

Ovarian Torsion With Ruptured Ovarian Haemorrhage With Massive Hemoperitoneum In A Case Of ITP

R Gandhi, N Bahri, H Parekh, S Chudasama, N Doshi, C Muniya

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Abstract

Idiopathic thrombocytopenic purpura, an immune-mediated disease, usually has a relatively benign clinical course. Bleeding manifestations are mostly mucocutaneous and mild. Massive hemorrhage requiring transfusions or other interventions are rare, unless platelet counts are extremely low or other complicating conditions coexist. We describe a 24-year-old woman, case of chronic ITP presenting with severe abdominal pain prompting an urgent Ultrasound and MR examination which showed ovarian torsion with ruptured ovarian hemorrhage causing massive hemoperitoneum. The specific sign of torsion is demonstration of multiple follicles of uniform size (8-12 mm in diameter) in the cortical peripheral portion of a unilaterally enlarged ovary. MR imaging showed enlarged ovary with peripherally situated T2 hyperintense follicles and ruptured ovarian capsule with better demonstration of pedicle. Large amount of subacute blood noted in peritoneal cavity suggested by hyperintensity on both T1 and T2.

Abbreviations:

ITP - immune thrombocytopenic purpura; MRI - magnetic resonance imaging;

CASE REPORT

A female aged 24 years presented with severe abdominal pain with distension, hypotension and multiple petechiae. Ultrasound with Color Doppler was done which showed ovarian torsion and haemoperitoneum [fig.1, 2,3]. MR examination with 1.5 Tesla Siemens Magnetom Essenza machine is performed and T1, T2 sequences are run which showed ruptured ovarian hemorrhage and confirmed torsion and haemoperitoneum [fig.4, 5,6,7,8].

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DISCUSSION

DEFINITION

Idiopathic thrombocytopenic purpura is an immune-mediated disease that is caused by antibody mediated platelet destruction with a normal bone marrow.^[1]

Epidemiology: - Adnexa torsion is reported to be the fifth most common gynecologic emergency in women of reproductive age with a prevalence of 2.7%. Torsion of the adnexa structure may involve both the ovary and fallopian tube. Patients of Ovarian hyperstimulation syndrome who become pregnant had a greater risk of adnexa torsion (16%).^[2]

ITP Types

Acute ITP - is typically a disease of children has an abrupt onset and is usually preceded by a viral infection.

Spontaneous remissions are common and relapses are rare.^[1]

Chronic ITP - is typically a disease of young adults, mostly women. The onset is insidious and spontaneous remission is rare. Clinical course waxes and wanes, but is usually relatively benign.^[1]

Signs and Symptoms: - Bleeding manifestations are usually mucocutaneous and mild, such as purpura, epistaxis and gingival bleeding. Haematuria and gastrointestinal bleeding

are less common and intracerebral haemorrhage is rare.

^[1]Torsion manifests as gradual pain or sudden onset of pain, which mimic other acute abdominal conditions.^[3]

DIAGNOSIS

Laboratory Investigations: - Platelet count, serum hemoglobin level, reticulocyte count, ESR, antibody levels.

IMAGING

ULTRASOUND: - The classic sonographic finding of peripheral follicles in an enlarged ovary is seen in a small percentage (12% on sonography) of patients with torsion. In most cases, a cystic [anechoic], complex [heterogeneous] or solid [isoechoic] pelvic mass is seen commonly associated with pelvic fluid. Additional classic findings include a twisted vascular pedicle and newly reported sonographic whirlpool sign consisting of twirling of vessels around each other.^[2]

Color Doppler Sonography shows decreased or absent arterial and venous flow compared with the contra lateral ovary. Better demonstration of whirlpool sign is noted. The vascularity of the ovary depends on the angle of twisting.^[2]

COMPUTERIZED TOMOGRAPHY:-

On Intravenous contrast agent administration, pelvis shows heterogenous non-enhancing mass unilaterally with fluid collection which is torsed ovary (lack of enhancement sign). The enhancement of ovaries is compared to that of uterus. Non enhancement of an adnexal mass, abnormal location of the uterus, adnexa or both, ascites, uterine displacement, pelvic fat infiltration, hematoma, tubal thickening and a whirlpool sign.^[2]

MAGNETIC RESONANCE IMAGING:-

Normal Ovaries: - T2-weighted images reveal the zonal anatomy of the ovary which consists of lower intensity cortex and higher intensity medulla and cysts. When less than 25 mm in diameter, these cysts are called physiologic cysts and include follicles at various stages of development, corpus luteum and surface inclusion cysts. A dominant follicle can enlarge by 20 to 25 mm. The corpus luteum may present as a cyst with a thick, enhancing and occasionally convoluted wall or as an enhancing nodule. A hemosiderin deposit along the inner aspect of the cyst wall may be observed as a line of high intensity on T1-weighted images and as a line of low intensity on T2-weighted images. The corpus luteum gradually involutes into the corpus albicans,

which is not perceptible on imaging findings. In postmenopausal women, ovaries show more homogeneous low signal intensity and are hardly identifiable because of their fewer ovarian cysts. The hilum of the ovary and the mesovarium may be identified as a well enhancing structure. Probably the most common complication of a functional cyst is hemorrhage, which may be a small amount and be limited to within the cyst or may cause external bleeding and present with severe abdominal pain.^[4]

