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EC GYNAECOLOGY
Research Article

Ovarian Torsion; Between Decision and Incision: An Experience of a Tertiary Care Centre in the Middle East

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Received: February 20, 2020; **Published:** April 15, 2020

Abstract

Objective: To describe our experience with ovarian torsion, patients' diversities, their symptomatology, diagnostic dilemmas and the operative findings. All of which to help discover such pathologies as early possible in order to minimize long term morbidities.

Methodology: We conducted a retrospective study of the ovarian torsion patients who underwent surgical intervention during the period from January 2006 to December 2015. Only women who underwent laparoscopy for suspected ovarian torsion were included in our study. All the US findings and intra-operative findings were recorded. Statistical Analysis was performed using SAS statistical software [version 9.1, SAS Institute, Inc, Cary, NC]. Categorical variables as a percentage, and continuous variables as mean ± standard deviation.

Results: Sixty-eight women with suspected ovarian torsion were reviewed (0.4% of all gynaecology cases in the emergency department during the study period). Three quarters were married patients, and almost tenth had an ovulation induction. Mean age was 28.5 ± 9.5 years. The most common presentation was abdominal pain, followed by vomiting [100% and 50% respectively]. The admission to ultrasound assessment and surgery was 7.6 ± 3.6 hours and 10.3 ± 4.6 hours, respectively. The ultrasound was suggestive of ovarian torsion in only 35% and confirmed by laparoscopy in 92.6% and ovary was gangrenous in 62% of the cases. Ovarian preservation was possible in 25 5 of the cases.

Conclusion: Ovarian torsion diagnosis is challenging, and this research showed the importance of high clinical suspicion in deciding on intervention at the proper time. Ultrasound is helpful but cannot reliably exclude ovarian torsion.

Keywords: *Ovarian Torsion; Tertiary Care Centre; Middle East*

Introduction

Adnexal torsion is challenging diagnosis even with expertise in presence of advanced imaging modules, early diagnosis of ovarian torsion is a vital factor in preserving the ovary and fertility as ovarian torsion is an ischemic process that evolves over time. classic presentation of ovarian torsion is very non-specific which mimic more common causes of acute abdomen such as appendicitis, diverticulitis and tuba-ovarian abscess [1,2]. Ovarian torsion occurs the most in childbearing period and adolescent, but generally it can affect women at any age [3]. Early diagnosis is necessary to preserve the function of the ovaries and tubes and prevent severe morbidity [4]. Ultrasound imaging can be used as guidance for diagnosing ovarian torsion to detect ovarian lesion and enlargement but it should be known that

normal appearance of ovary cannot exclude ovarian torsion [5]. Once ovarian torsion is highly suspected or confirmed, a swift surgical consult should be obtained. The less time between onset of symptoms and surgery, the more likely the ovary and/or fertility can be spared [6]. The gold standard to treat ovary torsion is surgery, and this is also the only way to confirm the torsion. There are two surgical methods, laparoscopy and laparotomy [4].

Aim of the Study

We aim in this retrospective study to evaluate our experience with ovarian torsion [or suspected so], the diagnostic dilemmas as well as various intervention and different variables that drive them.

Objective of the Study

To describe our experience with ovarian torsion, patients' diversities, their symptomatology, diagnostic dilemmas and the operative findings. All of which to help discover such pathologies as early possible in order to minimize long term morbidities. Furthermore, use the concluded ideas in order to provide a comprehensive counselling.

Materials and Methods

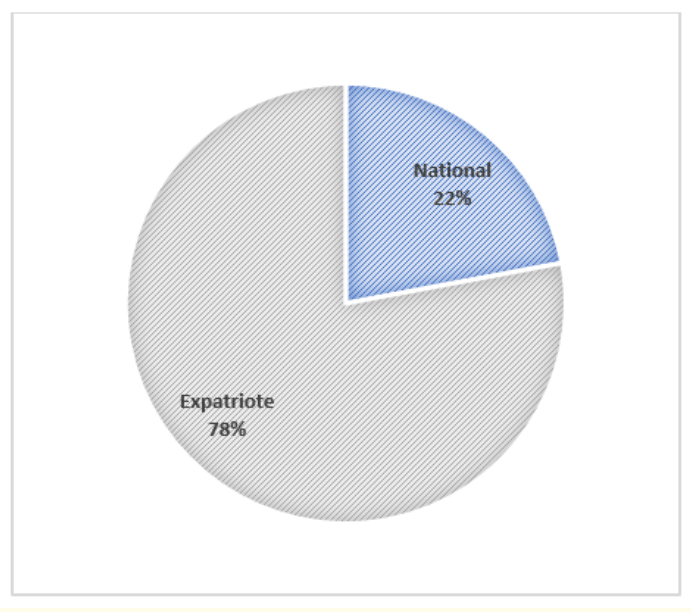
This retrospective study was conducted in the Department of Obstetrics and Gynecology, Women Hospital, Hamad Medical Corporation, Doha, Qatar, after being approved by the research committee. Case records of all patients presented to the Emergency Department with suspected ovarian torsion and underwent surgical intervention during the period from January 2006 to December 2015 were reviewed. Only women who underwent laparoscopy for suspected ovarian torsion were included in our study. Medical records were reviewed for the demographic and clinical data of patients, including age, nationality, parity, marital status and clinical presentation.

