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Evaluation of Acute Pelvic Pain in Women of Reproductive Age

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ABSTRACT

Background: *Acute Pelvic pain is defined as pain presenting in lower abdomen /Pelvis which lasts for less than three months duration and is characterized by sudden onset, sharp rise and has short course [1]. Early diagnosis is important because delay in diagnosis enhances risk of mortality and morbidity. Pain abdomen is one of the most common symptoms in patient presenting in gynecology OPD [2,3]. Ectopic pregnancy and torsion of ovarian cyst can present as emergency, it is a life-threatening condition and it also affects the fertility. Ultrasonography is primary choice of imaging due to USG being non-radioactive, harmless and hence can be used in pregnancy. The purpose of this study is to know about the etiological factors of acute pelvic pain because of its associated mortality and morbidity [4].*
Aims & Objectives: *To study the etiological factors of Acute pelvic pain in Reproductive women.*
Methods: *Present study is an Observational study conducted on 100 women of age 18 to 45 years presenting with acute pelvic pain in department of Obstetrics and Gynaecology at ESIC-MC & PGIMSR Hospital, Bangalore over a period of 18 months from January 2020-June 2021.*
Results: *In present study ruptured ectopic pregnancy is seen in 44%, ovarian cyst is seen in 30% of cases, Pelvic inflammatory disease is seen in 14%, ovarian torsion was seen in 12% of cases. In our study surgical management is done in 85% of cases.*
Conclusion: *Acute pelvic pain is the most common complaint in women of reproductive age. Proper history and examination will help for the differential diagnosis. Ultrasound is the choice of imaging modality to diagnose pelvic pathology. Early and accurate diagnosis will enable more effective and conservative management which prevent morbidity and mortality.*
Keywords: *Acute pelvic pain, reproductive age, ectopic pregnancy, ovarian torsion, Pelvic inflammatory disease.*

INTRODUCTION

Acute Pelvic pain is defined as non-specific lower abdominal pain which lasts for less than three months duration. It is the most common symptom that the gynecologist encounter and it requires emergency care. Approximately 1.4 million visits were made in gynecological emergency department annually between the age of 15 to 44 years [5]. Ectopic pregnancy may present as adnexal torsion or pelvic infection which is a life-threatening condition and it can also affect future fertility. Adnexal pathologies are usually significant in patient presenting with acute pelvic pain [6,7,8]. There are many structures in the pelvis among which ovary is most important. Hence prompt diagnosis help in ovary sparing and life saving surgery[9]. Diagnosis may be challenging because many signs and symptoms are nonspecific. Information should be elicited regarding the onset, duration, whether the symptoms are unilateral or bilateral, any aggravating or relieving factors of pain should be obtained[10]. As our top priority, life threatening conditions like ectopic pregnancy, ovarian

cyst and fertility threatening conditions like ovarian torsion and Pelvic inflammatory disease should be considered.
Considering the various organ located in pelvis and abdomen such as gall bladder, appendix cecum, kidney, ureter, uterus, ovaries and fallopian tubes whose pain can be referred to pelvis. We have to consider the disease might origin from these organs [11-18]. According to ACR (American College of Radiology) Transvaginal ultrasound is the modality of choice because of its sensitivity, lack of radiation exposure and cost effectiveness [19].

Aims and Objectives

1) To study the etiological factors of Acute pelvic pain in Reproductive age.
2) To study the outcome in terms of conservative and surgical management.

METHODOLOGY

Materials and Methods

Source of Data and Materials: An Observational study will be conducted on 100 women of age 18 to 45 years with acute pelvic pain in department of Obstetrics and Gynaecology at ESIC-MC & PGIMSR Hospital, Bangalore from January 2020- June 2021

Inclusion Criteria

1) Women of age 18 to 45 years presenting with Acute Pelvic pain (onset of pain with duration less than 3 months).
2) Ectopic pregnancy.
3) Women who are willing to participate in the study. (Annexure I)

Exclusion Criteria

1) Chronic pelvic pain. (onset of pain with duration more than 6 months).
2) Non-Gynaecological causes of acute pelvic pain like appendicitis etc.,
3) Women who are not willing to participate in the study.
4) Acute pelvic pain related to normal pregnancy and post-partum complications (abortion and post-partum endometritis).
5) Abortion is defined as termination of pregnancy before fetal viability.
6) Chronic Endometriosis

Method of Collection of Data

Patients who complaints of Acute pelvic pain in Gynecological OPD are further assessed regarding the age, onset, duration, distribution of pain, accompanying symptoms and other history like sexual, menstrual and social history is taken. A thorough general physical examination, Per Speculum and Per vaginal examination is done. Relevant investigations like CBC, urine routine, LFT, RFT etc. are done. Urine pregnancy test is done to rule out Ectopic pregnancy. USG abdomen and pelvis plays an important role to arrive at diagnosis (as mentioned in Proforma (Annexure II). Patients are divided into reproductive and Perimenopausal age group.

The following causes of Acute Pelvic pain are evaluated:

1) Pelvic Inflammatory disease.
2) Ectopic pregnancy.
3) Torsion of ovaries.
4) Ovarian cyst

Distribution of etiological factors is generated in descending order of frequency.

Duration of the Study: Eighteen months (January 2020 to June 2021)

Type of Study: Observational Study.

