



## **Effleurage Massage for Pain Relief in Pregnant Women**

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### **ABSTRACT**

Pregnancy is an event that begins with conception and ends with the onset of labor. Pregnancy is divided into three trimesters, the first trimester (0-12 weeks), the second trimester (13-27 weeks), and the third trimester (28-40 weeks). During the pregnancy process will cause various changes in all body systems, both physiological changes and psychological changes that can cause discomfort to pregnant women. Physiological changes that often occur in pregnant women such as dyspnea, insomnia, gingivitis, frequent urination, pressure and discomfort in the perineum, back pain, constipation, varicose veins, fatigue, Braxton hicks contractions, leg cramps, ankle edema. Not only physiologically, changes in pregnant women also occur psychologically such as changes in mood and increased anxiety.

One of the physiological changes that pregnant women often complain about is back pain. According to Ratih (2016), the results of research on pregnant women in various regions of Indonesia reached 60-80% of people who experience back pain in their pregnancy. The reported prevalence of back pain in pregnancy varies from 50% in the UK and Scandinavia to 70% in Australia. Back pain experienced by pregnant women will peak at week 24 to week 28, just before abdominal growth reaches its maximum point. Most back pain during pregnancy occurs due to changes in the spinal muscles, as much as 70%.

Back pain in pregnant women can be treated both pharmacologically and non pharmacologically. One of the non-pharmacological therapies that can be given is Effleurage Massage, which provides a gentle, slow and uninterrupted massage on the back of pregnant women so that it can cause relaxation and reduce pain.

Keywords: Effleurage Massage, Pain, Pregnant Women

### **INTRODUCTION**

Pregnancy is preceded by conception until gestational age reaches 38-42 weeks. Pregnancy is divided into three trimesters, namely the first trimester (0-12 weeks), the second trimester (13-27 weeks), and the third trimester (28-40 weeks). During the pregnancy process, pregnant women experience physiological, psychological and social changes. Physiological changes that occur not only in the reproductive organs but also in all body systems, namely the cardiovascular, respiratory, urinary, integumentary, musculoskeletal, neurological, digestive and endocrine systems. Physiological changes are needed to protect the normal function of the mother in providing for the needs for fetal growth and development. These changes cause specific symptoms according to the stage of pregnancy. Not only physiologically, changes in pregnant women also occur psychologically such as changes in mood and increased anxiety.



One of the physiological changes that pregnant women often complain about is back pain. Back pain that is not treated promptly, can lead to long-term back pain, an increased tendency for post-partum back pain, and chronic back pain which will be more difficult to treat or cure (Fraser, 2009). According to Ratih (2016), the results of research on pregnant women in various regions of Indonesia reached 60-80% of people who experience back pain in their pregnancy. The reported prevalence of back pain in pregnancy varies from 50% in the UK and Scandinavia to 70% in Australia. Back pain experienced by pregnant women will peak at week 24 to week 28, just before abdominal growth reaches its maximum point. Most back pain during pregnancy occurs due to changes in the spinal muscles, as much as 70%.

Back pain in pregnant women can be treated both pharmacologically and non pharmacologically. One of the non-pharmacological therapies that can be given is Effleurage Massage, which provides a gentle, slow and uninterrupted massage on the back of pregnant women so that it can cause relaxation and reduce pain.

## **DISCUSSION**

### **1. Pregnancy**

Pregnancy is a series of events that occur when the ovum is fertilized and the ovum finally develops until it becomes a fetus at term. Pregnancy is the conception of a fetus from the fertilization of an egg by sperm cells (Bobak, 2004). Pregnancy is preceded by conception until gestational age reaches 38-42 weeks. Pregnancy is divided into three trimesters, namely the first trimester (0-12 weeks), the second trimester (13-27 weeks), and the third trimester (28-40 weeks).

### **2. Physiological Changes of Pregnancy**

Physiological changes occur due to the activity of pregnancy hormones and mechanical stress due to the enlargement of the uterus and other tissues (Perry, Hockenberry, Lowdermilk, & Wilson, 2014). These changes occur in all body systems, including:

#### **a. Reproductive system and breast**

##### **1. Ovaries (Pillitteri, 2010)**

After implantation, the fertilized ovum and chorionic villi produce HCG to maintain the corpus luteum to produce estrogen and progesterone. This occurs during the first 8 to 10 weeks of pregnancy, so the placenta takes over this function.



