Research

Role of Ovarian Torsion CompositeIndex In Management Of Ovarian Torsion

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Abstract

Background: Ovarian torsion is an acute phenomenon with a highly variable clinical presentation. Ovarian torsion composite index is an attempt to diagnose ovarian torsion in suspected patients more accurately and thus timely intervention.

Aims and Objectives: The aim of this study is to determine the diagnostic efficacy of a hypothesized practical scoring system, known as Ovarian torsion composite index in management of ovarian torsion.

Materials and Methods: A cross-sectional study evaluating 78 patients with ovarian mass attending Obstetrics and Gynaecology department of Assam medical college and hospital, Dibrugarh was conducted from August 2021 to July 2022. Four parameters of Ovarian torsion composite index – Duration of Pain, Presence of nausea or vomiting, Ovarian volume and Ovarian ratio were assessed in these patients and compiled to calculate total OT-CI score.

Results: Four factors were found to be independently associated with ovarian torsion- Duration of pain, Nausea or vomiting, Ovarian volume and Ovarian ratio. There were no cases of Ovarian torsion in patients with OT-CI scores ≤3. Patients with OT-CI score >6 had 62.5% sensitivity, 99.57% specificity and 94.87% accuracy.

Conclusion: Ovarian torsion composite index is a practical scoring system combining clinical and radiological findings to preoperatively predict Ovarian torsion in patients presenting with ovarian mass. An OT-CI ≤3 is strong evidence against ovarian torsion, thus minimizing surgical intervention. On the contrary, an OT-CI score >6 is a predictor of ovarian torsion and thus scores >6 should be considered for surgical exploration to maximize ovarian salvage.

Keywords: Ovarian torsion, surgical exploration, ovarian salvage

INTRODUCTION

Ovarian torsion is an acute phenomenon with a variable presentation.[1] Itoccurs when the ovary twists over the ligaments that support it in adnexa, that is, infundibulopelvic ligament and utero-ovarian ligament. The fallopian tube usually twists alongwith the ovary and it is then known as adnexal torsion.[2] Adnexal torsion is the fifth most common gynaecologic emergency.[3] Making timely diagnosis of ovarian torsion is important because overdiagnosis can result in unnecessary surgical intervention and misdiagnosis or delay in treatment can result in permanent

sequelae like loss of an ovary affecting future fertility, peritonitis and even death.[4] The most commonly used modality for diagnosis of ovarian torsion is ultrasonography alongwith evaluation of arterial and venous flow on doppler sonography.[1] Abnormal flow detected by doppler sonography is a strong predictor of ovarian torsion. However, ovarian torsion cannot be excluded by normal flow on doppler sonography. On doppler sonography, torsion can be missed in nearly 60% cases.[5] Definitive diagnosis of ovarian torsion is made by direct visualization of rotated ovary during surgical exploration.[1] No clinical or imaging criteria are sufficient to confirm the diagnosis of ovarian torsion preoperatively.[3] Ovarian torsion is suspected preoperatively only in 23-66% cases. Furthermore, only 50% of patients undergoing surgical exploration following clinical suspicion actually have the torsion.[1] Ovarian Torsion Composite Index (OT-CI) is a practical scoring system that attempts to diagnose ovarian torsion preoperatively based on integration of clinical presentation and imaging studies. It is comprised of 4 independent factors (2 clinical and 2radiological). These include Duration of pain, Presence of Nausea or vomiting, Ovarian volume and Ovarian ratio.

The duration of pain greater than 48 hours and presence of nausea/vomiting are each given 2 points. The duration of pain lesser than 48 hours and absence of nausea/vomiting are each given 0 points. Ovarian volume is the ultrasonographically determined volume of affectedovary and is graded as less than 20 ml (0 point), 20-70 ml (1 point) and > 70 ml (2 points). Ovarian ratio is calculated as the ratio of volume of affected ovary over the volume of unaffected ovary on ultrasonography. It is graded as less than 5 (0 points), 5-10(1 point) and >10 (2 points). The OT-CI is calculated as the sum of the score based on this combination of clinical and radiological findings. Based on this score, ovarian torsion is suspected in patients preoperatively and results are verified intraoperatively. The establishment of preoperative diagnosis using OT-CI will minimize the number of unnecessary surgical interventions in true negative cases and also prevent long term complications like infertility, peritonitis and thrombophlebitis by allowing timelyintervention in case of true positive cases. This study is sought to apply OT-CI to all females with ovarian mass attending Department of Obstetrics and Gynaecology of Assam Medical College and Hospital and assess its role in timely diagnosis and management of ovarian torsion. The application of Ovarian Torsion Composite Index in cases of ovarian masses is an effort to reduce the number of negative surgical interventions in suspected cases of ovarian torsion and allow timely intervention in true positive cases. No such studies have been carried out in the Department of Obstetrics and Gynaecology of Assam Medical College and Hospital in the past. This study will thus be helpful in early diagnosis and management of ovarian torsion.