Sample Size
Population size (for finite population correction factor or fpc(N) : 1000000
Hypothesizes % frequency of outcome factor in the population (p) : 50%+/-10
Confidence limits as % of 100(absolute +/-%)(d): 10%
Design effect (for Cluster surveys-DEFF): 1

Sample Size(n) for various confidence levels

Confidence Level (%)	Sample Size
95%	100

Sample size **n = [DEFF*Np(1-p)]/[(d2/Z2 1-a/2*(N-1)+p*(1-p)]**
Results from OpenEpi, Version 3, Open-source calculator--SSPropor

Statistical Analysis: Mean, SD, Proportion, range will be calculate using MS Excel

Table 1: Distribution of study subjects based on the age group

		N	%
Age Group	Less than 25 Years	30	30.0%
	Between 25 to 30 years	33	33.0%
	More than 30 years	37	37.0%

Table 2 : Distribution of Mean Age of the study subjects in the present study

	Mean	Standard Deviation
Age	29.57	5.77

In our study the mean age group is 29.57 years.

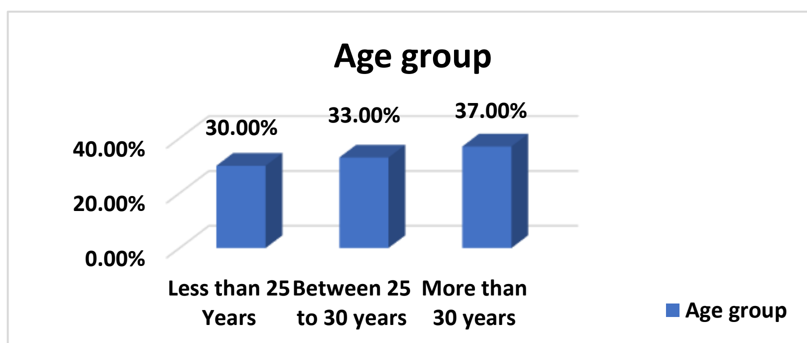

Figure 1: Graph wise distribution of study subjects based on the age group

In our study majority of the patients were in the age group of more than 30 years, seen in 37% of patients.

Table 3: Distribution of study subjects based on the parity

		N	%
Parity	Nulliparous	11	11.0%
	Primiparous	27	27.0%
	Multiparous	62	62.0%

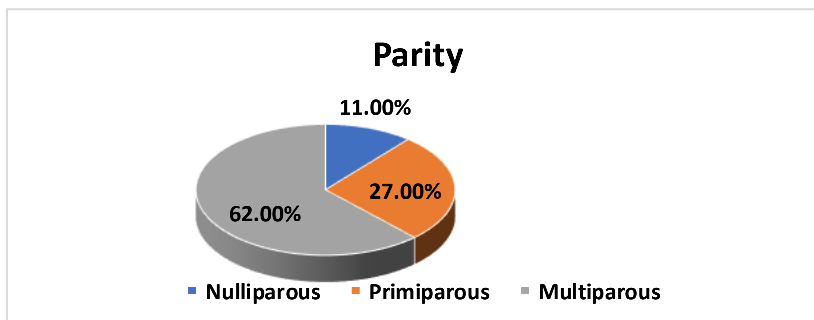

Figure 2: Graph wise distribution of Study subjects based on the parity

In our study majority of the patients were multiparous, constituting 62% of study group.

Table 4: Distribution of study subjects based on the Final Diagnosis

		N	%
Final Diagnosis	Dermoid Cyst	5	5.0%
	Ovarian Torsion	12	12.0%
	PID	14	14.0%
	Ovarian Cyst	25	25.0%
	Tubal Ectopic	44	44.0%

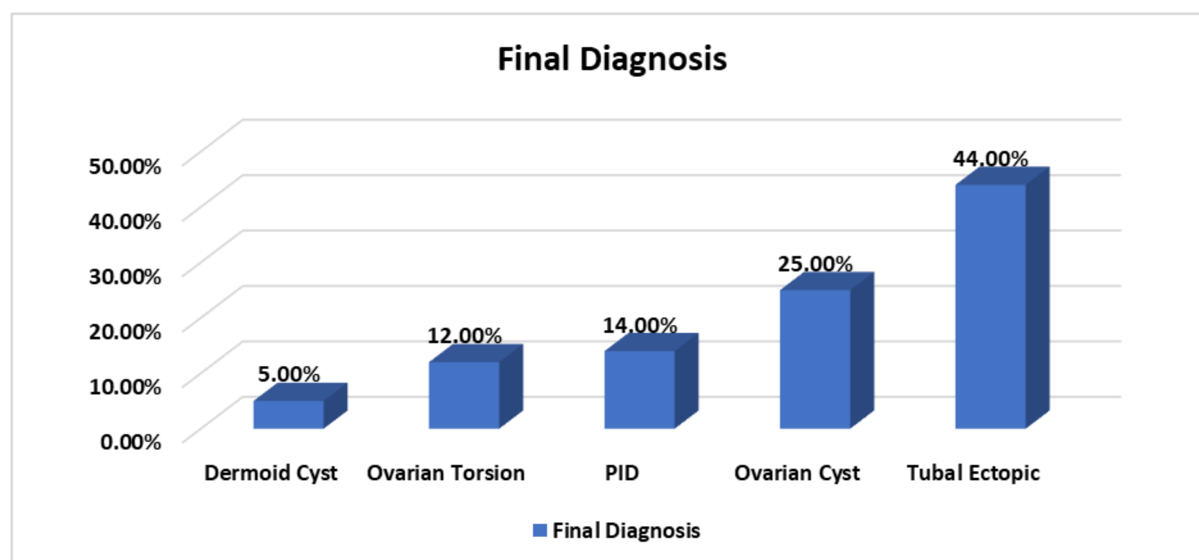

Figure 3: Graph wise distribution of study subjects based on the Final diagnosis

In our study Ectopic pregnancies is seen in 44%, ovarian cysts is seen in 25%, acute PID is seen in 14%, ovarian torsion is seen in 12% and Dermoid cyst was seen in 5% of cases.

