Ectopic Pregnancy: MRI Diagnosis

Gravidez Ectópica: Diagnóstico por Ressonância Magnética

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https://doi.org/10.48687/lsj.209

Keywords: Magnetic Resonance Imaging; Pregnancy, Ectopic/diagnostic imaging

Palavras-chave: Gravidez Ectópica/diagnóstico por imagem; Ressonância Magnética

A 40-year-old G1P1 woman presented in the emergency room with severe left hemipelvis pain which had started one day ago. She denies any other illnesses or previous surgeries. Upon abdominal palpation, significant pain was located on the left side, and ultrasonography detected a nonspecific mass in the left adnexal region. Magnetic resonance imaging (MRI) revealed an expansive and heterogeneous lesion in the left adnexal area, with discrete areas of high signal on T1-weighted images and low signal on T2-weighted images (Fig. 1). The lesion showed no restriction to the diffusion of water molecules and exhibited peripheral enhancement with gadolinium contrast. Additionally, MRI indicated a dilated distal portion of the left uterine tube with no hydrosalpinx as well as adjacent hemoperitoneum. Based on these findings, an ectopic pregnancy was suspected. A beta-human chorionic gonadotropin (B-HCG) test was performed and returned positive, and the patient was referred for surgery. A salpingectomy was performed, which confirmed the diagnosis of an ectopic not ruptured tubal pregnancy. She was discharged two days post-surgery and scheduled for outpatient follow-up.

Ectopic pregnancy occurs when the fertilized egg implants outside the uterus, most commonly in the fallopian tubes, occurring between 1% to 2% of pregnancies.[1] It is characterized by a classic triad of symptoms: abdominal pain, vaginal bleeding, and delayed or irregular menstruation. In more severe cases, such as tubal abortion or rupture, ectopic pregnancy can lead to a hypovolemic state, with progressive skin and mucosal pallor, diffuse abdominal pain, and signs of peritoneal irritation. This condition requires urgent diagnosis and specialized intervention to prevent serious complications, including internal bleeding and circulatory system collapse.[2]

There is a variety of risk factors associated with ectopic pregnancy, including a history of previous gynecological surgeries such as cesarean sections or tubal surgeries, the use of intrauterine contraceptives, genital infections like chlamydia, advanced maternal age, lifestyle habits such as smoking and illicit drug use, the presence of endometriosis, and hormonal disorders such as polycystic ovary syndrome.[3]

The diagnosis of ectopic pregnancy is based on the patient's clinical history, the quantification of the hormone B-HCG, and transvaginal ultrasonography. Early diagnosis is crucial to enable less invasive treatment and better outcomes. Transvaginal ultrasonography is the most practical and effective examination for locating the pregnancy, allowing for the ultrasound visualization of the gestational sac with a yolk sac or embryo, thus facilitating the diagnosis of ectopic pregnancy.[3] If ultrasound diagnosis is inconclusive or highly suggestive of ectopic

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Recebido/Received: 27/05/2024 **– Aceite/Accepted:** 16/07/2024 **– Publicado online/Published online:** 23/07/2024 **– Publicado / Published:** 30/12/2024

pregnancy, an MRI should be conducted when the patient's condition is stable.[4]

The management of ectopic pregnancy involves an individualized and careful approach, considering options such as salpingectomy, salpingostomy and the use of methotrexate. Salpingectomy eliminates the risk of future ectopic pregnancy in the same fallopian tube, but may affect fertility. Salpingostomy preserves part of the fallopian tube, maintaining reproductive function, with an increased risk of recurrence. Methotrexate is a non-surgical alternative in selected cases. Close monitoring is essential to monitor the effectiveness of treatment and detect early complications.[1]

