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Adnexal torsion: Management controversy: A case series

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ABSTRACT

Objective: To present and analyse a case series with adnexal torsion, and to describe management options applied.

Study design: A prospective analysis, over 4 years; (October 2011 to October 2015).

Setting: University hospital's Gynaecology centre.

Subjects & methodology: A total of 46 patients presenting with adnexal torsion were analysed, 22 of which were pregnant.

Intervention: Laparoscopy was done for all cases, and decision for detorsion, Ovarian cystectomy, or adnexectomy was taken immediately.

Main outcome measures: Ovarian structure and function conservation, in terms of restoration of normal ovarian blood flow, proven by color Doppler Ultrasonographic scan, after 1, 6 and 12 months, normal ovarian volume and follicular development, by Ultrasound scan at 1, 6 and 12 months, second look laparoscopy, recommended for the non-pregnant group, showing a normal appearance, size, and position of the ovaries, and the gross appearance of the ovaries for the pregnant who underwent a Cesarean section (CS).

Results: Ovarian torsion was diagnosed in 48 ovaries (2 bilateral). All of the cases were managed by detorsion, with cystectomy (if ovarian cyst present), with or without oophoropexy. Adnexectomy was not done in any case. No complication, nor conversion to laparotomy was reported. 2 cases showed recurrence (4.43%) one pregnant, at 34 weeks, and was managed by a Caesarean section and detorsion, and one non-pregnant, managed by a second laparoscopic detorsion. Follow up by Ultrasonographic, and color Doppler scans, second look laparoscopy (done in 16/24 cases), and inspection at CS, proved complete conservation of the treated ovaries.

Conclusions: Laparoscopic management of ovarian torsion - whether in pregnancy or not- seems to be the route of choice. Detorsion was adequate to preserve ovarian structure and function in all cases studied, regardless of the degree of ovarian ischemia, the surgeon found. Ovarian fixation after detorsion was not found to be necessary to decrease recurrence.

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1. Introduction

Adnexal torsion is when the ovary, with or without the fallopian tube rotates along its vascular pedicle, leading to partial or complete occlusion of the blood supply, and acute abdomen at presentation [1]. No age is immune, but it tends to present more at reproductive age years, and during pregnancy, and represents one of the top causes of Gynaecological Emergencies. Difficulty to diagnose, and similar non-gynaecologic presentations, makes the exact prevalence less clear, however, an annual prevalence of

approximately 3% to 5% was suggested [1,2]. Diagnosis is basically clinical, however, pelvic imaging, primarily by transvaginal ultrasound (TVUS) and Doppler evaluation of ovarian blood flow, confirms the diagnosis and excludes similar conditions. Computed tomography (CT) may confirm and help exclude other non-Gynaecologic or extra pelvic conditions [3].

The association of an ovarian cyst is a common finding in twisted ovaries, the size of the cyst is usually moderate (i.e. around 5 cm). Large cysts, or those tending to adhere to adjacent organs e.g. endometriomas or malignant ovarian neoplasms are rarely involved. In addition, cases with previous torsion, ovarian stimulation, pregnancy, polycystic ovarian syndrome, and tubal surgery tend to have more liability to adnexal torsion [4–6].

Once laparoscopic entry is achieved, confirmation of the diagnosis, side, and condition of the affected ovary in terms of ischemia

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should be made. Untwisting (detorsion) should be prompted, minding the correct direction to do it, based on Kustner's law; which states that the pedicle on the left side rotates clockwise and vice versa [7]. Adnexectomy, should not be resorted to except if the affected ovary has become gangrenous in full, which is seldom met with. The ovarian tissue restores vitality after detorsion in a pretty impressive way, following the vascular distribution pattern from the central core to peripheral layers. The myth of inducing showers of emboli on untwisting is definitely untrue [8].

The aim of the current work was to present my own view of the controversial condition of ovarian torsion, in terms of predisposing factors, shortcuts to spot the diagnosis, options for laparoscopic intervention, and expectations on follow up.