Levels of estrogen and progesterone increase causing the pituitary gland to stop secreting Follicle Stimulating Hormone (FSH) and Luteinizing Hormone (LH). As a result, follicle maturation and ovum release do not occur so that the menstrual cycle stops but at least 20% of mothers experience small bleeding early in pregnancy without pain ( Pillitteri, 2010).

## 2. Uterus

Uterine growth in the first trimester due to stimulation of high levels of the hormones estrogen and progesterone leads to increased vascularity and dilation of blood vessels, hyperplasia, hypertrophy and development of decidua.

The uterus also changes in weight, shape and position. The uterus which originally weighs 30 grams will experience hypertrophy (enlargement of muscle fibers and new fibroelastic tissue) so that it becomes 1000 grams at the end of pregnancy, the uterine muscles undergo hyperplasia and hypertrophy becomes larger, soft, and can follow the enlargement of the uterus due to fetal growth. Rather muscles strengthen and become more elastic. At weeks 7 and 8, increased uterine and lymphatic blood flow results in pelvic edema and congestion. As a result, the uterine isthmus progressively softens, namely Hegar's sign, softening of the cervix known as Goodell's sign and uterine flexibility where the uterus and cervix join is called McDonald's sign. After the 8th week the corpus uteri and cervix soften and enlarge as a whole. As the uterus expands, the uterus eventually exits the pelvic cavity and can be palpated over the symphysis pubis between weeks 12 and 14 to predict an increase in size. This softening of the isthmus causes excessive uterine ante flexion during the first three months of pregnancy, as a result of which the fundus presses on the bladder causing the mother to experience frequent urination (Ward & Hisley, 2009).

Uterine contractions begin at the beginning of pregnancy for at least 12 weeks until the end of pregnancy. These contractions, known as Braxton Hicks, are usually painful.

## 3. Vagina and Vulva (Ward & Hisley, 2009)

Pregnancy hormones cause vaginal distension by producing thick vaginal mucosa, loose connective tissue, smooth muscle hypertrophy and vaginal lengthening. Increased vascularization giving off a bluish purple color to the vaginal



mucosa and cervix is called Chadwicks sign, can appear at the sixth week but is easily seen at the 8<sup>th</sup> week of pregnancy.

Desquamation of glycogen-rich vaginal cells results from stimulation of estrogen. These cells form a thick, whitish vaginal discharge called leukorrhea. In the non-pregnant condition, vaginal pH is 3.8 - 4.2. During pregnancy, the pH of the vagina becomes more alkaline, making pregnant women more susceptible to vaginal infections, especially yeast infections. The response of the mother to feel excessive itching, which makes her uncomfortable.

#### 4. Breast (Pillitteri, 2010)

Breast changes that occur during pregnancy according to Pilltteri (2010) can be described as follows:

- a. 3-4 weeks of gestation there is an increase in blood supply around the nipples causing the mother to experience a feeling like prickling and a tingling sensation.
- b. At 6 weeks gestation, there is dilation of the ducts and glands causing large breasts, tensions, pain, fullness, increased sensitivity and a feeling of heaviness in the breasts. Breast sensitivity varies from mild tingling to sharp pain.
- c. At 8 weeks gestation, blood vessels that were previously not visible are now visible. Often appears as a knot of blue tissue beneath the surface of the skin. The nipples on the areola and the nipples become more erectile.
- d. At 8-12 weeks of gestation, monigomery's tubercles become more prominent in the areola. The secretions of these sebaceous glands secrete sebum which makes the nipples soft and supple. These secretions can prevent the nipples from cracking and drying out during the breastfeeding period.

Breasts undergo growth and development in preparation for breastfeeding during lactation. Breast development cannot be separated from the influence of hormones during pregnancy, namely estrogen, progesteron, and somatomaotrofin

#### b. Cardiovascular System (Pillitteri, 2010)

Changes in the cardiovascular system, namely hypertrophy or mild dilation of the heart caused by an increase in blood volume and cardiac output. This results in increased work of the heart starting in the fourth week of pregnancy with a mean value of about 70-85 beats / minute. The contents of the cylinder increased from about 64 ml to 71 ml.



Cardiac output gradually increases by about 40% by the end of the first trimester when blood flow has not increased significantly. Although cardiac output increases during pregnancy, blood pressure does not increase. This is due to a 50% decrease in peripheral resistance from before pregnancy can be seen from the value of constant systolic pressure and diastolic pressure decreased slightly.

