MARMARA
MEDICAL JOURNAL

Case Report

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A rare cause similar to inguinal hernia in pregnancy: Two cases of round ligament varicosity

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Submitted: 17.09.2021 **Accepted:** 13.02.2022

ABSTRACT

Round ligament varicosities (RLVs) which are a very rare cause of inguinal swelling can mimic an inguinal hernia. RLVs should be considered in the differential diagnosis of inguinal swelling in a female, especially during pregnancy. The diagnosis of RLV can be established on Gray-scale with color Doppler sonography, and, if diagnosed correctly, unnecessary intervention may be prevented. We report two cases of round ligament varicosities in a 30-year-old woman at 30-week gestation and 34-year-old woman at 24-week gestation; these patients were diagnosed using ultrasonography and spontaneously resolved after delivery.
Keywords: Round ligament, Pregnancy, Inguinal hernia, Ultrasonography

1. INTRODUCTION

Inguinal region masses are not common in the human female and have a lot of differential diagnoses including round ligament varicosities, inguinal hernia, 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 [1,2].

Round ligament varicosities (RLVs) are rarely seen during pregnancy. They can cause pain and can easily be mistaken for an inguinal hernia because clinically, symptoms and signs are similar. Gray-scale and Doppler ultrasonography (US) can precisely diagnose RLVs. Distinguishing between varicosities and hernias is important in order to avoid unnecessary interventions. Here we report two pregnant women with RLV. These patients were diagnosed using ultrasonography and spontaneously resolved after delivery. By increasing the awareness of round ligament varicosities as part of the differential diagnosis and by highlighting the importance of ultrasound examination, unnecessary surgery can be avoided.

CASE REPORTS

Case 1

A 30-year-old primipara woman presented at 30-week gestation with a palpable and painless mass in her right inguinal region. After an examination by the obstetrician, the patient was referred to our radiology department for US examination with the suspicion of an inguinal hernia. Gray-scale US showed a mass in the right inguinal region composed of multiple serpentine tubular cystic structures which became more prominent during the Valsalva maneuver (Figure 1). Color Doppler US confirmed that a venous flow was detected in the tubular structures. Expansion and flow increase was detected in the venous structures with the Valsalva maneouver (Figure 2). There was no sonographic evidence of a herniated bowel, thrombus, or adenopathy. Because of these findings, the patient was finally diagnosed to have RLV. After two weeks postpartum the RLV spontaneously regressed and the symptoms completely resolved.

Case 2

A 34-year-old multipara woman presented at 24-week gestation with a palpable and painful mass in the left inguinal region.

How to cite this article: Okur Aksan I. A rare cause similar to inguinal hernia in pregnancy: Two cases of round ligament varicosity. Marmara Med J 2022; 2; 35(2):254-256. doi: 10.5472/marumj.1120594

ISSN: 1309-9469

http://doi.org/10.5472/marumj.1120594
Marmara Med J 2022;35(2): 254-256

Gray-scale US showed a mass in the left region composed of multiple serpentine tubular cystic structures. Color Doppler US revealed hypervascularity and venous flow within the lesion (Figure 3). There was no evidence of a hernia or lymphadenopathy on US. Omentum, bowel, or thrombus was not identified in the lesion. Based on the US results, she was diagnosed as having round ligament varicosity, and the symptoms spontaneously resolved after two weeks postpartum.

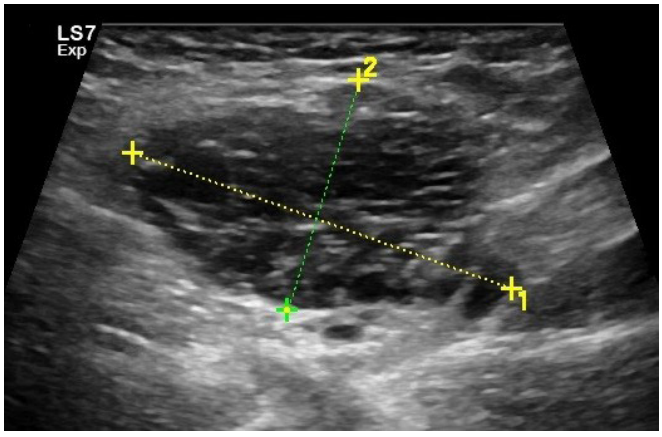

Figure 1. *A 30-year-old woman with round ligament varicosities. Gray-scale US imaging shows tubular, tortuous anechoic cyctic structures in the right inguinal region (Case 1).*

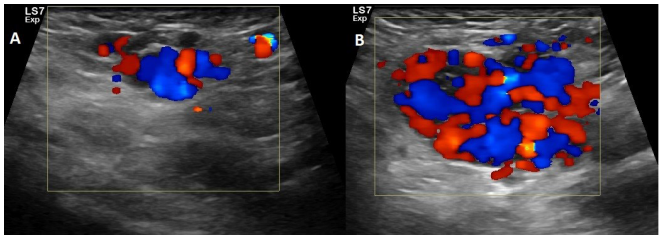

Figure 2. *(A) Color Doppler imaging shows multiple dilated veins with blood flow and (B) the mass shows dilatation and increased flow during the Valsalva maneuver (Case 1).*