Ultrasonographic findings were recorded. All sonographic examinations were performed by an abdominal, vaginal, or combined approach using a Voluson Expert ultrasound machine [GE Healthcare, Milwaukee, WI]. The known classic sonographic characteristics of adnexal torsion were determined. Those included ovarian enlargement [in comparison to the contralateral ovary], ovarian oedema, the presence of an ovarian or para ovarian mass, free fluid in the pelvis, and ovarian ischemia on Doppler imaging. The ovarian volume was calculated by the prolate ellipsoid formula [length × width × height × 0.523]. After being thoroughly counselled, the patient usually scheduled for laparoscopic management after signing informed consent. Operative findings were reviewed and documented. Times of admission and operation were recorded. Evidence of torsion, number of twists and condition of the ovary or the mass, whether gangrenous or normal, was checked in every case. The specific surgical intervention was specified. Finally, the histopathology report was recorded and documented in each case. Untwisting, ovarian cystectomy and ovarian conservation were tried in most cases but some cases ended in oophorectomy. Ovarian fixation was done in some cases. Next day they are reassessed before going home.

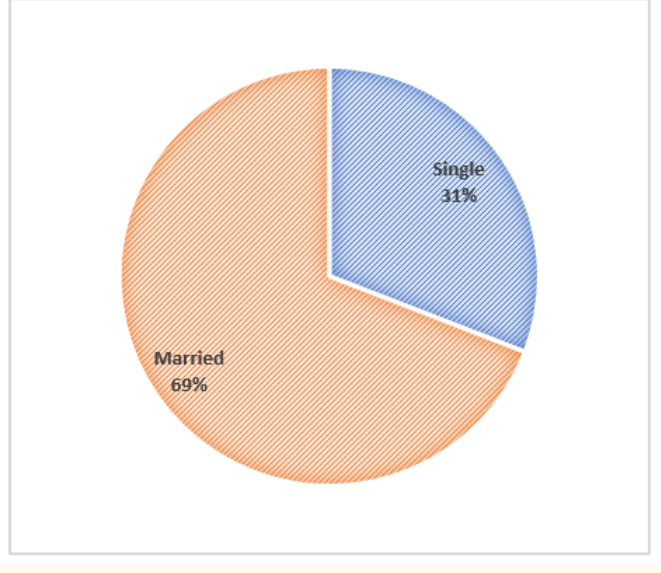
The data was kept anonymously in an Excel Sheet [Microsoft Office-2016]. Statistical Analysis was performed using SAS statistical software [version 9.1, SAS Institute, Inc, Cary, NC]. Categorical variables are presented as a percentage, and continuous variables are presented as mean ± standard deviation. No power analysis was performed as this was a convenience sample that included all cases performed.

Results

Sixty-Eight women with suspected ovarian torsion and underwent surgical intervention during the study period [from January 2006 to December 2015].



Graph 1: *Distribution of nationality.*



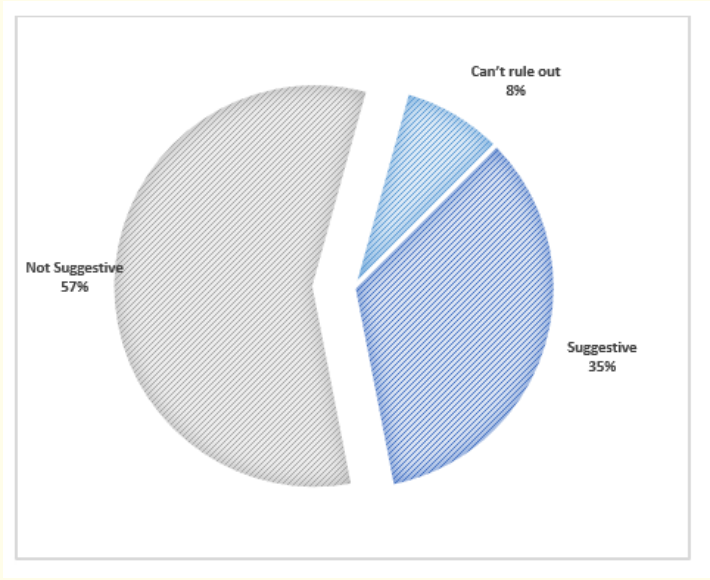
Graph 1: *Marital status.*

The most common presentation was abdominal pain followed by vomiting [100% and 50% respectively].