The capacity of blood vessels and venules can increase because progesterone can relax muscles so that the artery walls relax and enlarge. This may also be related to increased prostaglandin production. In response to these cardiovascular changes, mothers look easily tired in doing activities, often rest, sleep and look pale (Pillitteri, 2010).

c. Respiration System (Pillitteri, 2010)

Changes in ventilation and the anatomy of the respiratory system during pregnancy aim to provide for the oxygen needs of both the mother and the fetus. Maternal oxygen demand increases in response to an accelerated metabolic rate due to increased oxygen demand for uterine and breast tissue.

The high level of CO<sub>2</sub> transferred by the fetus can increase maternal respiratory ventilation to replace excess CO<sub>2</sub>, causing the mother's total ventilation capacity to increase by 40%. This can slightly increase the pH in the blood (Pillitteri, 2003).

In addition to changes in the respiratory system to be able to meet O<sub>2</sub> needs, there is also a pressure on the diaphragm due to the push of the enlarging uterus, as compensation, the mother will breathe more deeply (+ 20 to 25% than usual) (Pillitteri, 2010).

d. Urinary System (Pillitteri, 2010)

Changes in the structure of the kidneys are caused by the activity of the hormones estrogen and progesterone, the pressure caused by an enlarged uterus and an increase in blood volume. These changes affect the circulation of fluids, kidneys, urinary tract and bladder function. Kidney function changes due to pregnancy hormones, increased blood volume, maternal posture, physical activity and food intake.

The glomerular filtration rate (GFR) and renal plasma flow increase in early pregnancy. The kidneys accommodate increased metabolism and circulation of the mother's body and excrete fetal nutrients. From the 10<sup>th</sup> week of pregnancy, the renal



pelvis and ureters dilate above the pelvic inlet. This dilation is more pronounced on the right side. The smooth muscle walls of the ureters undergo hyperplasia, hypertrophy and relaxation of muscle tone. The ureter is elongated, winding and forms a single or double indentation.

The bladder capacity increases by about 1500 ml and the uterus rises on the right side of the abdomen, driven by sigmoid enlargement. This causes pregnant women to feel an increase in the frequency of urination throughout the first trimester until the uterus rises out of the pelvis and releases pressure on the urinary bladder (Pillitteri, 2010).

Under normal circumstances, 500 to 900 mEq of sodium is maintained throughout pregnancy to meet the needs of the fetus. The frequency of urination for non-pregnant women 4-5 times / day. During pregnancy, this frequency increases, but does not cause dehydration.

Because caregivers are enlarging the uterus, pregnant women often urinate or urinate. This pressure causes the bladder to feel full quickly. The occurrence of hemodilution causes water metabolism to run smoothly so that urine formation will increase

e. Integumentary System (Ward & Hisley, 2009)

Common changes include increased skin thickness and subdermal fat, hyperpigmentation, hair and nail growth, accelerated sweat and sebaceous gland activity, increased circulation and vasomotor activity. Hyperpigmentation is seen on the face and neck due to an ACTH-like polypeptide, increasing from the second month of pregnancy (Ward & Hisley, 2009).

There are changes in pigment deposits and hyperpigmentation due to the influence of the melanophore stimulating hormone (MSH) of the anterior pituitary lobe and the influence of the supraenal gland.

The changes to the integumentary system are:

1) Advance

On both cheeks and nose so that it resembles a mask and is called a pregnancy mask or cloasma gravidarum or zwangerchap mask.

2) Areola mammae and nipples

The areola and nipples are darker due to hyper-pigmentation.



3) Stomach

Linea alba is a black line that runs from the symphysis to the center, during pregnancy the color will be darker. In addition, there will be a new line that runs in the middle of the center upwards called the linea nigra (Pillitteri, 2010).

