UNUSUAL CAUSE OF PELVIC PAIN: ISOLATED TORSION OF THE FALLOPIAN TUBE AND ITS DIFFICULT DIAGNOSIS

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Introduction
Isolated torsion of the fallopian tube (IFTT), without ovarian torsion, is a rare cause of lower abdominal pain. It occurs in 1 in 1.5 million women (1): it is mostly seen in the reproductive age group of 21-40 years and rarely in the perimenopausal, as in the pediatric and adolescent age group (2-3). The suggested predisposing factors are either extrinsic abnormalities including paratubal mass, peritubal adhesions or uterine enlargement compressing the fallopian tubes, or intrinsic tubal abnormalities including a hydrosalpinx, tubal ligation or endometriosis (4). The proposed reason for torsion is a sequential mechanical event which begins with blockage of the adnexal veins and lymphatic vessels, the obstruction than causes pelvic congestion and local edema which induces torsion. IFTT is usually unilateral and it occurs most commonly on the right side.

The diagnosis is difficult pre-operatively, due to a lack of pathognomonic clinical and imaging findings but early diagnosis is fundamental for preserving female reproductive capacity since timely intervention may allow preservation of the tube and therefore fertility.

Materials and methods:
Our aim was to evaluate the clinical signs and symptoms and imaging tools which lead to the early diagnosis of IFTT through the collection and analysis of articles as case reports with, or not with, the review of the literature from 2008 to 2013.

Results
Most of the cases of IFTT show a sudden onset of lower abdominal pain which is colicky in nature -sudden, cramplike and may be intermittent-, which may radiate to the flank or thigh. Other possible clinical manifestations are nausea or vomiting, positive peritoneal signs, lower urinary tract symptoms, fever, tachycardia, leucocytosis, raised C-reactive protein and scant uterine bleeding. On pelvic examination a tender adnexal mass may be present, with a positive cervical motion tenderness (5). However these clinical features overlap with other more common gynaecological causes of abdominal pain (6). The differential diagnosis of IFTT includes acute appendicitis, ectopic pregnancy, pelvic inflammatory disease, twisted ovarian cyst and degenerative leiomyoma.

Sonography is usually the first imaging tool used in evaluating pelvic pain and the fallopian tubes are generally not visualized on routine transvaginal ultrasound, infact they can be visualized only when fluid fills in or the texture thickens as a result of torsion, ectopic pregnancy and pelvic inflammatory disease. Some investigators have reported that a twisted thickened edematous component of the fallopian tube may be evident in torsion (7). The sonographic features of IFTT include tubal thickening, dilated fallopian tube, hematosalpinx, adnexal masses of varied echogenicity and high impedance flow or absent flow on color Doppler (8). However, the presence of normal arterial and venous flow does not necessarily rule out torsion because of the double vascularization of the ovary and fallopian tube (9). A sonographic whirlpool sign seen on rocking movement of the probe over the mass...
has been shown to be a specific sign of tubal torsion (10). Magnetic resonance imaging (MRI) and computed tomography (TC) can provide additional help in determining the contents of the structure and may show tubal coiling or a torsion knot. Moreover it may reveal infarction by lack of contrast enhancement of the tubal walls (11,12). Gaied et al (13) relieved a sensitivity of 40% and 14% respectively of MRI and TC, against a 22% of ultrasound imaging.

Conclusion
IFTT, although uncommon, should be included in the differential diagnosis of acute lower abdominal pain in women. Clinical correlation is very important and though the imaging findings in torsion are non-specific, the whirlpool sign may be considered specific of a tubal torsion, if it is elicited. MRI and CT may represent a useful tool after the suspect induced by sonography examination, especially in young patients where digital vaginal examination and vaginal ultrasound most often cannot even be used in the diagnostic process. If clinical suspicion for torsion is high, early diagnosis and treatment via laparoscopy is encouraged as a means of preserving fallopian tube integrity and maintaining fertility, especially in reproductive-age women.

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