

# A Rare Venous Disorder Which is Seen in Pregnancy and Mimicking Inguinal Hernia; Round Ligament Varices

## Gebelikte Görülen ve İnguinal Hernileri Taklit Eden Nadir Bir Venöz Bozukluk; Round Ligament Varisi

Burak Can Depboylu

Muğla Sıtkı Koçman Üniversitesi, Tıp Fakültesi, Kalp Damar Cerrahisi Anabilim Dalı, Muğla.

### Abstract

Round ligament varices are seen in pregnancy and they are rarely encountered clinical conditions. They present with swelling and pain in the groin and can easily be misdiagnosed as strangulated inguinal hernia. While strangulated inguinal hernias require emergency surgical intervention, round ligament varices do not require surgery unless they are ruptured or thrombosed. Correct diagnosis by physical examination and ultrasonography can avoid an unnecessary surgical intervention during pregnancy and its related complications. In this report, a 28-year-old pregnant case, who determined round ligament varices referring to the swelling and pain in her right groin was reported and was examined in the light of literature.

**Keywords:** Cardiovascular, Pregnancy complications, Round ligament, Varicose veins

### Özet

Round ligament varisleri gebelikte görülen ve nadir olarak karşılaşılan klinik durumlardır. Kasık bölgesinde şişlik ve ağrı ile kendilerini gösterirler. Kolaylıkla strangule inguinal hernilerle karışabilirler. Strangule inguinal herniler acil cerrahi müdahale gerektiren round ligament varisleri, rüptüre veya tromboze olmadıkları sürece cerrahi müdahale gerektirmezler. Fizik muayene ve ultrasonografi ile doğru tanı konulması gebelik sırasında yapılacak gereksiz cerrahi girişimi ve buna bağlı olarak gelişebilecek komplikasyonları önler. Bu çalışmada, sağ kasığında şişlik ve ağrı şikayetiyle başvurarak round ligament varisi saptanan 28 yaşında gebe bir olgu sunulmuş ve literatür eşliğinde incelenmiştir.

**Anahtar kelimeler:** Halka ligaman, Gebelik Komplikasyonları, Kardiyovasküler, Variköz venler

Başvuru Tarihi / Received : 03.09.2015  
Kabul Tarihi / Accepted : 27.04.2016

### Introduction

Round ligament varices (RLV) are, especially seen in pregnancy and rarely encountered. They mostly present with swelling and pain in the groin. The differential diagnosis is important in patients, who admit with these complaints, because some diagnosis like strangulated inguinal hernia may require emergency surgical intervention in pregnancy, despite increased risks. However, RLV mostly do not require surgery and resolves spontaneously after the delivery. Doppler ultrasonography can accurately diagnose the round ligament varices (1-3).

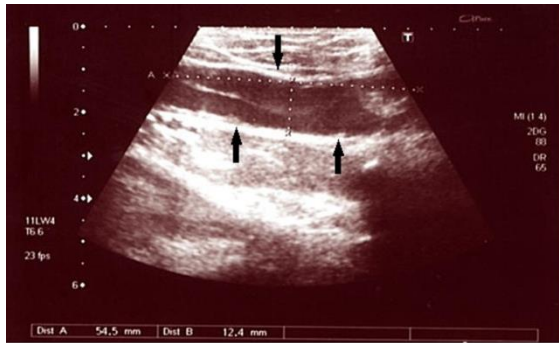
### Case

A 28-year-old, 32 weeks pregnant patient, who was referred to cardiovascular surgery clinic by the general surgeon, admitted to our clinic with a swelling and pain in her right groin. In history, it was learned that this was her second pregnancy and she had a baby girl at the end of her uneventful first pregnancy. The swelling and pain have started at

the 29th week of her pregnancy. She firstly admitted to her local family doctor with her complaints. After physical examination, she was referred to our hospital's general surgery clinic with the preliminary diagnosis of inguinal hernia. In her physical examination, a mild painful swelling in her right groin was present. The swelling was reducible and becoming more clear and painful by valsalva maneuver. No clear varices in her lower limbs or genital area were present except slight edema. In the results of superficial tissue ultrasonography and venous system color doppler ultrasonography, no evidence of venous insufficiency or venous thrombosis were present in her bilateral lower extremities. In the right groin, dilated varicose venous structure about 54.5x12.4 mm of enlargement in supine position was present (Figure 1). No images of ruptured veins, thrombosis, intestinal structures or omentum were present in the investigated area. The patient was referred to cardiovascular surgery clinic with the ultrasonography results and was diagnosed with RLV. She was followed up conservatively with the close Doppler ultrasonography and in cooperation with the obstetrics and gynecology clinic. Oxerutin, which is safe during pregnancy after the 16th week and paracetamol for pain in case of necessity were recommended as medical treatment. The patient had made a normal spontaneous term delivery without any complications at the 38th week of her pregnancy. Four weeks after the delivery, the

**Adres / Correspondence :** Burak Can Depboylu  
Muğla Sıtkı Koçman Üniversitesi, Tıp Fakültesi, Kalp Damar Cerrahisi  
Anabilim Dalı, Muğla.  
**e-posta / e-mail :** burakdepboylu@yahoo.com

swelling in the right groin and the complaints of pain resolved spontaneously.