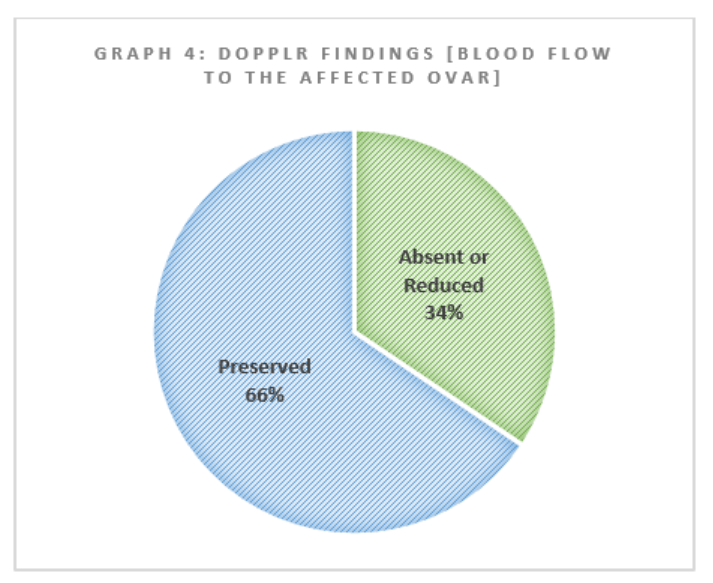
The ultrasound was suggestive in only 24 cases [35%] and doubtful in about 6 cases [8%], while torsion was confirmed by laparoscopy in 63 cases [92.6%].

Variable		Value
Patient's Ag [Mean ± SD] in Years		28.47 ± 9.5
Induction of Ovulation [%]		10.3%
Pregnancy [%]		20.6%
Clinical Examination [%]	Pain	100%
	Fever	1.4%
	Vomiting	50%
	Tenderness	92.6%
	Rebound tenderness	1.4%
	Rigidity	2.9%
	Guarding	1.4%
	Mass	10.2%
Admission Ultrasound Diagnosis [Mean ± SD Hours]		7.59 ± 3.6
Ultrasound Findings [%]	Cyst	60.5%
	Mass	4.4%
	Fluid	33.8%
	Enlarged ovaries	4.4%
Diagnosis Surgery [Mean ± SD Hours]		10.3 ± 4.6
Evidence of Torsion [%]		92.6%
Number of Twists [Range]		1 - 4