Aims And Objectives
To study the diagnostic efficacy of Ovarian Torsion Composite Index inmanagement of ovarian torsion.

MATERIALS AND METHODS

Place Of Study: Department of Obstetrics and Gynaecology at Assa Medical College and Hospital, Dibrugarh, Assam, India
Type Of Study: Hospital based cross sectional study
Duration Of Study: One Year
Sample Size: 78

Inclusion Criteria
1. Patients giving consent and willing to participate in the study.
2. All patients with ovarian mass attending Obstetrics and GynaecologyDepartment, Assam Medical College and Hospital in study period.

Exclusion Criteria
1. Adnexal pathologies other than ovarian mass (e.g.-ectopic pregnancy,hydrosalpinx, appendicular lump, pelvic inflammatory disease etc.)
2. Pelvic pain in absence of evident ovarian mass (e.g.- pelvic inflammatorydisease)

METHODOLOGY

After approval from Institutional Thesis Screening Committee, a prospective cross-sectional study was performed on all patients with ovarian mass on imaging studies attending Department of Obstetrics and Gynaecology, Assam Medical College and Hospital during the study period (July 2021 to June 2022). All patients with ovarian mass on imaging studies who gave consent to participate in the study, irrespective of their age, marital status, parity, menstrual history,contraceptive history, past history, family history and treatment history were included. After proper counselling and informed consent, detailed history including chief complaints, clinical presentation, history of prior treatment, personal history (any history of ovarian torsion or ovarian cyst), obstetric history, epidemiological data (age, educational qualification, socioeconomic status) were elicited and recorded in a preformed proforma.Investigations like ultrasonography whole abdomen plus pelvic

organ for unmarried women and transvaginal ultrasonography for married women and other imaging modalities like doppler flow study and contrast MRI and other necessary blood investigations like CBC, ESR, TFT, Montoux test and CA-125 were done, if and when necessary for diagnosis of ovarian torsion and ruling out other conditions of ovarian masses.

Ultrasonography was performed at Department of Radiology of our institute with a full urinary bladder distended by direct infusion of sterile saline or by oral or intravenous hydration. On ultrasonography, transverse and longitudinal images of uterus and ovaries were obtained. Different dimensions and volume of affected as well as unaffected ovaries were calculated and recorded. In addition, adnexal masses and other pelvic organs were also evaluated on ultrasonography. Volume of each ovarywas calculated using the formula for an ellipse. (length X width X height X 0.523). With the detailed history, examination and investigations, parameters of Ovarian Torsion Composite Index were tabulated and ovarian torsionwas suspected depending on the total score. These parameters include Duration of pain, Presence of nausea or vomiting, Ovarian volume and Ovarian ratio. Duration of pain was graded as follows:

- Pain duration<48 hours (0 point)
- Pain duration>48 hours (2 points) Nausea or vomiting was graded as follows:
- Absence of nausea and vomiting (0 point)
- Presence of nausea or vomiting (2 points)

Ovarian volume is the ultrasonographically determined volume of affected ovary.It was graded as follows:
- less than 20 ml (0 point)
- 20 to 70 ml (1 point) and
- more than 70 ml (2 points).

Ovarian ratio is the ratio of ultrasonographically determined volume of affectedovary to the volume of contralateral ovary. It was graded as follows:
- less than 5 (0 point)
- 5 to 10 (1 point)
- more than 10 (2 points)

The Ovarian Torsion Composite Index was calculated as the sum ofthe score based on this combination of radiographic and clinical findings and ovarian torsion was suspected. Diagnosis was confirmed during surgical exploration. Surgical exploration was done for viewing the internal organs to look for ovarian torsion andother possible problems and necessary surgical procedure was done. For the patients requiring surgery, postoperatively the specimen wassent for histopathological examination.