Table 5 : Distribution of study subjects based on the Mode of treatment

		N	%
Mode of treatment	Conservative	15	15.0%
	Surgical	85	85.0%

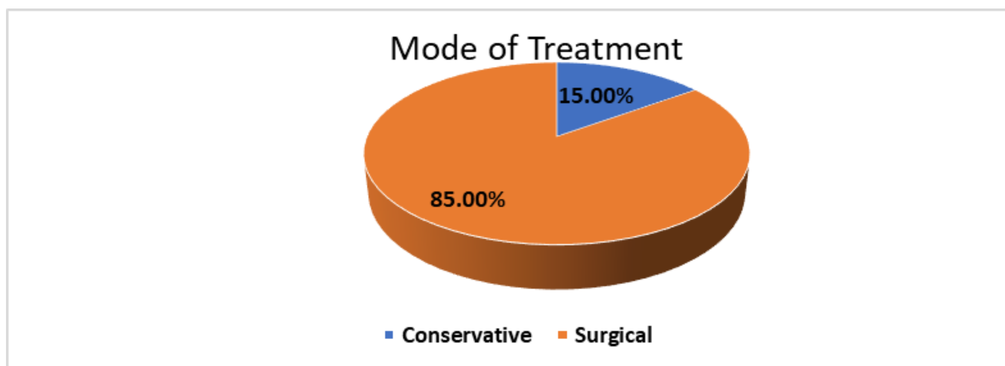

Figure 4: Graph wise distribution of study subjects based on the Mode of treatment

In our study surgical management is done in 85% and conservative management is done in 15%.

Table 6 : Distribution of Study subjects based on the type of Treatment

		N	**%**
Treatment	Resuturing Of Left Corpus Luteal Cyst	1	1.0%
	Salphingo Ophorectomy	11	11.0%
	Conservative	15	15.0%
	Oophorectomy	13	13.0%
	Cystectomy	23	23.0%
	Salphingectomy	37	37.0%

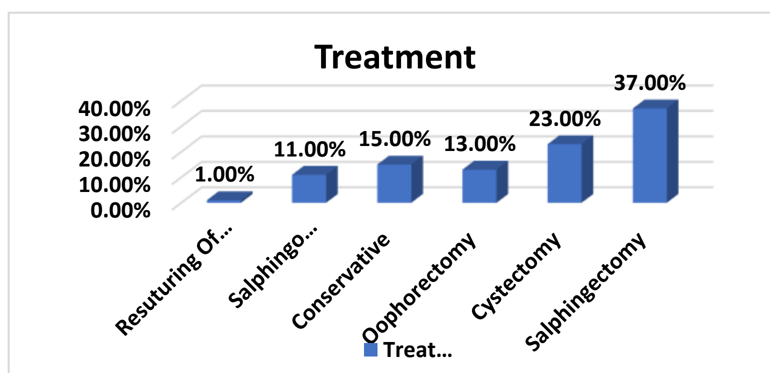

Figure 5: Graph wise distribution of study subjects based on the type of the treatment

In our study salphingectomy is done in 37%, cystectomy is done in 23%, oophorectomy is done in 13%, salphingoophorectomy is done in 11%.

Table 7: Association between Parity and the age group among the study subjects

		Parity					
		Multiparous		Nulliparous		Primiparous	
		N	%	N	%	N	%
Age Group	Less than 25 Years	11	17.7%	7	63.6%	12	44.4%
	Between 25 to 30 years	24	38.7%	3	27.3%	6	22.2%
	More than 30 years	27	43.5%	1	9.1%	9	33.3%

Chi Square = 13.936 p= 0.0058

In the present study the parity of the study subjects was found to be statistically significant association with the age group and the p value was 0.005.