**Figure 1.** Venous enlargement of 54.5x12.4 mm in the right groin, in supine position is shown with the black arrows.

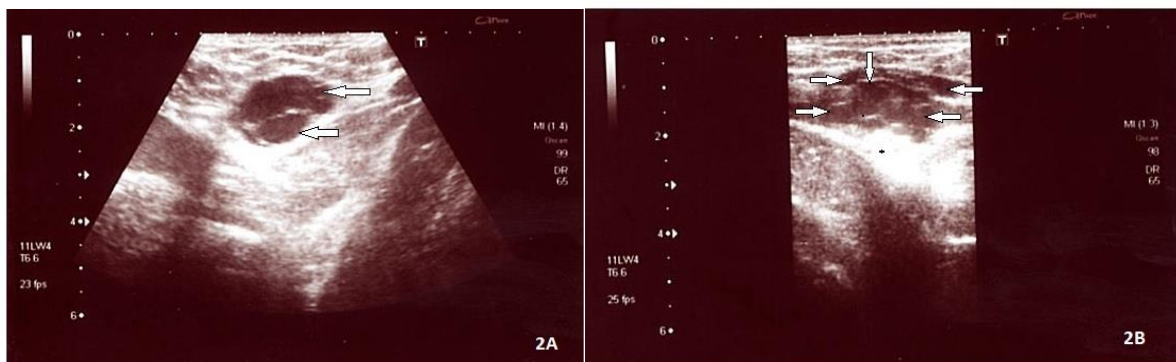
## Discussion

Round ligaments of the uterus are about 10-12 cm of bands, which begin from the upper corners of the uterus and end at labia majoras, after passed through the deep inguinal canals (4). They are composed of muscle tissues, which continue with the muscular layer of the uterus, some fibrous tissue, loose connective tissue, nerves, blood vessels and lymphatics. They are responsible from holding up the upper part of the uterus. During pregnancy, especially in the 2nd and 3rd trimesters due to the growth of the uterus and stretch of the round ligament, pain can occur. This is considered to be normal and not an indication of any problem. But, in cases with pain and associated swelling in the groin, the differential diagnosis must be done carefully. The differential diagnosis of a groin mass include inguinal hernia, round ligament varices, mesothelial cysts, lymphadenopathy, endometriosis, subcutaneous lipoma, cyst of Nuck (persistent embryonic remnants of the process vaginalis with cyst formation), vascular aneurysms, soft tissue malignancies, abscess and cystic lymphangiomas (1,5-9). Because they share similar clinic, round ligament varices are usually misdiagnosed as a strangulated inguinal hernia, which results in an

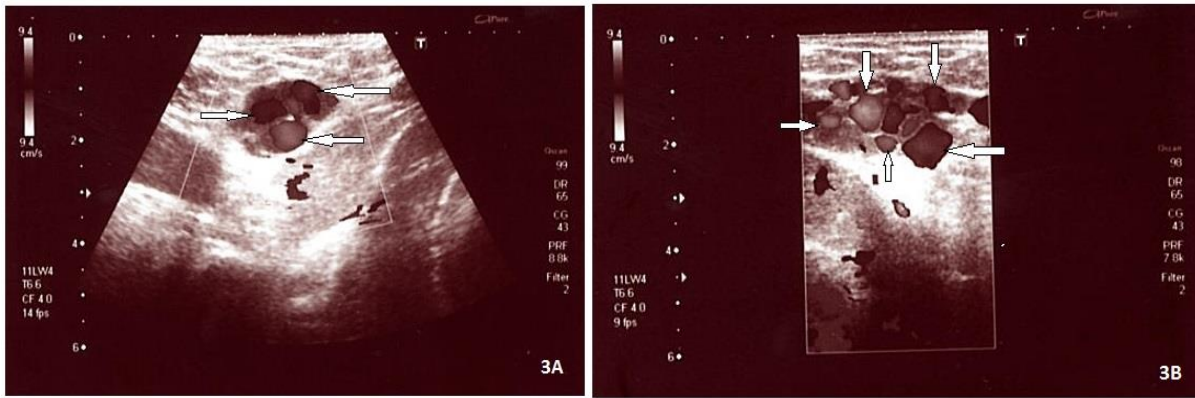
unnecessary operation during pregnancy with high fetal and maternal risks (10). The differential diagnosis of the round ligament varices can easily be done with Doppler ultrasonography (1,2,5,7,8). On gray-scale, the presence of “bag of worms” appearance, dilated draining veins and on color doppler mode being filled with blood of these spaces (Figure 2 and 3), absence of intestinal structures and lymph nodes are the characteristic ultrasonographic findings (7). Because of the deflation of the venous structures in supine position or rest, valsalva maneuver is important during the examination. As they are not much preferred because of the radiation risk during pregnancy, CT and MRI can also be used for imaging the thrombosed varices (11). Round ligament varices are rarely encountered clinical situations and they are especially seen during pregnancy. In their case report McKenna et al. (8) stated that they observed only 5 round ligament varices in 3816 pregnancies. Some sort of mechanisms were described to explain the pathophysiology of the round ligament varices;

- a- Relaxation of the venous smooth muscles, which contain estrogen and progesterone receptors by the high level of progesterone during pregnancy.
- b- Increase of the blood volume and venous return from the lower limbs by the progress of the pregnancy.
- c- Pressure of the gravid uterus over the pelvic veins (1,8).