Ethics Committee Clearance
Ethical clearance was taken before commencement of the study from Institutional Human Ethics Committee, Assam Medical College and Hospital, Dibrugarh.

Statistical Analysis
All relevant data was collected, stored and categorized using Microsoft Excel 2010. Categorical data was expressed as frequencies and percentages and also presented in the forms of bar diagrams and pie diagrams. Sensitivity, specificity and accuracy were calculated. Calculations were done using MedCalc's Diagnostic test evaluation calculator.

RESULTS
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The results of this one year study conducted in Department of Obstetrics and Gynaecology, Assam Medical College and Hospital, Dibrugarh, to assess the role of Ovarian Torsion Composite Index in management of ovarian torsion (OT) have been compiled in this section. During the study period, a total of 78 females with ovarian mass attending Department of Obstetrics and Gynaecology of Assam Medical College and Hospital were admitted and treated surgically. Ovarian Torsion Composite Index was applied to all these females preoperatively and ovarian torsion was suspected based on OT-CI score. This preoperatively suspected diagnosis was subsequently confirmed on surgical exploration.
The study results and observations are recorded in the following manner.
1. Distribution of study participants according to age
2. Distribution of study participants according to duration of pain
3. Distribution of study participants according to presence of nausea or vomiting
4. Distribution of study participants according to ovarian volume

5. Distribution of study participants according to ovarian ratio
6. Distribution of study participants according to OT-CI
7. Surgically confirmed OT patients among total study participants
8. Distribution of surgically confirmed OT patients according to age
9. Distribution of surgically confirmed OT patients according to laterality
10. Distribution of surgically confirmed OT patients according to clinical features
11. Distribution of surgically confirmed OT patients according to ovarian volume
12. Distribution of surgically confirmed OT patients according to ovarian ratio
13. Distribution of surgically confirmed OT patients according to OT-CI
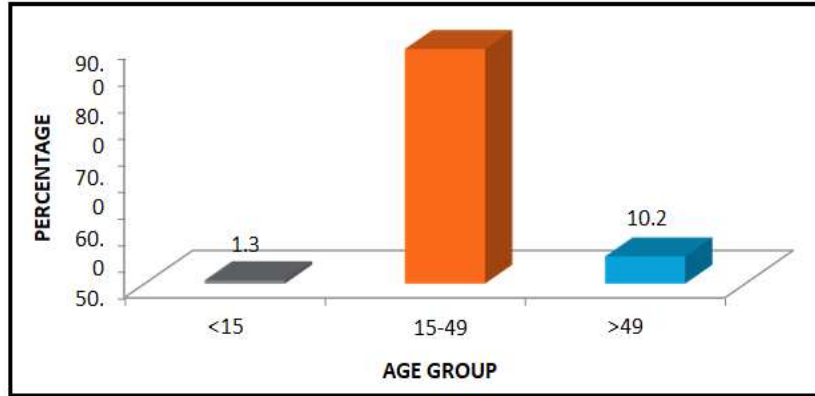
Demography

Fig 1: Distribution of study participants according to age

Out of 78 subjects, one (1.3%) is in age group <15 years, 69 (88.5%) are in age group 15-49 years, that is, reproductive age group and 8 (10.2%) are in age group >49 years.

Table 1: Distribution of study participants according to duration of pain

Duration of Pain	Sample Population		Surgically confirmed OT	
	N	%	N	%
>48 hours	76	97.44	8	10.5
<48 hours	2	2.56	0	0
TOTAL	78	100.00	8	

Out of total 78 subjects, Seventy-six (97.44%) had pain for >48 hours. Eight (10.5%) of these patients with pain >48 hours had ovarian torsion on surgical exploration.
Out of total 78 subjects, only 2(2.56%) patients had pain for <48 hours. None of these patients had ovarian torsion on surgical exploration. Absence of pain is thus a predictor of absence of ovarian torsion.

