ORIGINAL ARTICLE

Prospective Observational Study of Twisted Ovarian Tumor at a Tertiary Care Centre

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Abstract:

Background: The challenges in the diagnosis and management of ovarian torsion are many. The present study was conducted in a tertiary healthcare centre of Aurangabad to determine the clinical presentation, USG features, management options and histopathological variants of twisted ovarian tumor. *Material and Methods:* Patients presenting with a diagnosis of twisted ovarian tumor were registered and the details noted. Patients were managed by laparotomy and specimen histopathological report noted. The clinical as well as histological findings were compiled on proforma and then subjected to analysis. *Results:* Total 50 patients were included in the study with the age range from 14 years to 43years (mean age was 29.10 ± 5.13 years).In the present study 27 (67.55%) patients were nulliparous,40 (80%) had normal BMI. The most common presenting symptom was abdominal pain 47 (94%) followed by nausea & vomiting 11(22%). Mean ovary / adnexa size was 6.3 cm (Range 3.7cm- 5.8cm). The most common finding on USG was Ovarian mass with/without oedema 42(84%). Fortyfour (88%) patients were treated by detorsion with salphingoopherectomy. In 24 (84%) patients right side was affected. 45(90%) of patients did not have any post-operative complication. On his to pathological examination, most common finding was simple cyst 29 [65.90%] followed by mature cystic teratoma 9 (20.45%). *Conclusion:* Prompt intervention to preserve ovarian function should be done. De-torsion is the treatment of choice in women of reproductive age whose families are not complete

Keywords: Ovarian tumors, International ovarian tumor analysis (IOTA), ultrasonography(usg), sensitivity, specificity, ca-125, histopathology report.

Introduction:

Ovarian torsion (OT) is a well-known yet poorly recognized clinical entity that can involve the tube, ovary, and ancillary structures either separately or together[1] It is the fifth most common gynecological emergency, with a reported incidence of 3% in one series of acute gynecologic complaints[1,2] Though it is reported in all age group, it most commonly occurs in women of reproductive age. The initial clinical presentation of sudden severe pain, vomiting, palpable adnexal mass leukocytosis, and fever is nonspecific and overlaps with many more common clinical entities such as appendicitis, diverticulitis, renal colic, ruptured ovarian cyst, tub ovarian abscess, and other acute conditions[3,4] Atypical presentations are common, with many patients reporting bilateral pain, mild rather than severe pain, intermittent pain, or lack of tenderness on examination. Up to 50% of patients are initially misdiagnosed [5] Signs include pyrexia, tachycardia, generalized abdominal tenderness, tender mass in adnexa, guarding and rebound tenderness. The chance of salvaging a viable ovary markedly decreases if symptoms have persisted for more than 48 hours [6,7,8]Early diagnosis and treatment are necessary to relieve the torsion, rest blood flow, and salvage the ovary and fallopian tube, particularly in women desiring to maintain fertility.[9,10,11] Early diagnosis can help prevent irreversible damage to adnexal structures and allow conservative ovary-sparing treatment in young women [12] Prompt intervention is necessary to preserve ovarian function. Detorsion is the treatment of choice in prepubescent girls and women of reproductive age, whose families are not complete, which may be combined with oophorectomy or cystectomy as necessary [13] In older women and in case of ovarian infarction, oophorectomy is the treatment of choice to completely remove the risk of retorsion. The present study was carried out to study sociodemographic factors, risk factors, clinical presentation, ultrasound findings, and analyze the management of and histopathological findings in ovarian torsion. The Objectives are to study the sociodemographic factors and risk factors of ovarian torsion, to study the clinical presentation, ultrasound features, and management

options of ovarian torsion and to study the histopathology in ovarian torsion.

Material and Methods:

This Prospective Observational Study was carried out among patients with ovarian torsion attending the emergency room of Government Medical College, Aurangabad in the Department of Obstetrics and Gynaecology from June 2021 to Jan 2023.The study population comprised all patients having evidence of ovarian torsion on ultrasound, doppler, or laparotomy and who gave consent at the emergency room. Approval was obtained before the start of the study from the Institutional Ethics Committee of the Medical College. Informed consent was taken from patients before enrolling them in the study. The sample size was calculated by using Cochrane's formula. Sample size = Z2 *p*q/l2. The calculated sample size was 50. After obtaining Informed consent from patients with ovarian torsion, data was collected by using a predesigned pretested questionnaire. The questionnaire consisted of information like age, address, SES, marital status, parity, BMI, menstrual history, family history, etc. A detailed history and clinical examination were done. On provisional diagnosis, resuscitation was done according to protocols. The ultrasound examination was also performed by a senior radiologist, and morphological and Doppler characteristics of the ovarian tumor were noted. After confirming the diagnosis, the decision of surgery was taken. Counselling of patients and relatives was done regarding the need for surgery, intraoperative risks, need for ovariectomy, if any. Blood and blood products were reserved according to the protocols. Injectable antibiotics were given half an hour before surgery. The respective unit consultants managed all the patients with ovarian torsion surgically using the standard operating protocols. Clinical protocols and based on their assessment of the patient, surgical options include exploratory laparotomy with detorsion, or ovariectomy or cystectomy. The specimen was sent for histopathological examination and report was noted. Surgical details including the size of the mass, the color of the torsioned ovary, the number of twists, and the type of surgery were noted. Other intraoperative findings were noted. post-operative care was taken according to standard protocols. All the patients with ovarian torsion were followed up till discharge. Data was entered in an MS Excel worksheet and analyzed using SPSS trial version 21.0. Data was presented in tabular and graphical format. For the qualitative type of data, the chi-square test was used.