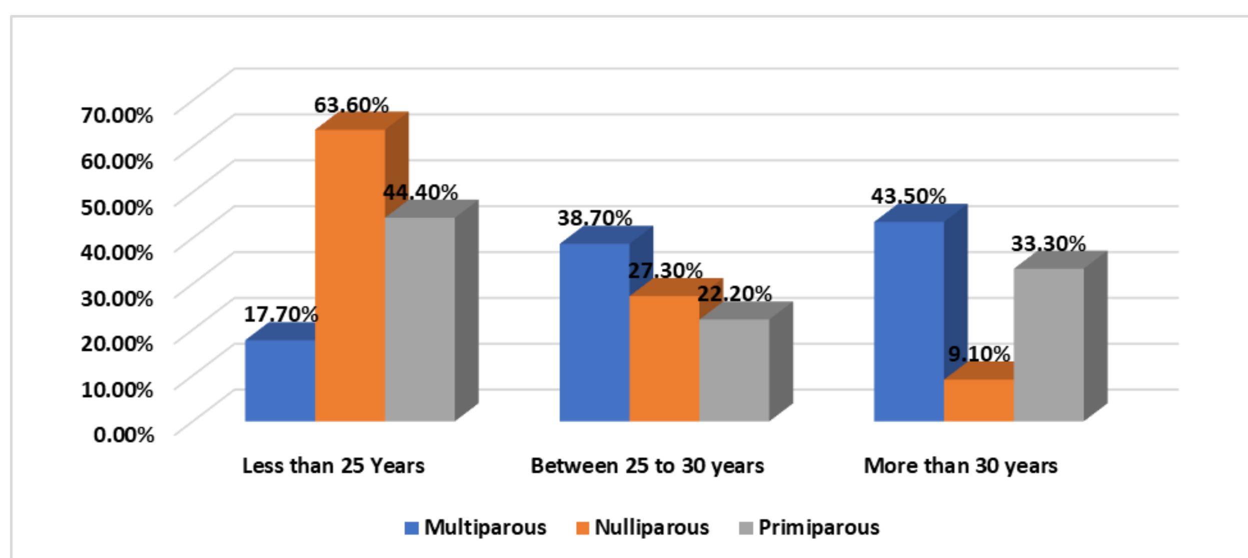

Figure 6 : Graph wise distribution of Parity and the age group among the study subjects

Table 8 : Association of the age group with final Diagnosis among the study subjects

		Final Diagnosis									
		Dermoid Cyst		Ovarian Cyst		Ovarian Torsion		PID		Tubal Ectopic	
		N	%	N	%	N	%	N	%	N	%
Age Group	Less than 25 Years	0	0.0%	6	24.0%	2	16.7%	5	35.7%	17	38.6%
	Between 25 to 30 years	1	20.0%	6	24.0%	4	33.3%	5	35.7%	17	38.6%
	More than 30 years	4	80.0%	13	52.0%	6	50.0%	4	28.6%	10	22.7%

Chi Square = 12.34 p=0.137

In the present study the Age group of the study subjects was found to be statistically insignificant association with the Final Diagnosis and the p value was 0.137.

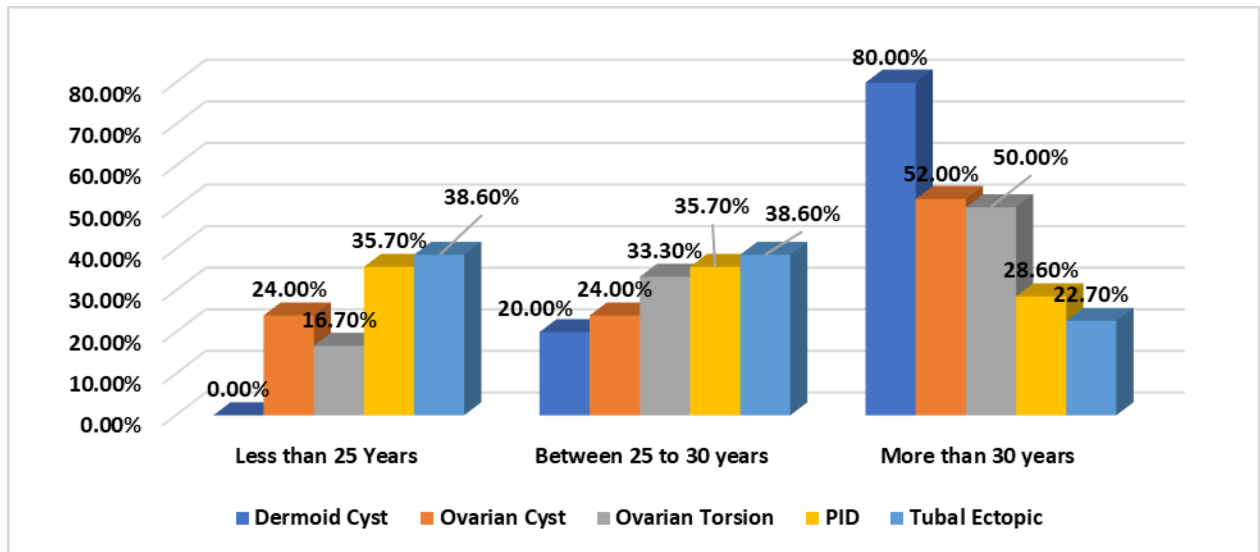

Figure 7: Graph wise distribution of Parity and the age group among the study subjects

Table 9: Association between the Mode of treatment and the age group among the study subjects

		Mode of treatment			
		Conservative		Surgical	
		N	%	N	%
Age Group	Less than 25 Years	5	33.3%	25	29.4%
	Between 25 to 30 years	5	33.3%	28	32.9%
	More than 30 years	5	33.3%	32	37.6%

Chi Square = 0.130 p= 0.937

In the present study the Age group of the study subjects was found to be statistically insignificant association with the mode of the treatment and the p value was 0.937.