Table 1: *Patients' different variables.*

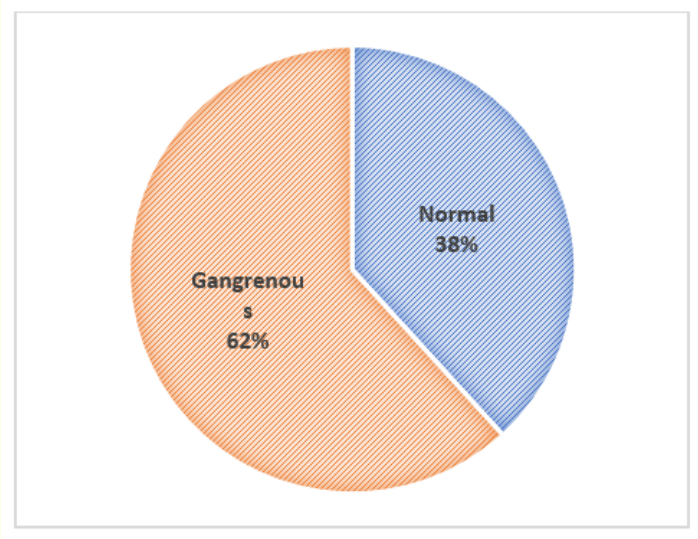


Graph 3: *Ultrasound conclusion.*

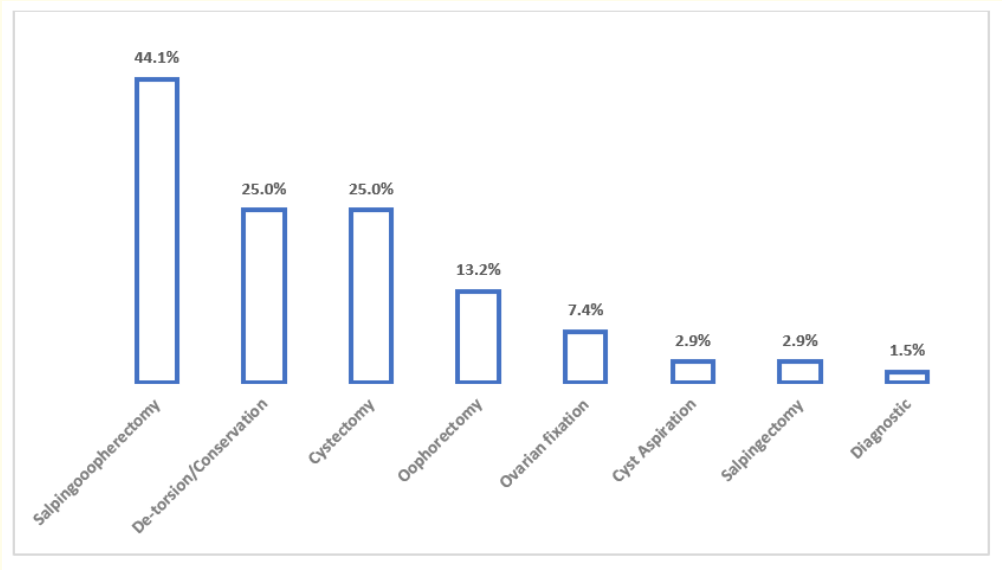


Graph 4: *Doppler findings [Blood Flow to the affected ovary].*

Various laparoscopic findings were reported either ovarian or adnexal torsion. One case was bilateral ovarian torsion. In 25% of the cases, the ovary was conserved while in the rest of cases the ovary was removed. In 5 cases, ovarian fixation was done. Those cases were either recurrent ovarian torsion or young age patients.



Graph 5: *Ovarian condition during intervention.*



Graph 6: *Interventions.*

Discussion

Our research showed the prevalence of ovarian torsion to be 0.4%, its less than what shown in the literature. [7], The reasons are that our institute is the only tertiary care centre I the country with almost 16000 gynaecology cases seen each year; also, our cohort involves those who underwent intervention.

The majority of the cohort were expatriates which go with the distribution of population in Qatar being a growing metropolitan country. Most of the patients included in the study were young, which could be explained by the higher incidence of benign ovarian masses in this age group. 7 cases (10.3%) of the ovarian torsion were post ovulation induction which is a known risk factor for the same as was proven by Chang SD., *et al.* [8], Smith LP., *et al*. as well [9].

The most common presentation was abdominal pain, followed by vomiting similar to the literature [10-12]. The abdominal pain was persistent in 50 cases [73.5%] and on and off attacks in 18 cases [26.4%], only in one case, the pain was associated with fever.

Ultrasound suggests torsion in about one-third of our cohort when, in fact, in 9 in 10 patients had a real torsion upon laparoscopy; this correlates with previous studies that showed that US accuracy in diagnosing ovarian torsion is less than 50% [5,13]. So, the ultrasound helps define the location and size of the ovarian mass/cyst, yet it lacks the diagnostic accuracy of the ovarian torsion.

The average time between the patient's presentation to the Emergency Department and Ultrasound assessment was 7.59 hours, and the average time from decision to incision was 10.3 hours. The delay was related to the fact that the patient's 1st presentation was to a Non-GYN emergency department, where the patient was first assessed by the surgeon and then referred to the gynaecologist after being discharged from the surgery side. Adding to this delay was the low clinical suspicion of ovarian torsion by the assessing surgeon as well as unavailability of operating rooms at the right time; due to a sizeable obstetric population; making it a challenge to operate on gynaecologi-

cal cases with our limited and already overloaded operating rooms. These results study might increase the awareness among the health care providers and stakeholder of the magnitude of such complication and its impact.

Limitation of the Study

The limitations of this study were that the retrospective nature of the research with its limitation. Another limitation is that we could confirm the diagnosis only in cases which underwent surgery. At the same time, the remaining were discharged from ED since the abdominal pain subsided, and no surgical intervention is done, which is the gold standard for the diagnosis of ovarian torsion. However, because ovarian torsion is typically associated with unrelenting pain, it is unlikely that patients were discharged with undiagnosed ovarian torsion and were denied laparoscopic management; but this does not account for the possibility of intermittent or partial ovarian torsion.

Conclusion

This research showed the multiplex dilemma associated with ovarian torsion. Proper clinical assessment and a high degree of suspicion are crucial in deciding on intervention at the proper time as much as possible in order to minimize long term morbidities. Ultrasound will help in assessing the ovarian pathology (ovarian mass), yet it is better not be taken as a reassuring tool against ovarian torsion or preclude any necessary intervention.

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Volume 9 Issue 5 May 2020