With the correct diagnosis of the round ligament varices, conservative treatment with close monitoring is recommended. Oxerutin and acetylsalicylic acid or low molecular weight heparin can be given especially to the patients with high thrombosis risk. Avoiding from sudden and stiff movements can be recommended to the patient. It is expected that after delivery, with the improvement of the mechanisms that are mentioned above, resolution will occur in most patients (1,2,6-8). Close monitoring is required due to the risks of rupture or acute variceal thrombosis in peripartum



**Figure 2.** Transverse (2A) and sagittal (2B) gray-scale images of the round ligament varices. Multiseptated, anechoic tubular channels (bag of worms appearance) are shown with the white arrows especially in figure 2B.



**Figure 3.** Transverse (3A) and sagittal (3B) color Doppler images of the round ligament varices. Tubular channels filled with color-blood are shown with the white arrows.

period (9). In these situations, the pain may become the predominant symptom and emergency surgical exploration is recommended (5,12).

In their case report, Ryu et al. (13) summarized the features of the 26 round ligament varices published in the literature written in English. They determined that all patients except one were pregnant, all patients except one were treated conservatively and decreased after delivery in a period of 2-8 weeks. Round ligament varices were mostly present on the right side as it was in our case. Thrombosis of the round ligament varices was described only in one case.

### Conclusion

Round ligament varices are rarely encountered clinical cases especially seen in pregnancy. They are usually misdiagnosed as strangulated inguinal hernias, which require emergency surgical intervention. The differential diagnoses can easily be done with doppler ultrasonography and this will avoid unnecessary surgery during pregnancy. Close monitoring and conservative treatment are recommended in order to expect resolution after delivery.

**Informed Consent:** Written informed consent was obtained from patient who participated in this case (10.04.2015).

### References

1. Cheng D, Lam H, Lam C. Round ligament varices in pregnancy mimicking inguinal hernia: an ultrasound diagnosis. *Ultrasound Obstet Gynecol.* 1997;9:198-9.
2. Pilkington SA, Rees M, Jones O, Green I. Ultrasound diagnosis of round ligament varicosities mimicking inguinal hernias in pregnancy. *Ann R Coll Surg Engl.* 2004;86:400-1.
3. Oh SN, Jung SE, Rha SE, et al. Sonography of various cystic masses of the female groin. *J Ultrasound Med.* 2007;26:1735-42.
4. Salati SA. Round Ligament Varicosities mimicking inguinal herniae in pregnancy - a diagnostic dilemma. *African J Reprod Health.* 2011;15(2):163-4.
5. Ijpm FF, Boddeus KM, de Haan HH, van Geldere D. Bilateral round ligament varicosities mimicking inguinal hernia during pregnancy. *Hernia.* 2009;13:85-8.
6. Chi C, Taylor A, Munjuluri N, Abdul-Kadir R. A diagnostic dilemma: round ligament varicosities in pregnancy. *Acta Obstet Gynecol Scand.* 2005;84:1126-7.
7. Uzun M, Akkan K, Coşkun B. Round ligament varicosities mimicking inguinal hernias in pregnancy: importance of color Doppler sonography. *Diagn Interv Radiol.* 2010;16:150-2.
8. McKenna DA, Carter JT, Poder L, et al. Round ligament varices: sonographic appearance in pregnancy. *Ultrasound Obstet Gynecol.* 2008;31:355-7.
9. Jaiswal A, Jain S, Karambelkar M. Round ligament varicosity in pregnancy. *Int J Biomed Adv Res.* 2012;3(12):912-3.
10. Leung JL. Round ligament varicosities: a rare cause of groin swelling in pregnancy. *Hong Kong Med J.* 2012;18:256-7.
11. Tokue H, Aoki J, Tsushima Y, Endo K. Characteristic of computed tomography and magnetic resonance imaging finding of thrombosed varices of the round ligament of the uterus: a case report. *J Comput Assist Tomogr.* 2008;32:559-61.
12. Lee DK, Bae SW, Moon H, Kim YK. Round ligament varicosities mimicking inguinal hernia in pregnancy. *J Korean Surg Soc.* 2011;80:437-9.
13. Ryu KH, Yoon JH. Ultrasonographic diagnosis of round ligament varicosities mimicking inguinal hernia: report of two cases with literature review. *Ultrasonography.* 2014;33:216-21.