There are also striae gravidarum which are lines on the skin, there are 2 types of striae:

- a) Striae lividae are stripes that are blue in color on the skin, because they are new striae (in primi).
- b) Striae albicans is a striae lividae that becomes shiny white and leaves a scar like a cicatrix (in multi).

f. Musculoskeletal System (Pillitteri, 2010)

Gradual body changes and increased weight of pregnant women cause the mother's posture and gait to change significantly. The need for calcium and phosphorus increases during pregnancy to form the fetal skeleton. Back pain is often felt by mothers at 24 weeks to 28 weeks of gestation (Pillitteri, 2010).

g. Neurological Systems (Perry, Hockenberry, Lowdermilk, & Wilson, 2014)

The neurological system in the first trimester has not changed much because the enlargement of the uterus has not put pressure on the nervous system. The headache that the mother feels in early pregnancy is due to tension, usually when the mother feels anxious and uncertain about her pregnancy and can also be associated with visual disturbances, such as refractive errors, sinusitis or migraines. Mild headaches, feeling faint can even be caused by vasomotor instability, postural hypotension or hypoglycemia (Perry, Hockenberry, Lowdermilk, & Wilson, 2014).

h. Digestive System (Ward & Hisley, 2009)

The gums become edematous and tender during pregnancy, causing some mothers to bleed when brushing their teeth. Increased saliva often also occurs in pregnant women called hyperptyalism, as a local response to increased estrogen. This is something that is not annoying but can be a serious problem (Ward & Hisley, 2009).

Liver function changes and nutrient absorption increases. The large intestine is shifted towards the upper and posterior lateral. Decreased peristalsis results in loss of bowel sounds, constipation and nausea and vomiting which can cause appetite to





change. This symptom appears in about half the number of pregnancies and is a result of changes in the digestive tract and increased levels of HCG in the blood (Ward & Hisley, 2009).

Nausea and vomiting make it difficult for about 70% of pregnancies. In general, nausea and vomiting starts around 4-8 weeks and continues for about 14-16 weeks. The frequency of nausea and vomiting in the first trimester is not more than 10 times / day, because it is an indication of hyperemesis gravidarum. Although difficult, makes the mother weak and sometimes causes weight loss in early pregnancy, nausea and vomiting rarely cause imbalance (Ward & Hisley, 2009).

According to Pillitteri (2010), the causes of nausea and vomiting can be described as follows:

- 1) During pregnancy there are changes in the endocrine system with an increase in HCG at 12-16 weeks which can stimulate nausea and vomiting command points in the back of the brain. HCG together with the hormone luteum are secreted by trophoblast cells from the blastocyst directly to the ovarian regulator pituitary then rapidly the corpus luteum produces estrogen and progesterone.
- 2) Changes in carbohydrate metabolism cause low blood sugar during the 1st trimester of pregnancy.
- 3) Nausea and vomiting can occur due to an increase in blood pressure, some of which are caused by a decrease in blood pressure.
- 4) The stretching of the uterine muscles causes a reaction in the digestive tract, namely reduced gastric motility, excess stomach acid due to not eating or eating wrongly and deficiency of pyridoxine or vitamin B6.
- 5) Predisposing factors for nausea and vomiting such as fatigue, gastro esophageal reflux, nausea and vomiting before pregnancy, smoking, interaction difficulties and pregnant women with parents who have experienced nausea and vomiting during pregnancy.

Due to the influence of estrogen, stomach acid secretion increases which can cause:

- 1) Hypersalivation.
  - 2) The stomach area feels hot.
  - 3) Morning sickness, emesis gravidarum.
  - 4) Hyperemesis gravidarum.
  - 5) Progesterone causes decreased bowel movements resulting in obstipation.
- i. Endocrine System (Pillitteri, 2010)





The fetus requires a significant amount of glucose for growth and development. Efforts to meet growth fuel needs, the fetus not only consumes maternal glucose stores, but also reduces the mother's ability to synthesize glucose by draining out the mother's amino acids (Pillitteri, 2010).

The mother has a supply of glucose at every meal, to be transferred to the fetus. Fasting and plasma glucose concentrations fall throughout the first trimester by about 12%, rising between 16 and 32 weeks, then drop again as maternal glucose use continues to increase for the fetus. This decrease in glucose also occurs in early pregnancy because the pancreas decreases its insulin production, so that the mother's insulin cannot penetrate the placenta to reach the fetus (Pillitteri, 2010).

Serum prolactin begins to increase progressively in the first trimester to term, in preparation for breastfeeding mothers. Another change in the endocrine system occurs in that the immunological abilities during pregnancy appear to be reduced, perhaps to prevent the mother's body from rejecting the fetus. This reduced production of IgG can make the mother more likely to develop infections.

Discomforts that are often complained by mothers in the first trimester are nausea, vomiting, lack of appetite, headaches, fatigue, frequent urination and pain due to breast engorgement.