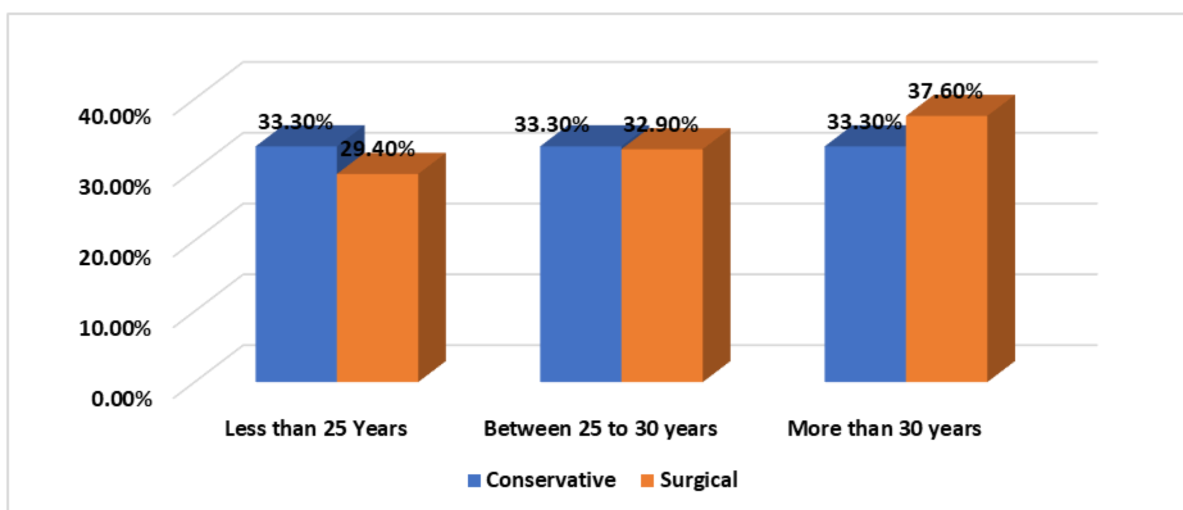

Figure 8 : Graph wise distribution of Mode of treatment and the age group among the study subjects

Table 10 : Association between type of treatment and the age group among the study subjects

		Type of Treatment											
		Conservative		Cystectomy		Oophorectomy		Resuturing Of Left Corpus Luteal Cyst		Salphingectomy		Salphingo Ophorectomy	
		N	%	N	%	N	%	N	%	N	%	N	%
Age Group	Less than 25 Years	5	33.3%	5	21.7%	2	15.4%	0	0.0%	15	40.5%	3	27.3%
	Between 25 to 30 years	5	33.3%	6	26.1%	4	30.8%	1	100.0%	13	35.1%	4	36.4%
	More than 30 years	5	33.3%	12	52.2%	7	53.8%	0	0.0%	9	24.3%	4	36.4%

Chi Square= 9.465 p= 0.489

In the present study the Age group of the study subjects was found to be statistically insignificant association with the Type of the treatment and the p value was 0.489.

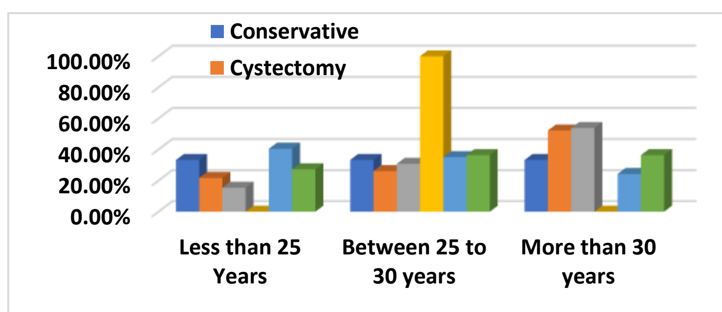

Figure 9 : Graph wise distribution of Type of treatment and the age group among the study subjects

Table 11 : Association between Final Diagnosis and the Parity among the study subjects

		Final Diagnosis									
		Dermoid Cyst		Ovarian Cyst		Ovarian Torsion		PID		Tubal Ectopic	
		N	%	N	%	N	%	N	%	N	%
Parity	Nulliparous	2	40.0%	5	20.0%	1	8.3%	3	21.4%	0	0.0%
	Primiparous	2	40.0%	8	32.0%	2	16.7%	5	35.7%	10	22.7%
	Multiparous	1	20.0%	12	48.0%	9	75.0%	6	42.9%	34	77.3%

Chi Square = 18.698 p= 0.017

In the present study the Parity of the study subjects was found to be statistically significant association with the Final Diagnosis and the p value was 0.017.

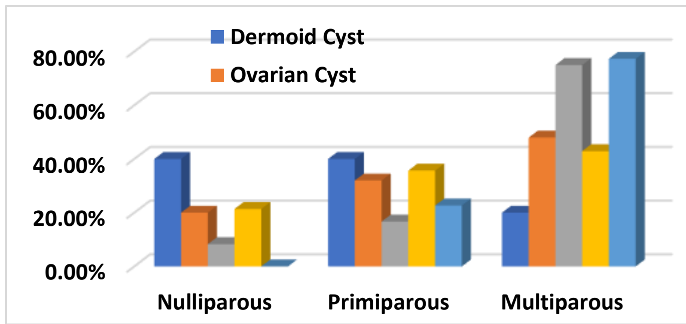

Figure 10: Graph wise distribution of Final Diagnosis and the Parity among the study subjects

Table 12 : Association between Mode of treatment and the Parity among the study subjects

		Mode of treatment			
		Conservative		Surgical	
		Count	Column N %	Count	Column N %
Parity	Nulliparous	3	20.0%	8	9.4%
	Primiparous	5	33.3%	22	25.9%
	Multiparous	7	46.7%	55	64.7%

Chi Square = 2.231 p= 0.328

In the present study the Parity of the study subjects was found to be statistically insignificant association with the Mode of treatment and the p value was 0.328.