Ovarian Torsion: - MR images show deviation of the uterus to the twisted side to which the uterus is continuous or blood vessels which are thick, straight and engorged on the twisted side, a small amount of ascites, obliteration of fat, distinct hematoma and complete absence of enhancement. The wall, minute septa and complete lack of enhancement, a finding that indicates interruption of blood flow. The specific sign of torsion is demonstration of multiple follicles of uniform size (8-12 mm in diameter) in the cortical peripheral portion of a unilaterally enlarged ovary.^[3]

Hemorrhage into ovarian cysts has been reported to be a frequent complication in women with chronic ITP and receiving anticoagulation therapy. In some cases this causes a rapid rise in intracystic pressure, cyst rupture and haemoperitoneum. Ruptured corpus luteum cyst combines MR evidence of haemoperitoneum with a large pelvic hematoma indicative of the bleeding source.^[5]

Intraperitoneal hemorrhage: - A hematoma less than 48 hours old may have nonspecific signal intensity features. Intra-abdominal hematoma older than 3 weeks typically has a specific appearance referred to as the ‘‘concentric ring’’ sign, in which a thin peripheral rim, dark on all sequences, surrounds a bright inner ring, most distinctive on T1-weighted images. MR imaging can readily distinguish blood from ascites. Acute blood, in the form of deoxyhemoglobin, is low in signal intensity on T2-weighted images. Conversely, subacute blood, in the form of extracellular methemoglobin, has high signal intensity on T1- and T2-weighted images. The use of fat-suppression techniques helps. Not infrequently, a high signal intensity rim surrounding a low signal intensity center is seen with subacute hematomas on T1- and T2-weighted images. These imaging characteristics represent extracellular methemoglobin encircling the retracting clot. As hematomas age, a low signal intensity rim develops around the hematoma on both T1- and T2-weighted sequences. This rim corresponds to hemosiderin or fibrosis.^[6]

Differential Diagnosis

Endometriosis: - The ovaries are the most commonly involved site of endometriosis and endometriotic cysts usually have a thick fibrotic wall with chocolate-colored hemorrhagic material. The diagnostic MR imaging findings for ovarian endometriotic cysts are (a) adnexal cysts of high signal intensity on both T1- and T2- weighted images or (b) high signal intensity on T1-weighted images and low signal intensity on T2-weighted images (shading). Chronic cyclic hemorrhage and high viscosity of the contents in the endometriotic cysts cause T2 shortening and produce shading. The cysts show a tendency for multicentric growth (multiplicity) and are often associated with fibrous adhesions.^[7]

Hemorrhagic corpus luteum cysts are the most common cause of ovarian bleeding. Acute hemorrhage is of intermediate signal on T1-weighted images and of distinct low intensity on T2-weighted images. Haemoperitoneum appears as a higher signal than simple fluid on T1-weighted images and as a lower signal on T2-weighted images.^[4]

Hemorrhagic functional cysts are solitary and usually regress within 2 months. They contain less concentrated hemoglobin so that shading is an uncommon finding on T2- weighted images.^[7]

Tubo-ovarian abscess present with fever and abdominal pain and the diagnosis is usually made clinically or with transvaginal US. MR imaging may demonstrate the abscess as a high-signal-intensity mass on T1-weighted images when its contents are complicated. Strong perilesional enhancement of a thick wall is consistent with a tubo-ovarian abscess.^[7]

Hematosalpinx appears as a tortuous enlarged tube filled with hemorrhagic fluid.^[7]

Both Endometrioid and Clear cell tumors are common neoplasms associated with endometriosis. Multilocularity and mural foci or nodules in the hemorrhagic cyst are features associated with malignancy and shows contrast enhancement. A hyper intense cystic tumor on both T1- and

T2- weighted images with enhancing mural nodules is often seen in cases of endometriosis complicated by ovarian carcinoma.^[7]

Rupture and haemoperitoneum are more common complications of granulosa cell tumors than of other ovarian neoplasms. Yolk sac tumors often contain blood-filled spaces that are prone to rupture.^[5]

Treatment

Is symptomatic consisting of pain-killers, transfusions of platelets, intravenous immunoglobulins or prednisone [Prednisone is a steroid medication that decreases the effects of antibodies on platelets and eventually lowers antibody production].

-remove the spleen (splenectomy)^[8]

PREVENTION

Discourage rough contact sports or other activities that increase the risk of trauma and immunization against childhood diseases.^[8]

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Author Information

Rozil J. Gandhi, DMRD

Tutor in Deptt. Of Radiodiagnosis, M. P. Shah Medical College, Jamnagar-361008, Gujarat, India

Nandini U. Bahri, M.D Radiodiagnosis

Professor and Head of Deptt. Of Radiodiagnosis, M. P. Shah Medical College, Jamnagar-361008, Gujarat, India

Hiral P. Parekh

Associate Professor, Deptt. Of Radiodiagnosis, M. P. Shah Medical College, Jamnagar-361008, Gujarat, India

Shilpa L. Chudasama, MD Radiodiagnosis

Associate Professor, Deptt. Of Radiodiagnosis, M. P. Shah Medical College, Jamnagar-361008, Gujarat, India

Nisha S. Doshi, MBBS

4TH Term Resident and Tutor in Deptt. Of Radiodiagnosis, M. P. Shah Medical College, Jamnagar-361008, Gujarat, India

Chirag J. Muniya, MBBS

4TH Term Resident and Tutor in Deptt. Of Radiodiagnosis, M. P. Shah Medical College, Jamnagar-361008, Gujarat, India