Table 2: Distribution of study participants according to presence of nausea or vomiting

Nausea or Vomiting	Sample Population		Surgically confirmed OT	
	N	%	N	%
Present	10	12.8	7	70
Absent	68	87.2	1	1.47

Out of total 78 subjects, only 10 (12.8%) had nausea or vomiting. Seven of these patients with presence of nausea or vomiting had ovarian torsion on surgical exploration.
Out of total 78 subjects, sixty-eight (87.2%) do not have nausea and vomiting. Onlyone of the patients without nausea and vomiting had ovarian torsion on surgical exploration. Thus, absence of nausea and vomiting is a strong predictor of absenceof ovarian torsion.

Table 3: Distribution of study participants according to ovarian volume

Ovarian Volume (in ml)	Sample Population		Surgically confirmed OT	
	N	%	N	%
<20	0	0.00	0	0
20-70	10	12.82	0	0
>70	68	87.18	8	11.7

Ovarian volume is the ultrasonographically determined volume of affected ovary. It is calculated using measured dimensions of affected ovary and the formula for an ellipse (length×width×height ×0.523).

Out of total 78 subjects, no patient had volume of larger ovary lesser than 20 ml and 10 patients (12.82%) had volume of larger ovary 20-70 ml. None of the patients with ovarian volume 70 ml or lesser had ovarian torsion.

Out of total 78 subjects, Sixty-eight (87.18%) had volume of larger ovary >70 ml. Eight (11.7%) out of these with volume of larger ovary >70 ml patients had ovariantorsion on surgical exploration. An increase in ovarian volume is thus associated with ovarian torsion.

Table 4: Distribution of study participants according to ovarian ratio

Ovarian ratio	Sample Population		Surgically confirmed OT	
	N	%	N	%
<5	9	11.54	2	22.2
5-10	12	15.38	1	8.3
>10	57	73.08	5	8.7

Ovarian ratio is the ratio of ultrasonographically determined volume of affected ovary to the volume of contralateral ovary. Out of total 78 patients, it was <5 in 9 (11.54%) patients, 5-10 in 12 (15.38%) patients and >10 in 57 (73.08%) patients. Five out of the 8 surgically confirmed cases of ovarian torsion had ovarian ratio >10.

Table 5: Distribution of study participants according to OT-CI

Ovarian Torsion Composite Index	Sample Population		Surgically confirmed OT	
	N	%	N	%
≤3	2	2.56	0	0
4-6	69	88.46	3	4.34
>6	7	8.98	5	71.4

Ovarian Torsion Composite Index was calculated by combining the score of 4 individual factors - Duration of pain, Presence of nausea or vomiting, Ovarian volume (of affected ovary on ultrasonography) and Ovarian ratio (volume ofaffected ovary divided by the volume of unaffected ovary on ultrasonography). Each individual factor was alloted a maximum score of two, adding to form a maximum OT-CI score of 8.

Out of total 78 patients, Ovarian Torsion Composite Index score was ≤ 3 in 2 (2.56%) patients, 4-6 in 69 (88.46%) patients and >6 in 7 (8.98%) patients.

No patient with OT-CI ≤ 3 had ovarian torsion on surgical exploration. Only 3 (4.34%) out of total 69 patients with an OT-CI score of 4-6 had ovarian torsion on surgical exploration. Five (71.4%) out of 7 with an OT-CI score of >6 had ovariantorsion. Thus, an OT-CI score of >6 is a strong predictor of ovarian torsion.
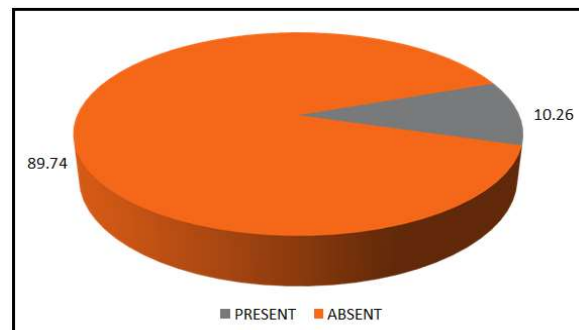
Fig 2: Surgically confirmed ovarian torsion patients

On surgical exploration, ovarian torsion was present in 8 patients (10.26%) out of total 78 patients. There was no ovarian torsion in 70 patients (89.74%) on surgical exploration.

Thus, according to this study, the incidence of ovarian torsion in females with ovarian mass is 10.26%.