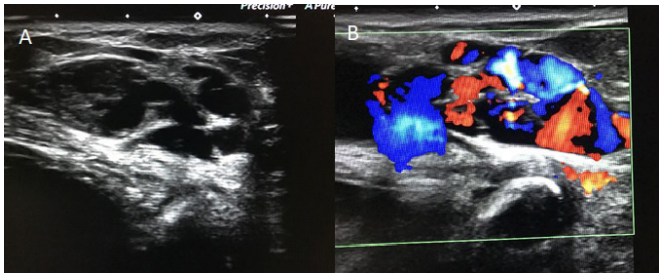

Figure 3. *A 34-year-old woman at the 24th week of pregnancy with round ligament varicosities. Gray-scale (A) and color Doppler imagings (B) show a mass in the left inguinal region composed of multiple serpentine tubular cystic structures filled with color on Doppler imaging (Case 2).*

2. DISCUSSION

Anatomically, the round ligament is a structure that extends from the lateral part of the uterus and courses through the internal abdominal ring and inguinal canal to the labia majora. The round ligament contains veins, arteries, lymphatics, and nerves. RLVs arise from the veins draining the round ligament and inguinal canal into the inferior epigastric vein [3].

During pregnancy, an increase in blood volume and venous return and an increased level of progesterone cause venous dilation along with muscle relaxation. An additional cause of RLVs in pregnancy is the increased pressure on the pelvic veins caused by the gravid uterus. These reasons make RLV a diagnosis almost exclusively in pregnant women [4]. RLV is usually unilateral, more on the right side; one third of the cases in the literature are bilateral [5]. It presented on the right side in our first case and on the left side in the second case. The coexistence of lower limb and labial varicosities might be a clue to the diagnosis of RLVs [1]. In our cases, there was no varicosity anywhere else. Like our study, in the 26-case study of Ryu et al., all the cases except one were treated conservatively and no specific complication were observed [5]. The studies of Garcia-Paredes et al., and Cicilet et al., are similar to our study [3,4].

Clinically, inguinal hernias and RLVs are not distinguishable because of similar presentations which include swelling with or without pain at the second or third trimester of pregnancy [6]. It can be easily misdiagnosed as an inguinal hernia; however, an inguinal hernia that appears for the first time during pregnancy is rare because most of the intra-abdominal structures that could potentially fill the hernia sac will be pushed aside by the growing uterus. The enlarged uterus pushes the intestines away from the inguinal canal and thus blocks the internal inguinal ring [6]. RLVs are more common than inguinal hernias, and so US imaging is important for making the diagnosis. US and Doppler US are used for a definitive diagnosis. On a Gray-scale US, a "bag of worms' appearance associated with multiple dilated drainage veins and on color Doppler US, the existence of venous flow in dilated veins and increasing venous flow with the Valsalva maneuver confirm the diagnosis. The Valsalva maneuver is important in this examination because the venous flow may be subtle at rest [4]. RLVs are often managed conservatively and most of them resolve spontaneously postpartum [7]. The other differential diagnoses of RLVs include lymphadenopathy, cystic lymphangioma, endometriosis, vascular aneurysm, soft tissue malignancies, abscess formation, and subcutaneous lipoma, all of which have characteristic findings on US imaging [1,8]. In inguinal hernias, a herniated bowel can be recognized by the presence of peristalsis, mucosal blood flow, or mesenteric fat by US and Doppler US imagings [9]. Lymph nodes may show a hypoechoic reniform appearance with an echogenic central hilum that demonstrates flow on Doppler imaging. The US findings of the lymphangioma or endometrioma are nonspecific but may usually appear as a well-defined, unilocular, or multilocular cystic mass containing diffuse hypoechoic homogeneous material. RLVs are not an emergent condition and most of them resolve spontaneously postpartum. If RLVs

http://doi.org/10.5472/marumj.1120594
Marmara Med J 2022;35(2): 254-256

are diagnosed correctly, unnecessary intervention may be prevented [5, 8].

Conclusion

Round ligament varicosities are a very rare cause of inguinal swelling and may be mistaken for an inguinal hernia. US imaging with color Doppler US, especially in pregnant women with inguinal swelling, are diagnostic imaging methods for the diagnosis of RLV. A correct diagnosis is also of great importance in order to avoid unnecessary surgical operations.

Patient Consent: Both patients gave their consent for images and other clinical information relating to their cases to be reported in a medical publication.

Conflict of interest: The author has no conflicts of interest to declare.

Funding: No financial support was received for this study.

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