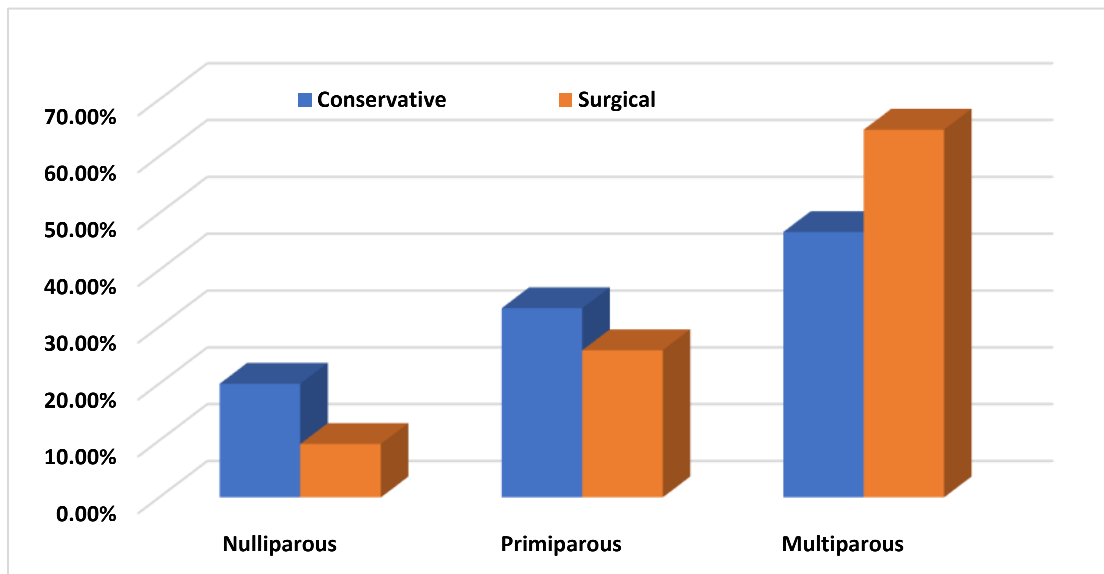

Figure 11 : Graph wise distribution of Mode of Treatment and the Parity among the study subjects

Table 13 : Association between Type of treatment and the Parity among the study subjects

		Treatment											
		Conservative		Cystectomy		Oophorectomy		Resuturing Of Left Corpus Luteal Cyst		Salphingectomy		Salphingo Ophorectomy	
		N	%	N	%	N	%	N	%	N	%	N	%
Parity	Nulliparous	3	20.0%	5	21.7%	2	15.4%	0	0.0%	0	0.0%	1	9.1%
	Primiparous	5	33.3%	9	39.1%	2	15.4%	0	0.0%	9	24.3%	2	18.2%
	Multiparous	7	46.7%	9	39.1%	9	69.2%	1	100.0%	28	75.7%	8	72.7%

Chi Square = 14.94 p= 0.134

In the present study the Parity of the study subjects was found to be statistically insignificant association with the Type of treatment and the p value was 0.134.

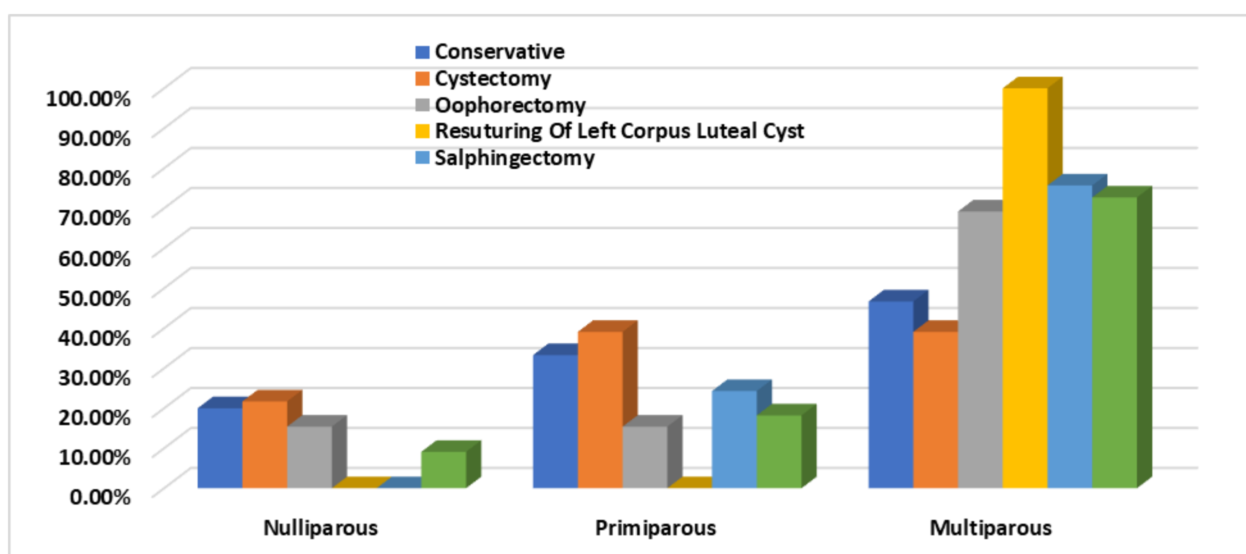

Figure 12 : Graph wise distribution of Type of Treatment and the Parity among the study subjects

DISCUSSION

Acute pelvic pain in defined as non-cyclical lower abdominal or pelvic pain lasting for less than 3 months, usually associated with nausea and vomiting. It is common symptom in women of reproductive age and is often associated with morbidity and even mortality if there is delay in diagnosis.