Table 6: Distribution of surgically confirmed OT patients according to age

Age (in years)	Surgically confirmed OT	%
<15	0	0
15-49	8	100
>49	0	0

None of the ovarian torsion patients were at extremes of age, that is, < 15 years and >49years.

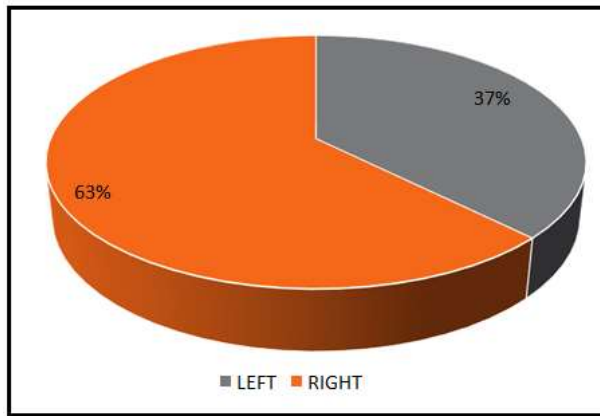All surgically confirmed ovarian torsion patients were in reproductive age group, that is, 15-49 years of age.

Fig 3: Distribution of surgically confirmed OT patients according to laterality

Out of 8, five (63%) surgically confirmed ovarian torsions were on right side and 3torsions were on left side (37%).
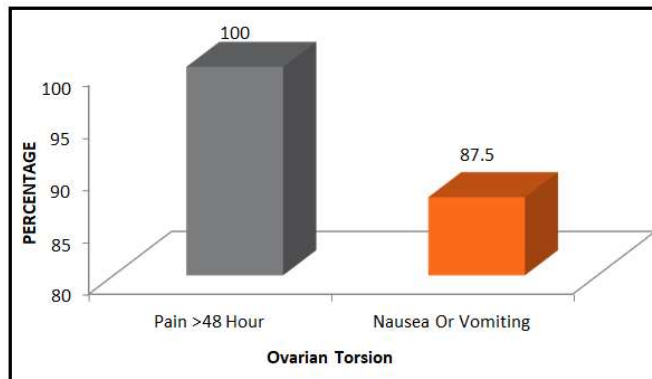

Fig 4: Distribution of surgically confirmed OT patients according to clinical features

All patients found to have ovarian torsion on surgical exploration, had the clinical features of pain for >48 hours preoperatively. Nausea or vomiting was found to beassociated with 87.5% of surgically confirmed ovarian torsion patients.
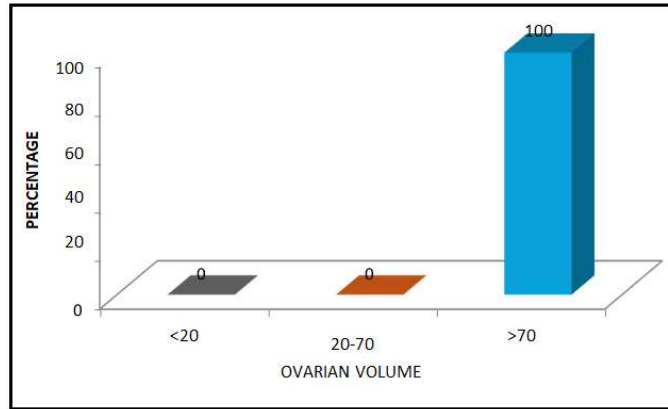
Fig 5: Distribution of surgically confirmed OT patients according to ovarian volume

All surgically confirmed ovarian torsion patients had volume of affected ovary >70ml, thus adding a score of 2 in Ovarian Torsion Composite Index. Thus, higher ovarian volume on ultrasonography is a predictor of ovarian torsion.
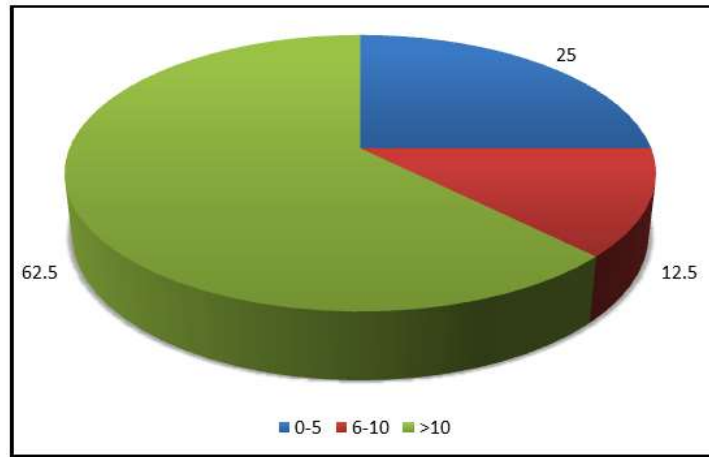

