

Relationship between Pregnancy and Lactation Status and De Quervain's Syndrome

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ABSTRACT

Background: De Quervain's Syndrome is a collection of symptoms accompanied by inflammation and pain in the tendon sheath that covers the extensor pollicis brevis and abductor pollicis longus muscles. These symptoms appear as a result of cumulative (repeated) microtrauma and overuse causing malfunction of the tendon sheath. Cause of De Quervain's Syndrome is still not known for certain. Due to hormonal factors, it is more common in pregnant women and most common in people aged 30 to 55 years. This study aimed to examine the relationship between pregnancy and lactation on the incidence of de Quervain' syndrome.

Subjects and Method: This was an observational study conducted at the PDHI Islamic Hospital, Yogyakarta, from August to September 2023. Total sample of 70 third trimester of pregnant women or lactating mothers who had children aged 1 month to 1 year was selected purposively. The dependent variable was De Quervain's syndrome. The independent variable was pregnancy and lactation. The data were collected using a questionnaire and analyzed by Chi square test.

Results: Pregnancy and lactation reduced the risk of de Quervain's syndrome (OR= 0.34; 95% CI= 0.125 to 0.907; p=0.029).

Conclusion: Pregnancy and lactation reduced the risk of de Quervain's syndrome.

Keywords: De Quervain's syndrome, pregnancy, lactation

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BACKGROUND

Pregnancy is a physiological process that causes changes in the musculoskeletal system. Changes occur due to posture, hormones, weight gain and fluid retention. This occurs most often in the third trimester. These changes may lead to pathological events, such as low back pain, carpal tunnel syndrome, de quervain syndrome, soft tissue pain syndrome, chondromalacia dipatella, osteonecrosis of the femoral neck,

and transient osteoporosis of hip and leg cramps. (Balik et al., 2014). Hand and wrist problems are a frequent complaint in pregnant women. These problems can reduce the quality of pregnant women. In the research description by Kesikburun et al., hand and wrist problems during pregnancy are the third most common problem.

Mommy's thumb, or "Baby's wrist" is a condition in which the mother is approximately 8 months postpartum. This is a

tenosynovitis known as de quervain syndrome, of the wrist compartment. This diagnosis occurs due to excessive use when carrying a baby. In this situation the hand is in flexion and ulnar diversion while the thumb is in extension. The cause is thought to originate from the endocyst which causes fluid retention in breastfeeding mothers, which is seen in the first three months postpartum (Spicer et al., 2022). The ultrasound image showed synovial thickening and increased vascularization on color Doppler images in the compartments bilaterally where it was found that the left was worse than the right, these findings were consistent with the diagnosis of bilateral one-compartment tenosynovitis, known as de quervain's tenosynovitis.

Nursing mothers face a very important period in providing nutrition and care for their babies. However, they are often faced with several health challenges, including medical conditions that cause pain and discomfort while breastfeeding (Mak, 2019). Mothers don't know how to breastfeed properly because of a lack of understanding about it (Wahyuni, Muhtadi, dan Pradanie, 2018). De quervain syndrome in mothers who have just given birth to children aged 1 year. This often occurs due to carrying a child, excessive use of the wrist, and can also occur due to fluid retention during breastfeeding. The cause is thought to originate from the endocrine system which causes fluid retention in nursing mothers, which can be seen in the first 3 months postpartum (Spicer et al., 2022).

One type of musculoskeletal disorder is De Quervain Syndrome. De Quervain's syndrome is a muscle injury characterized by inflammation followed by severe pain in the area of the tendon membrane located in the synovial sheath, which covers the extensor pollicis brevis and abductor

pollicis longus. Typical symptoms of this syndrome are pain, numbness and tingling, especially in the area of the extensor pollicis tendon which is at the base of the thumb towards the wrist (Nur Amanda et al., 2020). Wrist pain that occurs in adults is called De Quervain's Syndrome. Most cases are related to overuse and local trauma that can cause it (Mak 2019). Women between the ages of 30 - 50 years often experience this condition, and some of them experience it after giving birth to children (Mak, 2019).

De Quervain's Syndrome is caused by trauma or excessive loading, with typical symptoms felt by sufferers in the form of complaints of sharp pain, numbness and tingling, especially in the extensor pollicis brevis tendon and the abductor pollicis longus tendon which is located at the base of the thumb towards the wrist (Nur Amanda et al. 2020). De Quervain's Syndrome is wrist pain that occurs in adults. However, most cases of De Quervain's Syndrome are related to overuse, and local trauma can also trigger the condition (Mak, 2019). De Quervain's Syndrome most often in women between the ages of 30 and 50 years, including a small proportion of women in the postpartum period (Mak 2019).

De Quervain Syndrome has a prevalence of 0.5% in men and 1.3% in women (Emily R. Howell, 2021). There is an 8:1 ratio of men and women affected (Awad et al., 2017).