### **3. Back Pain**

Back pain (lumbar strain) is back pain that occurs spontaneously and has a high enough degree of pain that it can cause disruption in activity and posture. Back pain often appears during pregnancy is more common in the back area. According to Astuti (2010), back pain that occurs during pregnancy can be caused by:

- a. Enlargement of the uterus due to the growing fetus pressing on the spine and pelvis, and changing the mother's posture to the front (lordosis).
- b. Muscle spasm due to pressure on the nerves in the spine.
- c. Increased hormone levels cause ligaments and joints to become weak.
- d. Fatigue.
- e. Poor body mechanism when lifting and picking up goods.

### **4. Effleurage Massage**

- a) Definition of Effleurage Massage



Effleurage Massage is a massage technique in the form of gentle, slow, long or continuous strokes. This technique induces relaxation. Effleurage is done by using the palms of the hands so that the tips of the fingers are against the skin and pressing gently and lightly.

b) Benefits of Effleurage Massage

The benefits of doing Effleurage Massage are:

- a. Massage or light rubbing can increase oxytocin which can cause comfort and satisfaction.
- b. Massage can reduce stress hormones and increase the hormone oxytocin and can help reduce anxiety.
- c. Gentle pressure with the palms of the hands can improve blood circulation.
- d. This massage can also help reduce back pain in pregnant women.

c) Purpose of Effleurage Massage

The goals of Effleurage Massage are:

- a. Blood circulation
- b. Reducing back pain response
- c. Reduces muscle tension

d) Indication of Effleurage Massage

- a. Pregnant women with complaints of muscle stiffness and tension in the back
- b. Pregnant women with complaints of discomfort in the back area

e) Effleurage Massage Contraindications

- a. Pain in the area to be massaged
- b. Wounds in the area to be massaged
- c. Skin disorders or diseases
- d. Do not do massage directly on the tumor area
- e. Do not massage areas that have ecchymosis or bruising.
- f. Avoid doing massage on areas that are inflamed or inflamed
- g. Avoid doing massage on areas that have open wounds

f) Effleurage Massage Steps



- a. Preparation for Pregnant Women
  1. Give greetings, introduce yourself and identify the client by checking the identity of the client carefully.
  2. Describe the procedure of action to be performed, give the client the opportunity to ask and answer all client questions.
  3. Prepare the necessary equipment.
  4. Manage ventilation and good air circulation
  5. Position the client so that he feels safe and comfortable.
  
- b. Tools preparation
  1. Olive oil / baby oil for massage
  2. tissue
  3. large bath towels
  4. one small towel
  5. a pillow and a small bolster and blanket.
  
- c. Action Procedure
  1. Tell the client that action is about to begin.
  2. Check the client's vital signs before starting remedial efflourage massage on the back.
  3. Position the patient on his left side to prevent fetal hypoxia;
  4. If the patient is still able to sit, give him a kneeling position and then lie down on a large pillow as comfortable as possible;
  5. Instruct the patient to take a deep breath through the nose and slowly exhale through the mouth until the patient is relaxed.
  6. Pour the baby oil on the palms of your hands then rub your hands together until they are warm.
  7. Place both hands on the patient's back, starting in a stroking motion and moving from the shoulders towards the sacrum;
  8. Make small circular movements using your thumbs down the spine area, moving them slowly, applying pressure, directing the pressure down so as not to push the patient forward.
  9. Wipe the back from the head to the tailbone, to prevent lumbar lordosis.
  10. Clean the remaining oil or lotion on the client's back with a towel.



11. Trim the client to its original position.
  12. Notify that the action has been completed
- d. Evaluation
1. Evaluate the results achieved (pain scale reduction)
  2. Give positive reinforcement to pregnant women
  3. Contract for the next meeting
  4. End the meeting well
- e. Documentation
1. The date or time the action was performed
  2. The name of the action
  3. Client response during action
  4. Name and initials of the nurse

### **CONCLUSION**

Pregnancy is a series of events that occur when the ovum is fertilized and the ovum finally develops until it becomes a fetus at term. During the pregnancy process will cause various changes in all body systems, both physiological changes and psychological changes. One of them is back pain, back pain can be treated both pharmacologically and non pharmacologically. The therapy that can be given to treat back pain in pregnant women is Efflurage Massage, which is a massage technique in the form of gentle, slow, and long strokes or not intermittent. This technique induces relaxation. Effleurage is done by using the palms of the hands so that the tips of the fingers are against the skin and pressing gently and lightly.

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