Fig 6: Distribution of surgically confirmed OT patients according to ovarian ratio

Out of 8 surgically confirmed ovarian torsion cases, ovarian ratio was 0-5 in 2 (25%), 6-10 in 1 (12.5%) and >10 in 5 (62.5%) patients.
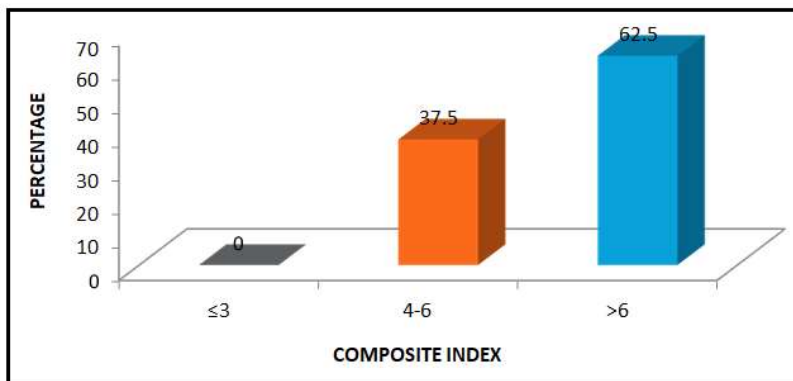Ovarian ratio >10 is thus associated with ovarian torsion on surgical exploration.

Fig 7: Distribution of surgically confirmed OT patients according to OT-CI

Out of total 8 surgically confirmed ovarian torsion patients, no patient had OvarianTorsion Composite Index score 3 or lesser, three (37.5%) patients had a score of 4-6 and five (62.5%) patients had a score of >6.
Thus, an OT-CI score of more than 6 is a strong predictor of ovarian torsion whereasan OT-CI score of 3 or lesser is even better predictor of absence of ovarian torsion.

Table 7: Comparing Sensitivity, Specificity And Accuracy Of Individual Parameters With Total OT-CI Score

INDIVIDUAL PARAMETERS	Sensitivity	Specificity	Accuracy
Duration of pain	100%	2.86%	12.82%
Presence of Nausea or Vomiting	87.5%	95.71%	93.87%
Ovarian Volume	100%	14.29%	23.08%
Ovarian Ratio	29.49%	25.71%	29.49%
Total OT-CI Score	71.43%	97.22%	94.87%

The accuracy of total Ovarian Torsion Composite Index score is higher than that of individual factors.

Table 8: Sensitivity, Specificity And Accuracy For Different OT-CT Scores

OT-CI SCORE	≥1	≥2	≥3	≥4	≥5	≥6	≥7	≥8
Sensitivity (%)	100	100	100	100	100	100	62.5	50
Specificity (%)	0	0	0	2.86	18.57	30.65	98.57	98.57
Accuracy (%)	10.26	10.26	10.26	12.82	26.92	38.57	94.87	93.59

As the OT-CI score increases, its sensitivity for the diagnosis of ovarian torsion decreases whereas the specificity increases. Accuracy is maximum for Ovarian Torsion Composite Index score >6. So, OT-CI score >6 should be considered for surgical exploration to maximize ovarian salvage.