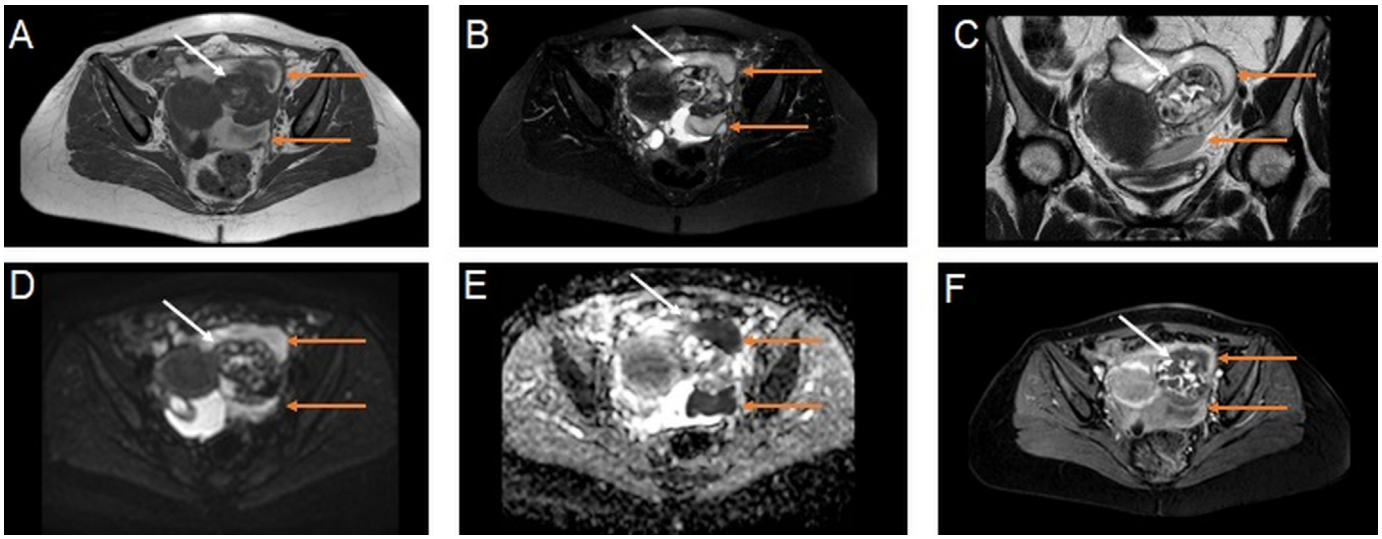

Figure 1. MRI in axial T1 weighted image (A), axial T2 SPAIR image (B), coronal T2-weighted image (C), diffusion sequence (D), ADC sequence(E) and THRIVE sequence with contrast (F). Heterogeneous lesion located in the left uterine tube with regular contours, with discrete areas of high signal on T1 and low signal on T2, without restriction to the diffusion of water particles and with faint enhancement by paramagnetic contrast compatible with ectopic pregnancy (white arrows), with hemoperitoneum adjacent (orange arrows)

Responsabilidades Éticas

Conflitos de Interesse: Os Autores declaram a inexistência de conflitos de interesse na realização do presente trabalho.

Fontes de Financiamento: Não existiram fontes externas de financiamento para a realização deste artigo.

Confidencialidade dos Dados: Os autores declaram ter seguido os protocolos da sua instituição acerca da publicação dos dados de doentes.

Consentimento: Consentimento do doente para publicação obtido.

Proveniência e Revisão por Pares: Não comissionado; revisão externa por pares.

Ethical Disclosures

Conflicts of Interest: The authors have no conflicts of interest to declare.

Financing Support: This work has not received any contribution, grant or scholarship.

Confidentiality of Data: The authors declare that they have followed the protocols of their work center on the publication of data from patients.

Patient Consent: Consent for publication was obtained.

Provenance and Peer Review: Not commissioned; externally peer reviewed.

Contributorship Statement

MM, MD and VA: Conceptualization, data curation, formal analysis, research, methodology, project management, validation, visualization, original draft writing, writing - proofreading and editing.

All authors approved the final version

Declaração de Contribuição

MM, MD e VA: Conceptualização, curadoria de dados, análise formal, investigação, metodologia, gestão do projeto, validação, visualização, redação do artigo, revisão e edição.

Todos os autores aprovaram a versão final.

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