In present study 30% of patients belong to less than 25 years age group, 33% of patients were in age group between 25 to 30 years and 37% of patients were above 30 years.

In present study the mean age group is 30 years, in study conducted by Sefa Kurt MD et al the mean age group was 29 years which was statistically significant[20].

In our study majority of the patients were multiparous, constituting 62% of study group, 27% were primiparous and 11% were nulliparous.

In present study surgical management was done in 85% of cases, in study conducted by Sefa Kurt MD et al surgical approach was seen in 20% of cases[20].

In present study ruptured ectopic pregnancy constituting 44%. In the study conducted by Kontoravdis, et al [21]. ectopic was seen in 19% of cases and in study conducted by Yenicesu, et al [22]. it was seen in 26.8% of cases, it was seen in 17% in study conducted by Anteby et al.,[23] 9% in study conducted by Gaitan et al,[50] It is a life-threatening condition with risk of upper genital tract infection, previous history of fallopian tube surgeries, assisted reproductive techniques, use of intra uterine devices. Transvaginal scan is a diagnosis of choice for ectopic pregnancy. In USG ectopic appears as an echogenic tubal ring with high velocity, high resistance spectral doppler waveform which may mimic normal corpus leuteal cyst also. Presence of claw sign which is a thin rim of ovarian tissue surrounding the lesion which is atypical sign of corpus leuteal cyst is absent in ectopic pregnancy.
In our study ovarian cyst were the second most common cause of acute pelvic pain which was seen in 30% of cases. In a study conducted by Sefa Kurt MD et al.[20] ovarian cysts was found to the most common cause of acute pelvic pain in their study seen in 41%, in a study by Yenicesu, et al.[22] ovarian cyst was seen in 33% of cases, seen in 12% in study conducted by Morino et al.[24], 27% in study conducted by Anteby et al.[23], 14% in study conducted by Gaitan et al. [25] The cause of pain in ovarian cysts is due to mass effect, stretching of ovarian capsule. Simple ovarian cysts usually resolves if they are less than 5 cm. Only if they are more than 5cm surgical intervention may be necessary if they are not responding to OCP's.

In our study ovarian torsion was seen in 12%. It is fifth most common gynecological emergency, accounts for 3% of acute pelvic pain. In study conducted by Sefa Kurt MD et al.[20] torsion was seen in 6% cases, seen in 10% in study conducted by Anteby et al.[23] The degree of pain in torsion varies from mild to severe, it requires surgical intervention if timely diagnosis and intervention is necessary to preserve vascularity and to prevent ovarian necrosis. Chances of tissue salvage decreases if symptoms persist more than 48 hrs. ovarian torsion is due to partial or complete twisting of the ovary or fallopian tubes along the vascular pedicle which occurs commonly on right side. It is more common on right side due to presence of ceacum which permits ovarian mobility and also due to presence of long pedicle whereas on left side presence of sigmoid colon which inhibits the mobility. Initial stage of twisting of vascular pedicle leads to lymphatic and venous obstruction, if it is not relieved at this point it will progress to compromised arterial flow and necrosis. The twisted vessel within the vascular ovarian pedicle is seen as 'Whirl pool sign' in doppler study.

Pelvic inflammatory disease was seen in 14% in our study. It was seen in 26.8% in study conducted by Sefa Kurt MD et al.[20] and in 22.8 % in study conducted by Kontoravdis, et al.[21]and in 23.2% is study conducted by Yenicesu, et al, [22] seen in 21% of cases in study conducted by Anteby et al, [23] seen in 55% of cases in study conducted by Gaiten et al. [25] seen in 19% of cases in study conducted by Morino et al, [24] .According to study conducted by Paveletic et al. he found that 40% of patient had infertility post PID. It is a most common sexually transmitted infection in reproductive age group, most common organisms are chlamydia and gonorrhea. Patients with mild symptoms of PID can be managed on outpatient basis. Severe form of PID needs hospital admission. Ultrasound is useful to know the impact of PID on future fertility. Tubo ovarian complex is due to progress of ascending infection which is a term used when tubes and ovary are discernible as separate structure within the inflammatory mass. On ultrasound fluid and gas is seen distending the endometrial cavity in

case of endometritis. Heterogenous thickening, increased vascularity, indistinctness of endometrial stripe is also noted, doppler shows low resistance vascularity within the endometrium. Thickening of fallopian tubes with incomplete sepatea, distension with fluid and increased vascularity may be seen. Multiple fluid-fluid level with echogenic debris on dilated tubes is seen in pyosalphinx. 'Cog wheel sign' which shows echogenic edematous walls and echogenic mucosal folds indicating dilated and acutely inflamed fallopian tubes seen in cross section.[26] Tubo ovarian abscess are most commonly seen bilaterally if not treated it will progress to pelvic abscess where it needs emergency intervention.