DISCUSSION

The present study was undertaken to assess the role of a practical scoring system hypothesized by combining clinical and radiological parameters, Ovarian Torsion Composite Index in management of ovarian torsion in females presenting with ovarian mass in the Department of Obstetrics and Gynaecology of Assam Medical College and Hospital during the study period. OT-CI can be easilyapplied at any institution, based solely on clinical presentation and sonography findings, without need of any specialized testing or equipment. The present study is the first to apply an ovarian torsion scoring system to females with ovarian mass, irrespective of their age, to predict ovarian torsion preoperatively more accurately. The preoperative diagnosis can guide a surgeon in early intervention and thus preventing permanent sequelae like infertility, peritonitis and thrombophlebitis. It will also minimize unnecessarysurgical intervention in non-ovarian torsion patients. The association of each individual component of Ovarian Torsion Composite Index to ovarian torsion have been discussed in this chapter. In additionto this, the results and observations of the present study have been compared in thelight of available data, information, analysis and observations made by otherworkers in their research work on this topic.
The following parameters are being compared with the research work of otherscientists.
  a) Duration of Pain
  b) Presence of Nausea or vomiting
  c) Ovarian volume
  d) Ovarian ratio
  e) Ovarian Torsion Composite Index

Duration Of Pain

King A et al[1] in 2014 in their study assessing the utility of a composite index for evaluation of ovarian torsion in menarchal pediatric patients,stated that pain duration > 48 hours was associated with ovarian torsion (p=0.023). In a study by Ashwal E et al[6] in 2016 on presentation, diagnosis and treatment of ovarian torsion in premenarchal girls, abdominal pain was presentin 92.3% patients. On the contrary, a study by Fauconnier A et al[7] to develop a simple score for preoperative diagnosis of adnexal torsion in women with acute pelvic pain,stated that pain duration <8 hours at first presentation is associated with adnexal torsion. In our study, all patients having ovarian torsion on surgical exploration had history of pain for > 48 hours on first presentation. Thus, pain for > 48 hours is associated with ovarian torsion.

STUDIES	PAIN DURATION PREDICTIVE OF OVARIAN TORSION
King A et al[1]	Pain duration >48 hours
Fauconnier A et al[7]	Pain duration< 8 hours
Our study	Pain duration > 48 hours

Presence Of Nausea Or Vomiting

According to A Fauconnier et al, approximately, 84% of patients with ovarian torsion on surgical exploration had nausea and vomiting preoperatively.[7] According to Chow JS et al [8], eighty-three percent (83%) ovariantorsion patients had nausea or vomiting. In our study, nausea or vomiting was present preoperatively in 87.5% of ovarian torsion patients.

STUDIES	NAUSEA OR VOMITING
A Fauconnier et al[7]	84%
Chow JS et al[8]	83%
Our study	87.5%

Ovarian Volume

An increased ovarian volume has been reported to be a commonfinding in ovarian torsion. A study by Linam et al describing the ultrasonography findings in adnexal torsion in children and adolescents concluded that an ovarian volume of less than 20 ml is strong evidence against torsion in menarchal girls.[9] King A et al[1] in 2014, in their study, concluded that an affected ovarian volume of greater than 70 ml was associated with the presence of ovarian torsion. In our study, all ovarian torsion patients have affected ovarianvolume >70 ml on ultrasonography. This raised volume can both be the cause and consequence of ovarian torsion.

STUDIES	OVARIAN VOLUME PREDICTIVE OF OVARIAN TORSION
King A et al[1]	>70 ml
Our study	>70 ml

Ovarian Ratio

Ovarian volume ratio accounts for the age dependent and operator dependent variability of ovarian volume by comparing affected ovary to the unaffected ovary. King A et al[1] in 2014, in their study, concluded that an ovarian ratio of <5 was predictive of absence of ovarian torsion and an ovarian ratio of >10 was predictive of presence of ovarian torsion. A study by Stephen J et al[10] in 2020 to identify ultrasonography based predictors of ovarian torsion in premenarchal girls without an adnexal mass concluded that an ovarian volume ratio > 2.5 has high sensitivity and specificity for identifying ovarian torsion in this population. In our study, an ovarian ratio of >10 has been associated with ovariantorsion. However, an ovarian ratio of less than 5 is not associated with absence of ovarian torsion. This finding is probably the result of presence of bilateral ovarian masses in some cases of ovarian torsion. These bilateral ovarian masses have no effect on the volume of affected ovary but affect the ovarian volume ratio as it takesinto account the ratio of affected to unaffected ovary.