Results:

The present prospective observational study was carried out among patients with ovarian torsion. This study was carried out to study epidemiological profile, risk factors, clinical presentation, ultrasonographic findings & histopathological findings. A total of 50 patients with ovarian torsion were enrolled in the study.

Table1: Table1: Distribution of patients according to Sociodemographic features

Sr. no.	Parameter	N=50	%
1	Residence –Rural Urban	17 33	34 66
2	Parity-Nulliparous Multiparous	27 22	32.567.5
3	Menstrual cycle-Regular Irregular 2 were premenarchal	17 31	34 62
4	Referred -Yes No	13 37	26 74
5	Previous history of torsion Yes No	3 47	6 94
6	BMI- Under-weight- Normal Overweight Obese	3 40 5 2	6 80 10 4
7	Age -10-19 20-30 31-40 >40	16 25 8 1	32 50 16 2

The mean age of the patient was 29.10 ± 5.13 years with a range from 14-43 years. Two patients were 9 years of age . Mean weight of patients was 56.12 ± 4.10 Kg and mean BMI was 25.8 ± 1.62 Kg/m^2

Table 2: Distribution of patients according to clinical features

Sr. no.	Symptoms	N=50	%
1	Abdominal pain	47	94
2	Nausea & vomiting	11	22
3	Abdominal tenderness	17	34
4	Urinary symptoms	7	14
5	High-grade fever	4	8
6	Diarrhoea	2	4
7	Chills	3	6

The median Duration from symptoms onset to gynecological ED admission was 6 hours. More than one

clinical feature may be present in one patient.

Table 3: Distribution of patients according to USG findings

Sr. no.	USG findings	N=50	%
1	Whirlpool sign	40	80
2	Ovarian mass with/without edema	42	84
3	Follicular Ring sign	16	32
4	Free pelvic fluid	39	68
5	Free fluid in the pouch of Douglas	36	72

Mean ovary / adnexa size was 6.3 cm (Range 3.7 cm - 5.8cm). More than one feature may be present in one patient. The most common finding on USG was ovarian mass with/without odema 42(84%). Mean duration from admission to surgery was 4.2 hours & mean duration of operating time was 33 min. Conservative management was carried out in 6 patients.

Table 4: Distribution of patients according tosurgical procedures done

Sr. no.	Surgical procedure	N=50	%
1	Detorsion	3	6
2	Detorsion & drainage	1	2
3	Detorsion & salphingoopherectomy	44	88
4	Detorsion & fixation	2	4
5	Total	50	100

Table 5: Distribution of patients according to affected side

Sr. no.	Affected side	N=50	%
1	Right	24	48
2	Left	21	42
3	Both	5	10
	Total	50	100

In 24 (48%) patients right side was affected.

Table 6: Distribution of patients according to post-operative complications

Sr no	Complication	N=50	%
1	Wound infection	1	2
2	Hematoma of the abdominal wall	1	4
3	Fever	2	4
4	Paralytic ileus	1	2

Out of 50 patients, 45 patients discharged without any post-operative complication

Table 7: Distribution of patients according to histopathologic findings

Sr. no.	Histopathologic findings	N=50	%
1	Simple cyst	29	65.9
2	Mature cystic teratoma	9	20.4
3	Endometrioma	3	6.8
4	Fibroma/ Fibroadenoma	2	4.5
5	Necrosis of Ovary	1	2.2
	Total	44	100

On histopathological examination, most common finding was simple cyst 29 (65.90%) followed by mature cystic teratoma 9 (20.45%)

Figure 1: 40-year-old, Left adnexal torsion, laparotomy, Cystectomy

Discussion:

Ovarian torsion is the fifth most common gynecological emergency, with a reported incidence of 3% in one series of acute gynaecologic complaints. [1,2]The initial clinical presentation is of sudden abdominal severe pain, vomiting, and palpable adnexal mass and leucocytosis. [4] Prompt intervention is necessary to preserve ovarian function. Detorsion is the treatment of choice[14]. The observations made were analyzed. In the present study, the mean age of the patient was 29.10 ± 5.13 years with a range from 14-43 years. This finding was similar to earlier studies having the age of patients with torsion was between 29.0 to 43.5 years. [1516,17]. Ovarian torsion may occur in females of all ages, even fetuses and neonates, particularly if an ovarian mass is present . [18, 19, 20] A similar finding was found in the study conducted by Houry D et al.[21], Varras M. et al.[22] and White M et al.[23]The presence of an ovarian mass predisposes the ovary to rotate on the axis of the infundibulopelvic and utero-ovarian ligaments and become fixed in a torsed position. Many of these masses are associated with the reproductive cycle or re-productive hormones (eg. corpus luteum, ovulation induction); therefore, the risk of

torsion is increased in women of reproductive age.