CONCLUSION

Pelvic pain is the most common complaint in women of reproductive age. Proper history and examination will help for the differential diagnosis of acute pelvic pain. Ultrasound is the choice of imaging modality to diagnose pelvic pathology. Early and accurate diagnosis will enable more effective and conservative management which prevent morbidity and mortality. Early surgical intervention to be done whenever necessary to have a good outcome. Primary and secondary prevention methods have to be adopted to prevent complications of Pelvic inflammatory disease. Primary prevention is done by providing sex education to avoid risky sexual behaviour, use of barrier method of contraception. Secondary prevention is by screening of Chlamydia when the organism is still confined to epithelium and treating it to prevent ascending infection.

REFERENCES

1) Berek JS, Novak E. Berek and Novak's Gynecology Jonathan.S.Berek. 15th edition. Philadelphia: Lipincott Williams and Wilkins; 2007. 867,870.
2) Walker JW. Abdominal and pelvic pain. Emerg Med Clin North Am. 1987; 5: 425 – 428
3) Yenicesu C, Imir G, Cetin M et al. Evaluation of the treatment modalities and hospitalization period in patients with acute pelvic pain related to adnexal pathologies. CU Journal of Medicine. 2008;30(1): 1-7.
4) Kurts, et al. Acute Pelvic pain : Evaluation of 503 cases. Arch Iran Med 2013; 16(7):397-400.
5) Curtis KM, et al. Visits to emergency departments for gynecologic disorders in the United States, 1992-1994. Obstet Gynecol. 1998 Jun;91(6):1007–12.
6) Vandermeer FQ, Wong-You-Cheong JJ. Imaging of acute pelvic pain. Clin Obstet Gynecol. 2009; 52(1): 2 – 20.
7) Kruszka PS, Kruszka SJ. Evaluation of acute pelvic pain in women. Am Fam Physician. 2010; 82(2): 141 – 147.
8) Cuevas C, Dubinsky TJ. Imaging evaluation of acute pelvic pain in reproductive age: what is the best study? Ultrasound Q. 2011; 27(3): 211 – 213.
9) Samraj GP, Curry RW Jr. Acute pelvic pain: evaluation and management. Compr Ther. 2004;30(3):173–84.
10) Tarun M, et al. The acute abdomen with recent advances. CÜ Journal of Medicine. 2002; 24(1): 45 – 52.
11) Vandermeer FQ, Wong-You-Cheong JJ. Imaging of acute pelvic pain. Clin Obstet Gynecol. 2009 Mar;52(1):2–20.
12) Laméris W, et al.; OPTIMA study group. Imaging strategies for detection of urgent conditions in patients with acute abdominal pain: diagnostic accuracy study. BMJ. 2009 Jun;338 jun26 2:b2431.

13) Yamamoto W, et al. The relationship between abdominal pain regions and specific diseases: an epidemiologic approach to clinical practice. J Epidemiol. 1997 Mar;7(1):27–32.
14) Heikkinen M, et al. GPs' ability to diagnose dyspepsia based only on physical examination and patient history. Scand J Prim Health Care. 2000 Jun;18(2):99–104.
15) Thomson AB, et al. The prevalence of clinically significant endoscopic findings in primary care patients with uninvestigated dyspepsia: the Canadian Adult Dyspepsia Empiric Treatment - Prompt Endoscopy (CADET-PE) study. Aliment Pharmacol Ther. 2003 Jun;17(12):1481–91.
16) Böhner H, et al. Simple data from history and physical examination help to exclude bowel obstruction and to avoid radiographic studies in patients with acute abdominal pain. Eur J Surg. 1998 Oct;164(10):777–84.
17) Eskelinen M, Ikonen J, Lipponen P. Usefulness of history-taking, physical examination and diagnostic scoring in acute renal colic. Eur Urol. 1998 Dec;34(6):467–73.
18) Trowbridge RL, Rutkowski NK, Shojania KG. Does this patient have acute cholecystitis? JAMA. 2003 Jan;289(1):80–6.
19) Tan BP, Ong CL. Ultrasonographical diagnosis of acute gynecological pain. Singapore Med J. 2008; 49(6): 511.
20) Kurt S, Uyar et. al. Acute pelvic pain: Evaluation of 503 cases. Arch Iran Med. 2013;16(7):397-400.
21) Kontoravdis A,et al. The diagnostic value of laparoscopy in 2365 patients with acute and chronic pelvic pain. Int J Gynaecol Obstet. 1996;52(3):243-248.
22) Yenicesu C, Imir G,Cetin M, Kucukozkan T. Evaluation of the treatment modalities and hospitalization period in patients with acute pelvic pain related to adnexal pathologies. CÜ Journal of Medicine. 2008; 30(1): 1 – 7.
23) Anteby SO, Schenker JG, Polishuk WZ. The value of laparoscopy in acute pelvic pain. Ann Surg. 1975;181(4):484-486.
24) Morino M,et al. Acute nonspecific abdominal pain: A randomized, controlled trial comparing early laparoscopy versus clinical observation. Ann Surg. 2006;244(6):881.
25) Gaitán H et. Laparoscopic diagnosis of acute lower abdominal pain in women of reproductive age. Int J Gynaecol Obstet. 2002;76(2):149-1.
26) Romosan G, Valentin L. The sensitivity and specificity of transvaginal ultrasound with regard to acute inflammatory disease:" a review of the literature. Arch Gynecol Obstet 2014;289(4):705-14.