Patients with De Quervain Syndrome experience difficulty in gripping and carrying out daily activities characterized by pain on the radial side of the wrist (Mak, 2019). Severe pain caused by movements and activities that require ulnar deviation with the fist and flexion of the thumb. These activities include wringing a towel, lifting a

child, gripping a golf club, etc (Goel and Abzug 2015).

Fluid retention during the third trimester of pregnancy and lifting the baby while breastfeeding repeatedly in certain positions predisposes to de quervain syndrome which is characterized by pain in the radial styloid and a positive Finkelstein test (+) (Afshar and Tabrizi 2021).

The exact cause of De Quervain's Syndrome is not yet known, De Quervain's Syndrome is often found in pregnant women due to hormonal factors, the highest prevalence is at the age of 30 - 55 years (Suryani, 2018). Several factors are thought to be the cause: 1) overuse; repetitive and excessive movements that overload the carpometacarpal joint, 2) direct trauma; occurs in the abductor pollicis longus and extensor pollicis brevis tendons due to radial and ulnar deviation maneuvers, 3) arthritis; inflammation that causes bone erosion at the joint edges and osteoclast reabsorption.

De Quervain's syndrome arises from cumulative (repetitive) microtrauma. Overuse causes malfunction of the tendon sheath. A mother who has just given birth is at risk of developing De Quervain's syndrome, because the movement of lifting and carrying the baby causes the ulnar axis of the hand to deviate. (Peterrson, Donald, R. Bronzino 2015). One of the main symptoms of De Quervain Syndrome is pain, treating pain can reduce or eliminate problems such as joint stiffness and the inability to carry out activities involving the thumb or functional disability. Sharp pain in the wrist when flexing the thumb in ulnar deviation, the pain worsens during extension movements of the metacarpophalangeal joint of the thumb. Palpation of the wrist causes pain, there may be swelling or creasing (Davenport et al., 2013).

Based on clinical findings and the Finkelstein test, the patient experienced difficulty

in grasping activities (Davenport, Todd E, kuldig, K, Sebelski, C Gordon, J Watts, Hugh 2013). Based on clinical findings and the Finkelstein test, the patient experienced difficulty in grasping activities (Papa, 2012).

SUBJECTS AND METHOD

1. Study Design

This research uses quantitative observational methods with causal relationships. The research group included pregnant women in the third trimester and breastfeeding in the baby age range 1 month – 1 year. This study was conducted in PDHI Islamic Hospital Yogyakarta in August – September 2023.

2. Population and Sample

This research involved 234 pregnancies and lactation patients at PDHI Islamic Hospital Yogyakarta from data in the first semester of 2023. The sampling method used was a purposive sample. From the 234 population, 70 respondents were taken based on inclusion and exclusion criteria, then separated between third trimester pregnancy and breastfeeding with babies aged 1 month to 1 year. From a total of 234 populations, after paying attention to the inclusion and exclusion criteria, a sample of 70 respondents was obtained, and after separating pregnancy in the third trimester and breastfeeding for babies aged 1 month - 1 year. Thus, 35 respondents from pregnant women in the third trimester and 35 respondents from nursing mothers were the sample size in this quantitative research.

3. Study Variables

The dependent variable is de quervain's syndrome. The independent variable was pregnancy or lactation.

4. Operational Definition of Variables

De Quervain's Syndrome is a collection of symptoms accompanied by inflammation and pain in the tendon sheath that covers

the extensor pollicis brevis and abductor pollicis longus muscles.

Pregnancy is a process of nine months or more in which a woman carries a developing embryo and fetus in her womb. Usually pregnancy lasts around 40 weeks, calculated from the first day of the last menstrual cycle. During pregnancy, the body experiences physical and hormonal changes. Pregnancy is a special event that occurs in women and can cause physical and physiological changes. Therefore, education is needed regarding the importance of maintaining physical activity in pregnant women so that they can undergo a healthy and happy pregnancy.

Lactation is the main way to provide food that is ideal for healthy growth and development of babies (breast milk) and has biological and psychological influences on the health of mother and baby. Breast milk or breastfeeding has many benefits for both mother and baby. The benefits of breastfeeding for mothers include preventing bleeding and anemia, spacing pregnancies and helping the uterine involution process.

5. Study Instruments

The data were collected using a set of questionnaire.

6. Data analysis

The analysis used in this research is univariate analysis and bivariate analysis with the chi square test.

7. Research Ethics

This research was supported by an ethical permission letter, including informed consent, and confidentiality that was signed during the research process. The ethical permission letter for this research was obtained from the Ethics and Legal Committee at the PDHI Islamic Hospital Yogyakarta, Number: 898/KT 6.1/VIII/-2023.

RESULTS

1. Univariate Analysis

Based on the data presented in table 1, it is known that the majority of respondents were in the productive age of 21 – 30, 22 (62.9%) were pregnant women and 25 (71.4%) were nursing mothers.

