatment of both infertility and obesity. For example, the points used in a study evaluating the treatment of postpartum obesity are as follows; ST25, ST28, ST40, SP15, CV9

and SP6.<sup>12</sup> Suggested points in another obesity study were ST25, ST28, ST40, SP15, CV9.<sup>13</sup>

In MZAT, the same points are used in the treatment of both infertility/obesity. The certain points are set in the form of a protocol and those points are used.<sup>8</sup> According to the Traditional Chinese Medical (TCM) perspective, the features of the points used in MZAT can be explained as follows: The main purpose of infertility treatment in TCM is to increase the flow of Qi to the reproductive organs (CV4, CV6, ST21, ST25, ST28, ST29, ST30), warm the blood for better blood circulation (CV4, LIV13, LIV14, GB24, GB26), and unblock the flow of body fluids (CV4, GB26). In this way, phlegm caused by blood stasis and accumulated body fluids are resolved. If phlegm occurs in the lower heater, the kidney cannot support the liver, the toxin excretion provided by the liver-kidney meridians does not occur, the immune system functions deteriorate and a problem occurs in the reproductive organs. CV4, CV6 (in lower energizer),

CV12, GB26 (in middle energizer) and LIV14 provide to move the stagnant Qi, tonify Spleen, Kidney and Lungs, so regulate the water in this way. Increasing circulation is the main goal and point selection is made accordingly.<sup>13,14</sup> From a general perspective, the activating blood circulation (ST25, ST28, ST29, ST30, C4) and removing stasis (CV4, LIV13, LIV14) treatment provided by Chinese medicine methods supports and promotes qi, clears heat, removes toxic substances, warms the meridians, dispels wind, eliminates dampness, nourishing yin, sputum dissolves. Thus, it improves microcirculation by expanding blood vessels.<sup>14</sup> The relation of adipocytes, stromal cells, vascular cells and macrophages are complex. Although the adipokines and cytokines to send autocrine and paracrine signals adipose tissue-derived adipokines both impair liver and insulin metabolism and cause systemic inflammation.<sup>15</sup> Increase in circulation in both subcutaneous and visceral fat helps to prevent inflammatory and metabolic effects by providing may rapid removal of adipokines and cytokines from the environment. For this reason, in our case, we focused on abdominal blood flow and the patient's examination findings.

The fact that clinical parameters such as blood pressure and pulse, which may affect abdominal

blood flow, were not evaluated at this stage can be considered as a limitation of the case report.

The obesity/infertility protocol applied with the MZAT can increase abdominal blood circulation and reduce weight, waist circumference, visceral fat, even without dietary changes.

### Source of Finance

*During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.*

### Conflict of Interest

*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.*

### Authorship Contributions

**Idea/Concept:** Füsun Şahin; **Design:** Füsun Şahin, Nuran Sabir Akkoyunlu; **Control/Supervision:** Füsun Şahin; **Data Collection and/or Processing:** Nuran Sabir Akkoyunlu; **Analysis and/or Interpretation:** Füsun Şahin, Nuran Sabir Akkoyunlu; **Literature Review:** Füsun Şahin; **Writing the Article:** Füsun Şahin; **Critical Review:** Nuran Sabir Akkoyunlu; **Materials:** Nuran Sabir Akkoyunlu.

## REFERENCES

1. Cho ZH, Hwang SC, Wong EK, Son YD, Kang CK, Park TS, et al. Neural substrates, experimental evidences and functional hypothesis of acupuncture mechanisms. *Acta Neurol Scand.* 2006;113(6):370-7. [[Crossref](#)] [[PubMed](#)]
2. Wang F, Tian DR, Han JS. Electroacupuncture in the treatment of obesity. *Neurochem Res.* 2008;33(10):2023-7. [[Crossref](#)] [[PubMed](#)]
3. Cowley MA, Smart JL, Rubinstein M, Cerdán MG, Diano S, Horvath TL, et al. Leptin activates anorexigenic POMC neurons through a neural network in the arcuate nucleus. *Nature.* 2001;411(6836):480-4. [[Crossref](#)] [[PubMed](#)]
4. Belivani M, Dimitroula C, Katsiki N, Apostolopoulou M, Cummings M, Hatzitolios AI. Acupuncture in the treatment of obesity: a narrative review of the literature. *Acupunct Med.* 2013;31(1):88-97. [[Crossref](#)] [[PubMed](#)]
5. Yang CC, Lin GM, Wang JH, Chu HC, Wu HT, Chen JJ, et al. Effects of combined far-infrared radiation and acupuncture at ST36 on peripheral blood perfusion and autonomic activities. *Evid Based Complement Alternat Med.* 2017;2017:1947315. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
6. Sandberg M, Lundeberg T, Lindberg LG, Gerdle B. Effects of acupuncture on skin and muscle blood flow in healthy subjects. *Eur J Appl Physiol.* 2003;90(1-2):114-9. [[Crossref](#)] [[PubMed](#)]
7. Kim JH, Choi KH, Jang YJ, Bae SS, Shin BC, Choi BT, et al. Electroacupuncture acutely improves cerebral blood flow and attenuates moderate ischemic injury via an endothelial mechanism in mice. *PLoS One.* 2013;8(2):e56736. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
8. Lucas M. *Pulse Diagnosis: Beyond Slippery and Wiry: Key to the Practise of TCM.* 2nd ed. The Colorado Center of Traditional Medicine; 2018.
9. Gómez-Ambrosi J, González-Crespo I, Catalán V, Rodríguez A, Moncada R, Valentí V, et al. Clinical usefulness of abdominal bioimpedance (ViScan) in the determination of visceral fat and its application in the diagnosis and management of obesity and its comorbidities. *Clin Nutr.* 2018;37(2):580-9. [[Crossref](#)] [[PubMed](#)]
10. Joy P, Prithishkumar JJ, Isaac B. Clinical anatomy of the inferior epigastric artery with special relevance to invasive procedures of the anterior abdominal wall. *J Minim Access Surg.* 2017;13(1):18-21. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]

11. Min S, Lee H, Kim SY, Park JY, Chae Y, Lee H, et al. Local changes in microcirculation and the analgesic effects of acupuncture: a laser Doppler perfusion imaging study. *J Altern Complement Med.* 2015;21(1):46-52. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
12. Hung YC, Hung IL, Hu WL, Tseng YJ, Kuo CE, Liao YN, et al. Reduction in postpartum weight with laser acupuncture: a randomized control trial. *Medicine (Baltimore).* 2016;95(34):e4716. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
13. Birkeflet O, Laake P, Vøllestad N. Traditional Chinese medicine patterns and recommended acupuncture points in infertile and fertile women. *Acupunct Med.* 2012;30(1):12-6. [[Crossref](#)] [[PubMed](#)]
14. Ross J. *Acupuncture Point Combinations: The Key of Clinical Success.* 1st ed. Singaropre: Churchill Livingstone; 1995.
15. Ruan H, Lodish HF. Regulation of insulin sensitivity by adipose tissue-derived hormones and inflammatory cytokines. *Curr Opin Lipidol.* 2004;15(3):297-302. [[Crossref](#)] [[PubMed](#)]