STUDIES	OVARIAN RATIO PREDICTIVE OF OVARIAN TORSION
King A et al[1]	>10
Stephen J et al[10]	>2.5
Our study	>10

Ovarian Torsion Composite Index

King A et al[1] 2014 hypothesized Ovarian Torsion Composite Index by combining 4 parameters, that is, 2 clinical and 2 radiological parameters and assessedits utility in evaluation of ovarian torsion. These parameters include Duration of pain, Presence of nausea or vomiting, Ovarian volume and Ovarian volume ratio.OT-CI improves the detection of ovarian torsion over radiographic findings alone by combining these findings with clinical presentation. According to their study, an Ovarian Torsion Composite Index score <3 is strong evidence against ovarian torsion in pediatric menarchal patients.In contrast, scores ≥3 should be considered for surgical exploration.[1] According to our study, an OT-CI ≤3 is strong evidence against ovarian torsion, thus minimizing surgical intervention. On the contrary, an OvarianTorsion Composite Index score of >6 is a strong indicator of

ovarian torsion in patients presenting with ovarian mass, with sensitivity 62.5%, specificity 98.5% and an accuracy of 94.87%. These patients should be considered for surgical exploration for confirmation of diagnosis and early management.

STUDIES	OT-CI PREDICTIVE OF OVARIAN TORSION
King A el al[1]	≥3
Our study	>6

The intermediate OT-CI scores have accuracy ranging from 12.82- 38.57% for diagnosis of ovarian torsion. These scores are thus inconclusive.

The association of higher score, that is, >6 with ovarian torsion in our study, is probably due to the difference in sample population. All the subjects in our study have ovarian mass, resulting in higher ovarian volume and ovarian ratioand thus higher overall score. Since pain is the main complaint that makes patientseek medical consultation, this is also an additional factor responsible for higher scores.

Limitations

Our study sample includes patients with ovarian mass. This may givefalse positive higher scores because of higher ovarian volume and ovarian ratio. Ovarian mass can be the result of many other benign and pathological conditions. Presence of bilateral ovarian masses can result in false negative cases as a result of lower ovarian ratio. OT-CI score gives no consideration to severity of pain. All grades ofpain ranging from mild to most severe result in similar scores, thus reducing the specificity. Ultrasonography is an operator dependent modality, thus there can be an interoperator variability in calculation of ovarian volume. The inclusion of ovarian ratio helps to account for this variability by using unaffected ovarian volume as an internal control.

SUMMARY

The present study was conducted in Department of Obstetrics and Gynaecology, Assam Medical College and Hospital, Dibrugarh from July 2021 to June 2022. A total of 78 females with ovarian mass, irrespective of their age, were included in the study and ovarian torsion was suspected in these patients based on total Ovarian Torsion Composite Index score.

Ovarian Torsion Composite Index is a practical scoring system thatattempts to diagnose ovarian torsion in suspected patients preoperatively. It is feasible, acceptable, reliable, non-invasive, cost effective and readily available approach that combines clinical and basic radiological parameters.

This study was carried out with the aim to determine the diagnosticefficacy of Ovarian Torsion Composite Index in management of ovarian torsion.

The observations of the study can be summarized as follows-

1) Pain duration >48 hours was associated with all cases of ovariantorsion (100% cases).
2) Nausea or vomiting was associated with 87.5% cases of ovariantorsion.
3) Ovarian volume >70 ml was associated with ovarian torsion (100% cases).
4) Ovarian ratio >10 was associated with ovarian torsion (62.5% cases).
5) Higher Ovarian Torsion Composite Index scores were associatedwith ovarian torsion.
6) As the OT-CI scores increases, its sensitivity for the diagnosis ofOT-CI decreases whereas the specificity increases.
7) OT-CI > 6 had maximum accuracy (94.87%) for diagnosis of ovariantorsion in patients with ovarian mass.

CONCLUSION

Ovarian Torsion Composite Index is a simple diagnostic score combining basic clinical and radiological parameters to diagnose ovarian torsion in suspected cases preoperatively. The preoperative diagnosis of ovarian torsion will guide a surgeon in early management of ovarian torsion, thus preventing permanent sequelae like infertility, peritonitis and even death. The accurate preoperative diagnosis will also minimize unnecessary surgical intervention in non ovarian torsion cases. Since no specialized equipment is required to calculate the OT-CI score, this score is suitable for routine use in low resource settings. Further multicenter studies in large number of patients are needed toevaluate and validate the diagnostic performance of this score.

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