Table 1. Data Distribution Based on Age

Age	Pregnant women		Lactating mothers	
	n	%	n	%
15-20	3	8.6	-	-
21-30	22	62.9	25	71.4
31-40	10	28.6	9	25.7
>40	-	-	1	2.9



Table 2. Data Distribution Based on Wrist Pain

Wrist Pain	Pregnant women		Lactating Mothers	
	n	%	n	%
No	25	71.4%	16	45.7%
Yes	10	28.6%	19	54.2%

Based on the distribution of wrist pain data, 10 people experienced wrist pain in

pregnant women and 19 people in nursing mothers.

Table 3. Distribution of data based on location of pain

Pain location	Pregnant women		Lactating Mothers	
	n	%	n	%
 Figure 1	9	90%	17	89.4%
 Figure 2	1	10%	2	10.5%

Based on the table 3 , the distribution of data based on the location of the pain in the wrist shows that 9 pregnant women pointed

to picture 1, while 17 people pointed to figure 1 while breastfeeding mothers pointed to picture 1.

2. Bivariate Analysis

Table 4. De quervain Syndrome in pregnant women and nursing mothers (Chi Square Analysis)

Independent variables	De quervain syndrome				OR	95% CI		p
	No		Yes			Upper limit	Lower limit	
	N	%	N	%				
Pregnant women	25	71.4%	10	28.6%	0.34	0.13	0.91	0.029
Nursing mothers	16	45.7%	19	54.2%				

Based on the table 4, the results of chi square analysis show that there is a relationship between pregnancy and lactation and the condition of de quervain syndrome (N = 70, p = 0.029).

during which time they will experience hormonal changes, reduced fluids, increased weight, especially in the third trimester and the movement of lifting the baby in a certain position. This frequently occurring disorder is De Quervain's syndrome (Afshar & Tabrizi, 2021).

DISCUSSION

Pregnancy-related neuromuscular diseases are common, occurring mostly in the lower back and hands and wrists. This research focuses on wrist pain (de quervain syndrome) in pregnant women and/or nursing mothers. There is an increased incidence in pregnant and nursing mothers whose prognosis is generally good and only requires a temporary period.

Patients with De Quervain's Syndrome experience difficulty in gripping and carrying out daily activities characterized by pain on the radial side of the wrist. (Mak, 2019). Severe pain due to movements and activities that require ulnar deviation with the fist and flexion of the thumb. These activities include wringing a towel, lifting a child, gripping a golf club, etc (Goel & Abzug, 2015).

Wrist problems are something that often occurs in pregnant women and during the postpartum or breastfeeding period,

Histopathological examination of the tendon sheath revealed myxoid degene-

ration, characteristic intramural mucopolysaccharide deposits, especially in the subsynovial area, palpable nodules proximal to the metacarpophalangeal joint of the thumb. Symptoms of de Quervain's syndrome in pregnancy and breastfeeding usually resolve on their own (Afshar & Tabrizi, 2021).

Post partum maternal wrist pain due to lifting or carrying the baby will cause excessive degeneration and myxoid tendons of the extensor pollicis brevis and pollicis longus. Ultrasound results showed de Quervain's syndrome findings in the form of thickening of the tendon sheath of the first extensor, extensor pollicis brevis and pollicis longus, thickening of the tendon sheath and with color Doppler visible increased blood flow to the synovial layer of the tendon sheath. These results have the same findings in cases of de Quervain's syndrome which are not in pregnancy (Spicer et al., 2022)

Cosgrover et al. reported a case of postpartum stenosis tenosynovitis of the flexor pollicis longus, the patient complained of pain along the flexor surface of the thumb. The relationship between pregnancy and de Quervain's syndrome during breastfeeding is thought to originate from endocrine influences on fluid retention and overuse of the thumb when holding the baby (Afshar & Tabrizi, 2021). Osteoarthritis is a chronic joint disease characterized by abnormalities in the joint cartilage and surrounding bones. Cartilage is the part of a joint that covers the ends of bones to facilitate joint movement. Abnormalities in the cartilage will result in the bones rubbing against each other, resulting in symptoms of stiffness, pain and restricted movement in the joints (Ismaningsih & Selviani, 2018). The exact cause of De Quervain's Syndrome is not yet known, De Quervain's Syndrome is often

found in pregnant women due to hormonal factors, the highest prevalence is at the age of 30 - 55 years. (Suryani 2018).

Excessive movement in carpometacarpal I joint causes friction, if this occurs continuously it will cause inflammation, resulting in swelling and pain. Inflammation of this area usually occurs when using the hands and thumbs for repetitive activities. De quervain's syndrome timbul akibat *microtrauma* kumulatif (*repetitive*). Overuse causes malfunction of the tendon sheath. A mother who has just given birth is at risk of developing De Quervain's syndrome, because the movement of lifting and carrying the baby causes the ulnar axis of the hand to deviate (Peterrson et al., 2015).

AUTHOR CONTRIBUTION

Karimatun Naim as the main researcher on the chosen topic, then collected data and then analyzed the data and then wrote a publication manuscript. W Wahyuni as a research member who assisted in preparing the publication manuscript.

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

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