In the present study, about 33 (36%) patients were residing in urban areas & 17 (34%) were residing in rural areas. About 27 (67.55%) patients were nulliparous. In the present study, about 40 [80%] patients had normal BMI followed by 5 [10%] were overweight & 2 [4%] were obese. About 3 [6%] patients were in the underweight category. The mean weight of patients was 56.12 ± 4.10 Kg & mean BMI was 25.8 ± 1.62 Kg/m2. In a study conducted by Balci O et al.[24] mean age, parity, and BMI are the same as our study. The most common presenting symptom was abdominal pain 47 [94%] followed by nausea & vomiting 11 [22%], urinary symptoms 7 [14%], high-grade fever 4[8%], chills 3[6%] & diarrhoea 2 [4%]. Similar findings were found in a study conducted by Moro F et al.[17], Ashwal E et. al. [25]& Balci O et al[24] In the present study, about 47 [94%] patients did not have a previous history of torsion. Only 3 [6%] patients had a previous history of torsion. Patients with prior ovarian torsion appear to be at increased risk for recurrence, but the rate of recurrence is unclear. In one series, 23 of 216 cases [11 percent] of torsion were recurrent. [26] In the present study, two patients[4%] were in premenarchal age. The study conducted by Herman H G. et al. [27] found that 5% of patients in premenarchal age. The mean ovary/adnexa size was 6.3 cm [Range 3.7 cm - 5.8cm]. Patients with normal ovaries may be at higher risk of recurrent torsion than those with abnormal ovaries, but data available is very limited .Ovarian torsion has been reported to occur with large masses.In the present study, the most common finding on USG was edema of ovary 42 [84%] followed by free pelvic fluid 6 [12%] & enhanced echogenicity 2[4%]. A similar finding was also found in the study conducted by Ashwal E et. Al [25] In contrast, the study conducted by Moro F et al [17] found free pelvic fluid in 71.6% of patients, edema of the ovary in 69.3% of cases . Houry D et al. [5]conducted a15-year review of ovarian masses and found out that the mean size of mass was 9.5 cm and the most common finding on USG was edema of the ovary. The findings were similar to our study. In the present study, the mean duration from admission to surgery was 4.2 hours & mean duration of operating time was 33 min. In the study conducted by Ashwal et al. [25] the mean duration from admission to surgery was 4.6 hours & mean duration of operating time was 28 min. In the present study, about 44 [88%] patients were treated by detorsion with salphingoopherectomy. Conservative management like detorsion 3[6%]& detorsion with additional cyst drainage 1 [2%] was carried out in 4 [8%] of patients. Two patients [4%] were treated by detorsion & fixation. In the study conducted by Moro F et al [17]76.6% of patients were treated laparoscopically & others were treated conservatively. This finding is of concern with the study conducted by Ashwal et al.as the conservatively treated patient number is high. In the present study, 24 [48%] patient's right side was affected and 21 [42%] patients left side was affected. Only in 5 [10%] patients both sides were affected. A similar finding was found in the study conducted by Moro F et al.[17], where, in 57.5% right side was affected and in 41.9 % left side was affected & only 0.6 % of both sides were affected. Out of 50 patients, 45 patients were discharged without any post-operative complications. Only 5 [10%] patients had postoperative complications like wound infection, hematoma of the abdominal wall, fever & paralytic ileus. On histopathological examination, the most common finding was simple cyst 29 [65.90%] followed by mature cystic teratoma 9 [20.45%], endometrioma 3 [6.82%], fibroma/ fibroadenoma 2 [4.55%]. Only one [2.28%] specimen shows necrosis of the ovary. A similar finding was found in the study conducted by Moro F et al.[17], 60% were serous/mucinous cystadenoma. The study conducted by Ashwal E et. al.[25]found that 58.6% were simple cysts and17.2 % were mature cystic teratoma

Conclusion:

This study revealed that most patients with Ovarian torsion were in the reproductive age group. The most important symptom of ovarian torsion was acute abdominal pain and the most important etiology was ovarian cyst. Common ultrasound signs are ovarian mass with/without edema and free fluid in the pelvis. Ultrasonography had a limited role in pathologic determination or differential diagnosis. To maximize the chance of the right diagnosis, a careful investigation of acute abdominopelvic pain and a combination of sonographic and Doppler findings with clinical features is required. An early surgical intervention will preserve ovarian viability and fertility capacity. Timely referral of patients with acute pelvic pain is most important for better prognosis Prompt intervention to preserve ovarian function should be done. De-torsion is the treatment of choice in women of reproductive age whose families are not complete, regardless of the color of the ovary at the time of surgery. In older and postmenopausal women, oophorectomy is the treatment of choice to completely remove the risk of re-torsion. In the presence of a non-functional ovarian cyst, cystectomy or interval cystectomy should be performed in younger women.

Sources of supports: Nil

Conflicts of Interest: Nil

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