2. Subjects & methods

Approval of the official ethical committee board was granted before commencing the research. A cohort of 46 patients presenting with adnexal torsion were analysed, over 4 years; (October 2011 to October 2015) at the author's university hospital's gynaecology centre. All patients signed a full informed consent before being enrolled in the study. Detailed history was taken from all patients, including: Present pregnancy or ovarian pathology, past medical, surgical history, fertility status/treatment, previous adnexal torsion, and/or recent triggering factors. Pelvic examination was undertaken to all subjects, followed by ultrasonographic 2 D scans and Doppler study, using a GE Medical Systems Voluson© E6 ultrasound machine (GE Healthcare, Egypt) with a 5–9 MHz transvaginal 'volume' transducer. Laparoscopy was done for all cases, with exploration of the whole abdominal cavity upon entry. The condition of the affected and contralateral ovary was noted, as well as the presence of hemoperitoneum. The twisted ovary was carefully untwisted, using non-traumatic instruments, while noting the direction of torsion, number of turns (knots) formed in the pedicle, oozing ovarian surface, tubal condition, presence of cysts, or multiple cysts (as of ovulation (hyper) stimulation, and the degree of ischemia/necrosis. Oophoropexy, or plication of ovarian ligament was done in some cases whenever feasible to reduce the likelihood of recurrence, especially in those with long ovarian pedicles, or history of torsion. Time needed for the ovary to recover after detorsion, as well as total time of surgery were recorded. Follow up was done for all cases. Clinical assessment in the first 24 h, for the pain and need of analgesia. Later on, ovarian structure and function, were assessed in terms of restoration of normal blood flow, proven by color Doppler Ultrasonographic scans, after 1, 6 and 12 months, normal ovarian volume and follicular development, by Ultrasound scan at 1, 6 and 12 months, second look laparoscopy, recommended for the non-pregnant group, showing a normal appearance, size, and position of the ovaries, and the gross appearance of the ovaries for the pregnant who underwent a Cesarean section (CS).

2.1. Statistical analysis of the data

Data were fed to the computer and analysed using IBM SPSS software package version 20.0. Qualitative data were described using number and percentage. Quantitative data were described using Range, mean, standard deviation and median [9].

3. Results

A total of 46 cases were managed, having 48 twisted adnexae (2 bilateral).

3.1. Demographic and history-related data

Age range was 14–45, with a mean of 29.5 years. 3 cases (6.5%) were premenarchal, 14 (30.4%) were nulliparous, and none were postmenopausal. 22 cases were pregnant (46.8%), 10 of which were spontaneous pregnancy and 12 following a successful IVF/ICSI. Gestational age ranged between 4 and 14, with a median of 7 weeks. All pregnancies continued to term, except one with recurrent torsion at 34 weeks. Delivery was by CS in 18 cases, while the rest delivered vaginally. Ipsilateral ovarian cyst(s) were present in 26 (56.5%) of cases (all were serous, except 2 dermoid, and one mucinous cystadenoma), 7 of the cases with cysts were pregnant. Paraovarian cyst was diagnosed in 3 cases (6.5%) (1 was pregnant). Fallopian tube involvement in torsion was seen in 29 cases (63%), 14 were pregnant.

Clinical and imaging data are shown in Table 1.

3.2. Operative data (Fig. 1)

Laparoscopy was done in all cases. Operative time ranged between 25 and 90 with a mean of 57.5 min. Most affected ovaries restored their normal (whitish) appearance in 2 to 12 (average 7) min. Right ovary was involved in 27 cases, bilateral in 2. The number of turns (knots) per pedicle ranged from 1 to 7. Mottled/bluish/dark discoloration of the affected ovary with an oozing surface was noted in 29 cases (63%). Estimated duration of torsion (time from start of pain till operation) ranged between 4 and 18 h. Detorsion was undertaken in all cases using non-traumatic laparoscopic graspers, with cystectomy (in all cases with cysts), oophoropexy was done in 22 cases (46.8%) based on feasibility. Adnexectomy was not done in any case. No operative complications or conversion to laparotomy were resorted to. 2 cases showed recurrence (4.43%) one pregnant, at 34 weeks, and was managed by a Caesarean section and detorsion, and one non-pregnant, managed by a second laparoscopic detorsion. Follow up of ovarian structure and function, in terms of restoration of normal ovarian blood flow, proven by color Doppler Ultrasonographic scans, after 1, 6 and 12 months, normal ovarian volume and/or follicular development, by Ultrasound scan at 1, 6 and 12 months, second look laparoscopy, done in 16 non-pregnant cases, as well as the gross appearance of the ovaries for the pregnant who underwent a

Table 1
Clinical history and imaging data.

Variable	n (%)
Previous adnexal torsion	6 (13)
Coexisting hydrosalpinx	7 (5.2)
IVF/Ovarian stimulation	19 (41.3)
PCOS	9 (19.5)
Present severe pain	40 (86.9)
Pelvic examination	
Tenderness	46 (100)
Mass	41 (89.1)
Imaging	
Ultrasound	
Normal ovary	5 (10.8)
Ovarian cyst	26 (56.5)
Enlarged/oedematous	17 (36.9)
Color Doppler	
Normal vascularity	16 (34.7)
Low peripheral vascularity	20 (43.4)
Absent vascularity	10 (21.7)
CT (16 non-pregnant cases)	
Confirms diagnosis	7 (43.7)
Did not confirm diagnosis	9 (56.2)

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